

Generating Trust via Corporate Reputation

Markus Renner

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**The Influence of Pharmaceutical Companies'
Reputations on the Recommendation Behaviors
of Physicians and Patient Organizations**

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This book is dedicated to Barbara and Paul-Leonhard.

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Abbreviations

AMAC	America's Most Admired Companies	e.V.	eingetragener Verein [registered association]
AMOS	Analysis of Moment Structures	f ²	Effect size
AVE	Average variance extracted	FIN	Business performance
BP	Business performance	FL	Factor loading
CA	California	FR	Factor reliability
CEO	Chief Executive Officer	i.e.	id est
Co.	Company	ibid.	ibidem
CRM	Customer Relationship Management	IL	Illinois
CSR	Corporate Social Responsibility	Ind.	Indicator
CT	Connecticut	IN	Innovativeness
DAX	Deutscher Aktien Index	LISREL	Linear Structural Relationship Model
EA	Employer attractiveness	LVPLS	Latent Variable Partial Least Square
EBP	Ethical business practice	M&A	Mergers and Acquisitions
e.g.	for example	MA	Massachusetts
et al.	et alii	MN	Minnesota
		MQ	Management quality
		MSE	Marketing and sales effectiveness
		n	Number
		NGO	Non-Government Organization

Abbreviations

NJ	New Jersey	TRA	Theory of Reasoned Action
No.	Number		
NY	New York	TV	Television
OH	Ohio	US	United States
ORS	Overall Reputation Score	USA	United States of America
p	Probability	vfa	Verband forschender Arzneimittelhersteller
PLS	Partial Least Squares		
PO	Patient organization	VIF	Varianz Inflation Factor
QPS	Quality of products and services	Vol.	Volume
Q ²	Prognosis relevance	WMAC	World's Most Admired Companies
R ²	Regression coefficient		
RepTrak	Reputation Tracking		
RQ	Reputation quotient		
SARF	Social Amplification of Risk Framework		
S-O-R	Stimulus-Organism-Response		
SXT	Social Exchange Theory		
ta	Trustful attitude		
tbi	Trustful behavioral intention		
TPB	Theory of Planned Behavior		
TR	Transparency		

A Introduction

As Germany's research-driven pharmaceutical companies¹ have been advertising for the last several years, "research is the best medicine". In television commercials and advertisements, Germany's Association of Research-Based Pharmaceutical Companies (vfa) shows examples of how modern medications can alleviate suffering in diseases such as diabetes, rheumatism, multiple sclerosis or cancer.

Ongoing research brings new prescription medications to the market containing new or improved active ingredients. This is good news not only for patients, but for pharmaceutical companies as well, who generate by far the largest portion of their sales and profit through prescription medication. Particularly profitable are products that can be used for long-term medication, since they secure a long-lasting stream of revenue for the companies.

Yet, how can a hypertension patient be sure that a new medication promising better relief and less side effects than established products will also be safe long-term for him or her personally. Of course, all medications are extensively tested and checked according to stringent legal requirements prior to market launch. However, there is always the residual risk of considerable, sometimes fatal, side effects. When taking medications, the patient thus finds himself in a situation in which he is especially risk prone. Patients with chronic or life-threatening diseases intensively discuss this risk with their physicians and/or representatives from patient organizations² specializing in the particular diseases.

¹ The terms "pharmaceutical company" and "pharmaceutical corporation" are used interchangeably to denote globally active companies from the pharmaceutical industry.

² Patient organizations – such as *American Cancer Society* – are generally nonprofit

This process does not reduce the risk, yet only cedes the assessment of risk to experts who patients trust. In risky situations, trust is a decision criterion (Luhmann 1989) that is of central importance in the present pharmaceutical context, since medications constitute trust-based goods (Hsieh, Chiu & Chiang 2005).

Trust-based goods are products and services in which the value or usefulness of the product is observable neither *ex ante* nor *ex post*, thereby requiring the consumer to trust the statements of a third party (Lancaster 1966). This paper devotes itself to the realization of trust in pharmaceutical companies and thereby indirectly in the medications they produce, where explanations are focused on the role of pharmaceutical companies' reputations in generating trust among the central stakeholders. Trust, in the context of this study, is not analyzed as a purpose unto itself, but rather as it relates to the concrete goal of medication sales. Trust serves to make an impact on the willingness to take or continue recommending the medications of the company in question.

1 Specification of topic

“Being alive means seeking opportunities and taking risks, For people living in modern society at the beginning of the twenty-first century, being alive means grappling with a complex and growing array of risks to the well-being of humans and the natural environ-

and inform, advise and represent patients directly or their interests with regard to specific therapeutic areas (e.g. oncology) to third parties. In the US, the term “patient advocacy group” is frequently used as a synonym for patient organization. For the sake of clarity and brevity, the author shall use the term patient organizations throughout this dissertation to also mean the individual members and representatives of patient organizations (and patient advocacy groups), which are also the subject matter of the empirical study in Chapter D.

ment. It also means increasing concern for how these risks are understood and managed” (McDaniels & Small 2004, p. 3).

Risk is an everyday phenomenon that at first approximation can be qualified as being linked with negative consequences: “... risk is technically defined as the possibility of suffering harm from hazard” (Cohrssen & Covello 1999, p. 7). The possibility of becoming the victim of negative consequences of any form is measured by the probability at which this event occurs. Thus a further characteristic of risk is the uncertainty as to whether the negative consequences commonly connected with a “risk” arrive (Ferner 1992).

While risks are present in all areas of life, this term is very frequently encountered especially in the medical-pharmaceutical context. For example, it is possible to calculate the probability of dying from AIDS. Pre-implementation diagnostics are also connected to a risk, even though they are used as a means for preventing genetic defects in in-vitro fertilization. Medications have the potential to improve patient lives on one hand by curing disease or noticeably reducing their effects. On the other hand, medications also involve the risk of inducing adverse side effects and interactions or, in extreme cases, being fatal.

This is especially true for prescription medications, also known as ethical medications, for treating life-threatening or chronic diseases. For both types of medication, individual importance and thus risk are rather high on account of diseases often having a life-threatening quality or entailing consequences that worsen the quality of life.

Incidents such as death resulting from Bayer’s cholesterol-lowering medication *Baycol/Lipobay* and Merck & Co’s pain medication *Vioxx* are just a few of the most high-profile examples from recent years that damaged the reputation of the pharmaceutical manufacturing industry and rattled consumers’, patients’ and physicians’ trust in pharmaceutical companies (Santoro & Gorrie 2005; Clare 2003).

The introduction of Grünenthal's sleep aid, *Contergan*, on the German market in 1957 furthermore drastically illustrates that adverse side effects sometimes do not appear until long after the drug is taken or treatment is started. The fact that medications involve an inherent risk additionally creates uncertainty as well as distrust toward pharmaceutical companies – and separates the pharmaceuticals sector from most other industries, which are perceived as significantly less risk-prone.

For physicians, patient organizations and, above all, the patients themselves, there is the fundamental question whether medications cure sick patients, alleviate their diseases as well as improve the living conditions of chronically ill patients or whether adverse and unforeseeable side effects and interactions with different active substances actually worsen the state of the patient's health.

Such an assessment of a situation depends on certain aspects of the person such as experiences, personality features, goals or attitudes. Attitudes can solidify into a multitude of cognitive and affective tendencies that span across the entire gamut of human assessments (Rosenberg & Hovland 1960). At the negative end are prejudices, for example, while esteem and trust occupy the positive end.

Trust – even in pharmaceutical corporations – involves what Luhmann identifies as the “assumption of a risk” (Luhmann 1989, page 93). When faced with risky situations (in this case the perceived deficient effectiveness or unknown or disproportionate side effects and interactions of the medication) physicians and members of patient organizations can choose to either trust the providers and their products or distrust them and choose an alternative manner of dealing with the disease (Luhmann 1989). In Luhmann's view, where the importance of trust rises with the risk entailed by a decision to be made (Luhmann 1989), trust plays a central role in the relationship between pharmaceutical corporations and patients.

But how can pharmaceutical companies gain the trust of patients? Assessing the quality and risk as well as weighing the costs and benefits of prescription medications is just as challenging as complex and can generally be undertaken only by experts. Particularly in situations where risks are hidden and patients are uncertain, it is preferable that third party information be consulted to render a judgment.

In this specific case, these third parties include physicians and members of patient organizations, specializing in the particular areas of indication and having appropriate experience dealing with disease and medications. Affected patients thus generally consult these two specialist groups when advice and therapy are needed for serious diseases (see also Figure 2 in the next section). This fact makes physicians and members of patient organization central stakeholder groups³ of pharmaceuticals manufacturers.

Pharmaceutical producers should thus be highly interested in physicians as well as patient organizations having a positive – trustful – attitude toward them to make these parties more likely to further recommend the medications to their patients or members, i.e. to act in the manufacturers' interests. This postulate forms the basis of this paper: The aim is to examine how the reputation of pharmaceutical companies can influence the attitudes (more precisely, trustful attitudes) of stakeholders in such a manner that they act in the interests of these companies, i.e. manifest trustful behavioral intentions.

³ Literature contains various broad definitions of the concept "stakeholder". This dissertation adopts Freeman's commonly employed definition: "Any group or individual who can affect or is affected by the achievement of the firm's objectives" (Freeman 1984, p. 25).

2 Statement of problem

In the economy in general and the pharmaceutical industry in particular the term trust has obtained the status of a “difficult to imitate competitive advantage” (Seifert 2001). The corporate slogan communicated by the United States-based pharmaceutical corporation Schering-Plough “To Earn Trust, Every Day” presented in Figure 1 must also be viewed in this context:

Figure 1: Schering-Plough’s homepage



Source: www.schering.com⁴.

The company publicly acknowledges that all actions on the part of its employees must serve to generate or maintain trust among its stakeholders. If one examines the possible background of this type of corporate communication, the obvious assumption would be that the corporation aims to paint a positive picture of itself – more specifically, if trust were

⁴ The company was acquired by the US company Merck & Co in 2009.

to actually result through this communication, it would increase the likelihood of the communication audience assuming risks as expressed by Luhmann.

With regard to this generating of trust, results from marketing research can be consulted that may offer important insights into the mechanisms of generating trust (Einwiller 2003). Various publications suggest that one's own experience and own knowledge in particular generate trust (e.g. Kennedy, Ferrell & LeClair 2001). If such knowledge does not exist or it is highly difficult to evaluate the product, consumers resort to other information, such as the reputation of the provider, for example, which they obtain from their social environment (ibid.)

In this context, Regan and Fazio (1977) have shown that experiences with attitude-related objects, i.e. experiences with pharmaceutical corporations, generate attitudes that are simultaneously also suitable determinants when it is necessary to anticipate future behavior patterns (Fazio & Zanna 1981). The reception of corporate communication and opinions of others regarding the company is an experience that should follow positive (and trustful) attitudes regarding the sender as defined thereby. It is thus argued that companies can achieve a positive reputation⁵, for their company through targeted and systematic measures (Helm 2007a, p. 238).

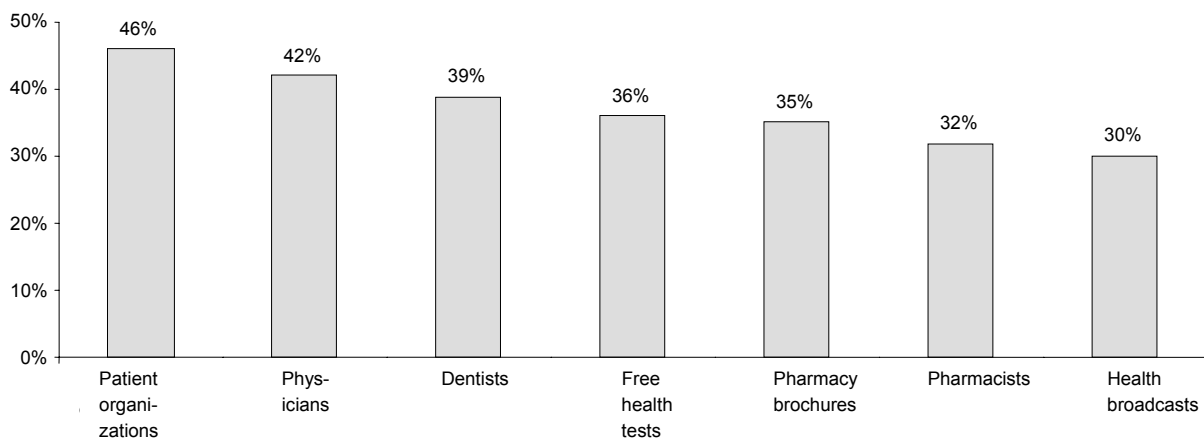
Communication between pharmaceutical corporations and stakeholders aimed at gaining or maintaining the latter's trust is thus highly relevant even if reputation does not originate from communication measures alone (Gotsi & Wilson 2001). This is particularly true in markets where direct, patient-oriented advertisement (outside specialized circles) of

⁵ Whenever this dissertation discusses reputation, it always means the reputation of companies, i.e. corporate reputation. For the sake of stylistic variety and brevity, the two terms are used synonymously here.

prescription medication is prohibited such as in Germany, France, Italy, Spain⁶ as well as all other member states of the European Union.

From this restriction and in connection with the high degree of complexity of the medication process, it can be assumed that patients turn to experts when they are uncertain about taking a medication and at the same time highly value the opinion of these experts. A survey conducted among 9,861 consumers in Germany in 2005 indicates which experts patients seek: When information is needed on diseases and possible therapy options, patient organizations and physicians, as remarked in the preceding section, are the two most important points of contact as Figure 2 illustrates:

Figure 2: Most important points of contact for patients



Source: Own graph based on Reader's Digest (2005).

⁶ These four countries are mentioned, since the empirical survey of stakeholders for the present study was conducted there (see D 2). These four markets were selected for their relative homogeneousness: They are among Europe's top five pharmaceutical markets in terms of sales and are characterized by comparable national health systems (Business Monitor International 2008a, 2008b, 2008c und 2008d).

Both groups are well informed on specific diseases and the various medications available for the treatment thereof and are in close contact with patients. Pharmaceutical corporations thus critically depend on the behavior of physicians and patient organizations, since they either prescribe/recommend their medications or they do not.

Nevertheless, the outward oriented marketing activities in the pharmaceutical industry heavily focus on products. In contrast, pharmaceutical corporations invest proportionally little resources in trust-building measures for boosting the reputation of their business, which researches, develops, produces and distributes the products (Schürmann 2006).

This course of action is noteworthy amid the background of studies showing that persons' assessments regarding companies, also known as "corporate associations" (Brown & Dacin 1997), can influence consumer attitudes and their behavior. It is thus a mystery why many companies do not actively manage their reputation (Schürmann 2006, p. 51 ff.), particularly since it has been demonstrated that reputation increases the customers' trust:

"customers are more likely to perceive companies with good reputations by several interrelated features—credibility, reliability, responsibility, and trustworthiness ... which can enhance customers' expectation of corporate capability in providing excellent products or services" (Keh & Yie 2009, p. 734).

This is significant particularly where trust-based goods such as pharmaceuticals are involved, since these goods feature barely any search attributes on the basis of which a consumer could gain insight into quality even before utilizing the service. In the specific case of taking medications even an ex-post assessment of the product can sometimes be difficult, since the patients generally do not have reference values at their disposal and medications can occasionally have serious side effects that diminish the patient's perceived effectiveness (Bachinger, Kolk & Smets 2009).

Because of this lack of knowledge, patients rely on consulting physicians and patient organizations. Examination of their level of knowledge, however, reveals that they themselves cannot have complete information since medications can exhibit widely varying effects in patients owing to complex individual metabolism (Mechanic & Meyer 2000). In addition, adverse side effects are occasionally not visible until long after the medication has been taken, thus giving trust in the company and thereby its reputation a central role from the perspective of the stakeholders.

Amid this background, “physicians” and “patient organizations” as central stakeholders (and thus givers of trust) present themselves as object of examination at this point, since they are fundamentally better informed compared to patients on diseases and pharmaceuticals, have authoritative influence on patients and thereby perform a decisive function in pharmaceutical product sales.

Because reputation plays such an important role in the success of a company’s products, facilitated by the trust generated by the corporate reputation and the resulting willingness to act in the interests of the company, it is no wonder that there is a multitude of scientific and practice-oriented publications that deal with this topic (Rindova, Williamson, Petkova & Sever 2005). These publications come from various disciplines, particularly marketing (Brown, Dacin, Pratt & Whetten 2006), psychology (Brooks, Highhouse, Russell & Mohr 2003), strategic human resource management (Cable & Graham 2000) as well as business management (Rindova et al. 2005).

These publications can be summarized as follows: On the one hand, there are only limited scientifically based empirical studies on the relationship between trust and the corporate reputation, as Andreassen and Lindestad (1998) establish. The interdisciplinary nature of the research work also results in the fact that “[s]cholars working from different theoretical perspectives, however, differ in their explanations of how reputation reduces stakeholder uncertainty” (Rindova et al. 2005, p. 1033).

However, the conceptualization of reputation and its impacts is inconsistent overall.

While different research work has made an important contribution by demonstrating the existence of the connection between reputation and trust (e.g. Einwiller 2003), there has been no scientific examination of the interdependence for the pharmaceutical context. In addition, there remains a certain degree of non-specificity of the reputation construct and the operationalization thereof.

Pieces published in the popular media, such as Fortune's "World's Most Admired Companies" or "Image Profile" from Germany's "Manager Magazin", which study various reputation attributes, contribute to solidifying the reputation construct. There are also similar scientifically-based pieces (Walsh 2004; Helm 2007b) that assume a multitude of reputation attributes: "corporate reputations can be viewed as social constructions created from the multiplicity of evaluations rendered by specialized evaluators, public observers and media amplifiers" (Fombrun 2007, p. 144).

However, most studies assume identical quantity and quality of reputation attributes for all industries. This disregards the fact that the individual attributes and the importance thereof could vary significantly from industry to industry as well as from stakeholder group to stakeholder group (see Helm 2007a; Fombrun, Gardberg & Server 2000a). There is not a corresponding study that operationalizes the possible varying relevance of reputation attributes specifically for the different stakeholder groups of the pharmaceuticals industry and empirically verifies them using a corresponding scientific model.

It can be held that the connection between the "corporate associations" deemed as relevant by Brown and Dacin (1997) – which can be understood in this context as building blocks of reputation – and the trust of expert groups such as physicians and patient organizations is vastly unclear in pharmaceutical companies. The connection in the interaction be-

tween reputation and trust behavior, i.e. for example the effect of reputation and trust on concrete recommendation behavior, has not been studied in the pharmaceutical context to date.

As argued in the introduction, the high practical relevance and minor scientific penetration of the topic necessitates a deepened scientific examination of the connection between corporate reputation and trust in the pharmaceuticals context. This dissertation seeks to take on this academic void and transform the problem presented into the **comprehensive research question**, specifically: *Which aspects constitute the reputation of a pharmaceutical company and which impacts do they have on stakeholders' trust and their intentions to act in the interests of the pharmaceutical company.*

3 Research questions and course of research

To scientifically examine the aforementioned problem, it is first necessary to specify reputation, i.e. to clarify which elements constitute the reputation of pharmaceutical corporations (1st research question). As Chapter C and D describe in detail, corporate reputation is a latent construct, the empirically reliable and valid measurement thereof requires a theoretically-based derivation as well as putting the contents in concrete terms and establishing dimensionality (conceptualization) as well as developing a suitable measurement tool (operationalization) (see Homburg 1995).

To derive the effect relationship between corporate reputation and stakeholder's trust, it must be defined which are the relevant properties of the particular stakeholder's trust, more specifically, how stakeholders' trust in pharmaceutical corporations can be conceptualized and measured (2nd research question).

Finally, hypotheses on the quality and effect of individual factors must be established for all conceptualizations on the basis of theoretical derivations, which can then be empirically verified. With regard to interde-

dependencies, the influence of corporate reputation on stakeholders' trustful behavioral intentions is of central importance (3rd research question).

Amid this background, this dissertation pursues the goal of making a theoretically-guided, hypotheses-testing contribution to the empirical identification and measurement of aspects of corporate reputation and the influence thereof on stakeholders' trust and behavioral intentions in a pharmaceutical context. This dissertation attempts to demonstrate, from theoretical and empirical perspectives, the connections between trust and reputation specifically as they relate to pharmaceutical companies as well as identify the relevant dimensions of reputation and any differences in the importance thereof for overall reputation.

From a methodical perspective, a measurement model shall be developed within the framework of this dissertation that, on one hand, takes into consideration those factors that are critical for physicians and patient organizations, since they represent the central stakeholder groups for pharmaceutical companies as argued in the preceding section. On the other hand, it is necessary to identify and incorporate those indicators that are meaningful for pharmaceutical corporations with regard to their relationships with physicians and patient organizations.

Starting from the research questions presented, this dissertation shall attempt to theoretically derive a system of different effect relationships in a model and then empirically verify the system. Because the connections of the latent constructs of reputation, trust and behavioral intention are complex, structural equation modeling lends itself to the study.

On the basis of the initially presented starting situation for the study and the concrete presentation of the problem of the dissertation (Chapter A), the three relevant constructs of reputation, trust and behavioral intention are examined more closely in Chapter B. For this purpose, the necessity and impact of trust are illustrated in the company-stakeholder relationship examined along with risk in B 1. B 2 explores the construct of trust

in depth. Finally, the suitability of company reputation as a determinant of trust is illuminated (B 3).

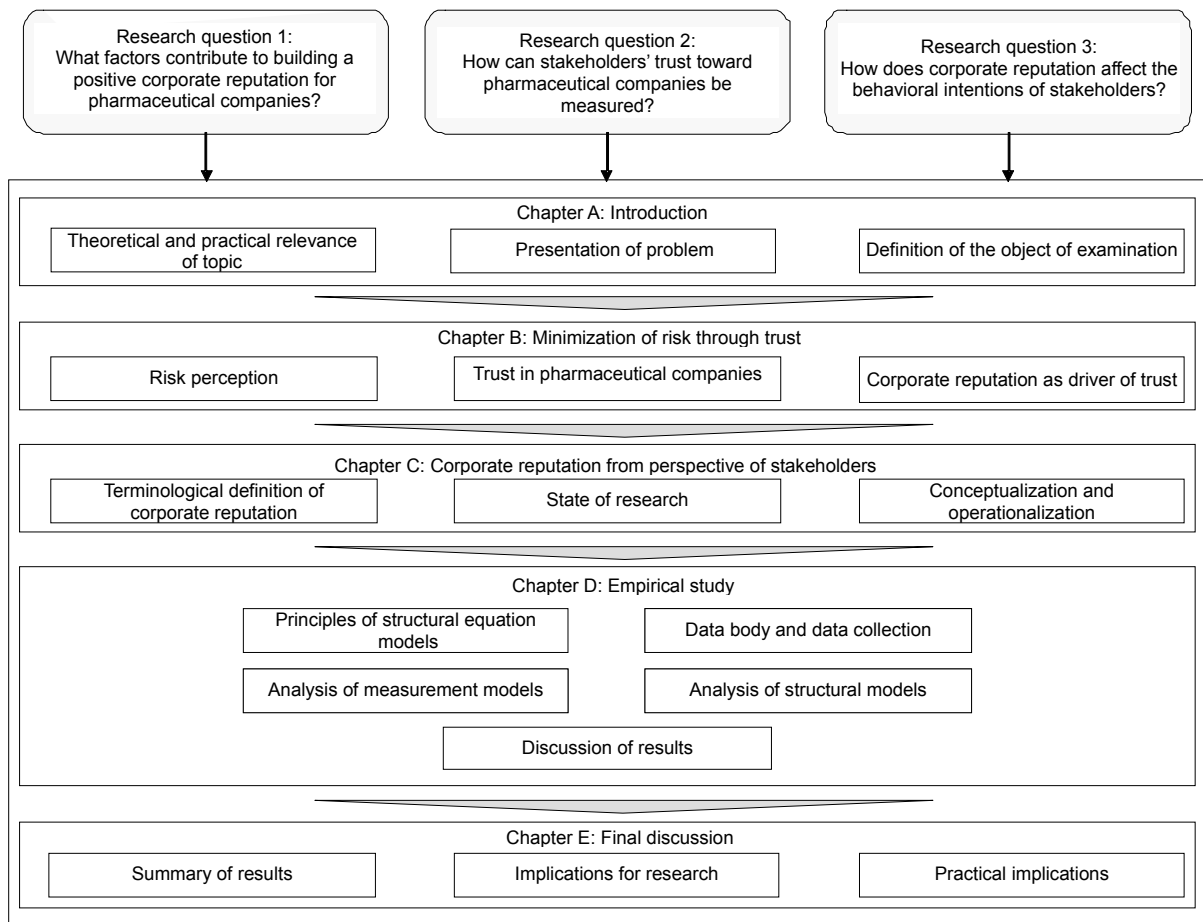
Chapter C provides a deeper examination of the construct of corporate reputation. After terminology has been defined, the aspects of corporate reputation that are relevant for this study are identified on the basis of existing publications on the topic (C 2). These aspects are then specified with the aid of literature and, using two specifically and proprietary conducted studies – one qualitative and one quantitative – operationalized for the context of the study (C 3). The results of the model development process and the hypotheses formulated in the process are summarized in C 4.

Chapter D is devoted to the empirical examination of the character and impact of corporate reputation. For this purpose, the examination methodology is first introduced in D 1 by addressing the suitability and the methodology of the analysis of structural equation models in the context of the research questions established. D 2 presents the data used as the basis and the method of data collection as well as the characteristics of the data base.

D 3 presents the results of the study. In this section, the reliability and validity of the measurement model as well as the dimensionality of the constructs is reviewed using the conceptualization. In this way the validity of the postulated answers to research questions 1 and 2 can be analyzed. The effect relationships between corporate reputation, trust and behavioral intention are finally analyzed in D 3.2.2 and D 3.2.3 to answer research question 3.

The study concludes in Chapter E with a summary of the key results (E 1) and a closing discussion. On one hand, findings and approaches for industrial-organizational psychological research are presented (E 2), while on the other hand, implications for corporate practice are argued (E 3). Figure 3 graphically represents the flow of the study:

Figure 3: Research flowchart



Source: Own chart.

B Minimizing risk through trust

The reputation of pharmaceutical corporations is accepted as the central independent variable of this dissertation. The trust extended by physicians and members of patient organizations to pharmaceutical corporations constitutes the central dependent variable of this study. This trust is connected to, among other factors, the subjective perception of the risk inherent in the medication, as outlined in the introduction. To specify the context of the observation, this section opens with a more involved observation of risk research to then argue the significance of trust and ultimately corporate reputation in overcoming the perceived risks.

1 Risk perception as context of research work

1.1 Risks and uncertainty

Literature approaches the topic of risk from many different angles. For example, risk is linked to the concept of probability:

“Risk here means, the probability that a particular adverse outcome occurs during a given quantum of exposure to hazard, for example during a given time interval, per lifetime ...” (Ferner, 1992, p.125).

The fact that risk is defined as “probability” suggests that risk appears to be “calculable” and can as such be managed. This definition of risk necessitates a specification: Knight (2002) separates risk from uncertainty. According to Knight, risk is measurable, while uncertainty is immeasurable:

“The practical differences between the two categories, risk and uncertainty, is that in the former the distribution of the outcome in a group of instances is known (either through calculation a priori or from statistics of past experience), while in the case of uncertainty this is not true, the reason being in general that it is impossible to

B: Minimizing risk through trust

form a group of instances, because the situation dealt with is in a high degree unique" (Knight, 2002, p.233).

Applied to the pharmaceutical market, this means, for example, that even when taking a contraceptive, a woman still runs the risk of becoming pregnant and that this risk can be calculated (Speroff & Darney 2005). In contrast, taking a new or less distributed alternative medication for which years of knowledge and experience regarding effectiveness and side effects gathered among a large number of users do not exist entails considerable uncertainty.

The second definition, which must be introduced here, is the technical concept of risk:

"The technical concept of risk focuses narrowly on the probability of events and the magnitude of specific consequences. Risk is usually defined by multiplication of the two terms, assuming that society should be indifferent towards a low-consequence/high-probability risk and a high-consequence/low-probability risk with identical expected values" (Kasperson, Renn, Pidgeon & Slovic 1988, p. 177).

This technical concept of risk is based on the decision model of the rational player, who selects between different action alternatives when fully informed, wherein he calculates the probability of the occurrence of the consequences of the action alternatives and accounts for the costs and benefits of the individual action alternatives (von Neumann & Morgenstern 2007). The risk-benefits relationship of the game theory can be explained in this context.

The game theory pertains to situations in which two or more parties with conflicting, yet interdependent interests interact with one another. This type of social conflict situation is thus characterized by the fact that there are at least two autonomously acting players with divergent interests, yet who are dependent on one another (von Neumann & Morgenstern 2007). The object of game theory is to identify the rational decision-making behavior in social conflict situations and thereby provide explanations for

strategic action. This theory assumes the behavioral model of a rational player attempting to maximize his benefits and complete transparency with regard to costs and benefits of the action alternatives (von Neumann & Morgenstern 2007).

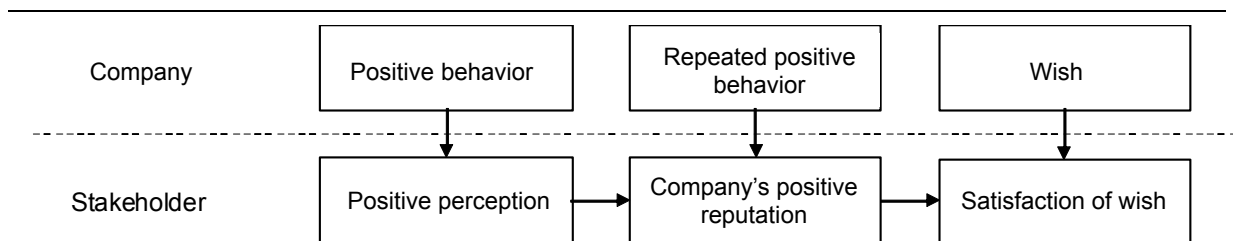
In this context, cooperative behavior is analyzed particularly in what is referred to as the prisoner's dilemma, wherein two independent players are faced with the decision to cooperate – which is good for both – or to “betray” the other (delinquent), which is good only if the other is cooperative. This is referred to as “sucker's payoff”, which is virtually a higher penalty. Game theory basically shows that incentives must be present for cooperative behavior, since players are otherwise unwilling to exhibit this behavior (Tucker 2001).

In game theory-oriented observations, trust and cooperation are usually used synonymously and trust is equated with cooperation as a phenomenon of visible cooperative behavior. Players are also assigned properties. In this way it is argued that trust is the product of the reputation of acting cooperatively (Ramchurn, Sierra, Godo & Jennings 2004). If one of the players is a company, then the company is the reputation holder in this relationship. From a game theory perspective, corporate reputation is thus other players' perceived values of the corporation (Weigelt & Camerer 1988).

In the continuation of game theory, the notion of reciprocity, i.e. the gradual mutuality of exchange relationships, is central to this interaction. Among rationally acting players, a good offer elicits a good counteroffer, while a bad offer elicits a bad counteroffer. This becomes more complicated in multi-level exchange relationships. If one exchange partner acts worse than expected, the allegedly aggrieved party “reacts” with a less generous offer during the next exchange relationship (Cropanzano & Mitchell 2005).

The Social Exchange Theory (SXT) focuses on this type of ongoing cooperative behavior. It postulates that in a recurrent exchange it is possible to convey a feeling of fairness through sanctions or payouts. At the same time, a positive or negative reputation thereby forms, which either promotes or hinders a certain cooperative behavior (Diekmann & Voss 2008). This assumption can be applied to the problem addressed in this dissertation to the extent that it can be assumed that (1) a company can build a (positive) reputation through behavior desired by stakeholders and (2) the stakeholders behave accordingly – i.e. continuing to recommend the company and its products under certain circumstances. Figure 4 illustrates the postulated process in graph form.

Figure 4: Emergence and impact of reputation in social exchange theory



Source: Own chart.

Game theory as well as social exchange theory contribute to analyzing the impact of reputation as it concerns itself both with constellations in which reputation-promoting behavior is advantageous as well as with situations in which a company is better positioned when it violates rules of cooperation (i.e. damages its reputation), even though the stakeholders behaved as good partners (Swoboda 2003).

To be able to derive statements on trust building from these approaches, blanket explanatory content is critical above all. Concrete measures of reputation-building, in particular, remain unclear. Furthermore, the scenario is usually reduced to only two players and different roles, outlooks

and interests within different stakeholder groups are not taken into consideration (Fombrun 1996; Bartelt 2002). Thirdly, reputation arises primarily through altruism in this case, which does not appear to be sufficient due to the complexity of the reputation construct as assessed in the literature (Göbel, Ortmann & Weber 2007).

Nevertheless, the functional reputation picture provides valuable insight: The presence of a reputation facilitates stakeholders' perceptions regarding what the company represents, its values and actions (Fombrun & van Riel 1997). These perceptions aid in stabilizing the interaction between companies and stakeholders particularly when there is recurrent interaction. It becomes particularly clear here that reputation promotes trustful behavior and partnership-like interaction. Reputation is thus of major importance for long-term survival: "A company's reputation and goodwill are key drivers of corporate competitiveness and profitability" (Svendsen 1998, p. 19).

Over the course of time, the game theory model of the expected benefit (resulting from taking a risk) has become criticized, however, because it has become clear that people do not act as described in the model: The players do not possess all information precipitated in the model of bounded rationality (Simon 1982). New institutional economics has concerned itself in particular with this type of information asymmetry and assumes limited rationality and limited opportunism of the players. It is postulated that the players involved base their decisions in principle only on their current available knowledge and thus achieve only satisfactory results (Williamson 1990).

Stakeholders such as patients, for example, must accordingly expect that pharmaceutical companies behave opportunistically toward them. Added to this is the fact that information asymmetry primarily favors the offering company (Spremann 1990), since this party possesses the most information on its medication. This problem is particularly clear amid the background of medication being a trust-based good. According to Lan-

caster (1966) product attributes are divided into search properties (directly observable ex ante), experience properties (observable ex post) and trust properties (not directly perceptible to the customer). Building thereon, search and experience goods as well as trust-based goods can be differentiated (Nelson 1970; Darby & Karni 1973). Because medications, as stated in Chapter A, are highly complex and associated with long-term effects and side effects and therefore difficult to evaluate if at all, they are characterized as trust-based goods.

With regard to the services of a pharmaceutical company, the medications of which constitute trust-based goods, a greater information asymmetry per se thus prevails than in the case of services that can be examined prior to purchase. For the perceived risk in the pharmaceutical context, it can be inferred that drugs are subject to an increased perception of risk (Siegrist 1999).

A further point of criticism against the game theory model, which also applies for the new institutional economics with “rational” players is the fact that the players do not rationally act in the manner envisioned in the model. The publications of Tversky and Kahneman above all have pointed out the problems of the model of rational decision under risk in the “classical” version of von Neumann and Morgenstern (2007):

“The modern theory of decision making under risk emerged from a logical analysis of games of chance rather than from a psychological analysis of risk and value. The theory was conceived as a normative model of an idealized decision maker, not as a description of the behavior of real people. ... We argue that the deviation of actual behavior from the normative model are too widespread to be ignored, too systematic to be dismissed as random error, and too fundamental to be accommodated by relaxing the normative system” (Tversky & Kahneman 1986, p. 251 f.).

There is major deviation per se between actual behavior and the predictions of the classical model of rational choice even in the area of risk calcu-

lation. This means that the action decisions of players deviate from the idealized picture of rational behavior on account of the player's limited knowledge of the risk associated with a particular action (Kasper 1980).

For example, each year thousands of tourists who would never set foot in Jordan or Egypt for fear of terrorism, travel to Thailand or Indonesia despite the prevalence of H5N1 in these regions, which annually kills more humans than terrorist attacks (Kandun, Tresnaningsih, Purba, Lee, Samaan & Harun 2008). This behavior begs the question why certain situations are perceived as being more dangerous than others (Gray & Wilson 2009). Apparently, the estimated risk associated with a particular action does not match the "real risk" of the action. Obviously, the risk estimate of players, tourists in this case, is based on incomplete information or biased information processing.

In Mitchell's view, the difference between subjective and objective risk for one is that the former can deviate from the latter and (above all) that subjective risk therefore deviates from objective risk, since humans generally do not possess all information or do not appropriately process the available information to correctly, i.e. objectively, estimate the risk associated with an action (Mitchell 1999). However, this view is modified by other authors:

"Although, there are actual risks, nobody knows what they are. All that anyone does know about risk can be classified as perceptions ... In this light, what is commonly called a conflict between actual and perceived risk is better thought of as the conflict between two sets of perceptions: those of ranking scientists within their field of expertise and those of anybody else" (Fischhoff 1989, p. 270).

For Fischhoff, each individual perception of risk, is an abstract construct that can be explained by a series of individual factors, wherein the corresponding construct risk, which scientists are capable of creating from the subject matter of their research, is more accurate than the corresponding construct, which non-scientists are able to create from the same topic.

Differences in the perception of risk as they exist between non-scientists and scientists are thus the result of differing levels of information among other factors. This is also true for the physicians and patient organizations examined in this context, which, on account of their postulated higher level of knowledge, can be imputed with a different (better) risk estimate than the patients themselves. At the same time, there is also an uneven distribution of information between pharmaceutical companies and their stakeholders, because it can be assumed that drug manufacturers have the best level of knowledge on the risks of the medications they offer.

This discussion illustrates a key dilemma with which the pharmaceutical industry is faced. On the one hand, drug development is extraordinarily cost-intensive, resulting in a certain degree of pressure to sell the approved medication. On the other hand, the legally prescribed test procedures are very tedious and the risks of new products are difficult to estimate, placing pharmaceutical companies in a constant conflict between ethical responsibility and profit seeking (see Shore 2005).

If the estimation of risk – i.e. determining the probability of the appearance of negative consequences associated with an action – depends on the level of information and information processing, then the existence of an “objective risk” must be disputed:

“One of the most important assumptions in our approach is that risk is inherently subjective. Risk does not exist ‘out there’ independent of our minds and culture, waiting to be measured. Human beings invent the concept of ‘risk’ to help them understand and cope with the dangers and uncertainties of life. There is no such thing as ‘real risk’ or ‘objective risk’ (Slovic 1992 p. 119).

The apparent discrepancy that results e.g. with regard to the estimation of the risks of genetically engineered medications between laypersons and experts (Siegrist 1999) is thus a function of the information that both groups employ and process, i.e. the perceived risk associated with an ob-

ject or an action is a social construct. This directs us to the question as to how this “perceived risk” arises.

1.2 The concept of perceived risk

The preceding explanations have illustrated that (objective) risk can be comprehended as a form of probability. At the same time, risk is part of a decision, since the consequences of a decision do not appear until the future, which means that each decision is made under a degree of uncertainty (Tversky & Kahneman 1986).

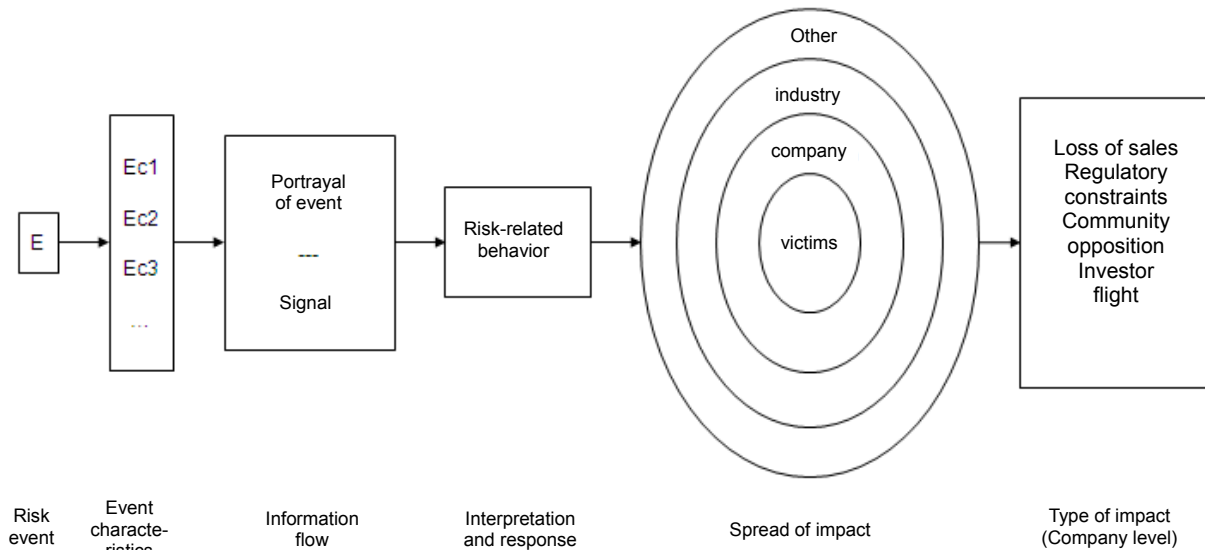
Perceived risk is repeatedly conceptualized in literature with two components: The first component is the probability of damage, while the second is the aspect of danger that emanates from the severity of possible negative consequences (Kogan & Wallach 1964). For consumer research, Cunningham (1967) formulated a model with the two components “perceived certainty of a given event happening and the consequences involved if the event should happen” (p. 82). This model is one of the most popular and frequently used risk perception models in the area of consumer behavior and, as an analysis of the validity and practicality of risk models conducted by Mitchell (1999) demonstrates, is highly suitable for the examination of risk. This model can be consulted to illustrate the risks associated with taking medication. A relatively high risk is present in this case if the following risk components are sharply pronounced:

- The component *perceived uncertainty* relates to the patient’s subjectively estimated likelihood that certain negative consequences will result, e.g. side effects from taking medications.
- The second component concerns the *severity of possible negative consequences* when negative consequences actually appear, e.g. the severity of drug side effects.

The discrepancy now resulting between perceived risk and “actual” risk, i.e. between subjective and objective risk in the formulation according to e.g. Mitchell (1999) and between two “risk perceptions” in the formulation according to Fischhoff (1989) suggests that additional variables beside the likelihood of a consequence of an action and the degree of specific consequences play a role in the individual determination of risk (Kasperson et al. 1988).

It is thus necessary to explain players’ actions and consequences of actions through environmental variables. This steers attention to the question as to how perceived risk is constituted and which factors trigger or at least influence perceived risk. The psychologist Paul Slovic and various other colleagues have thoroughly addressed this question. Their results produced the “Social Amplification of Risk Framework” (SARF, see Kasperson, Kasperson, Pidgeon & Slovic 2003; Kasperson et al. 1988; Rosa 2003; Slovic 2000). Figure 5 illustrates the model:

Figure 5: The model of social amplification of risk⁷



Source: Author's own chart based on Kasperson et al. (1988, p. 182).

The primary function of the SARF model is to explain how players arrive at their specific degree of perceived risk and which consequences the corresponding perception has. The perception of a risk associated with a certain action or attitude object is conceptualized as a function of a player's attitude toward the risk object as well as social norms that structure the player's life:

"The main thesis ... is that risk events interact with psychological, social, and cultural processes in ways that can heighten or attenuate public perception of risk and related risk behavior" (Kasperson et al. 1988, pp. 178-179).

According to this thesis, a player's perception of risk associated with an action or object is a result of interaction with his or her social environment. According to this reading, the excitement bordering on hysteria in

⁷ The impacts of perceived risks on a company are illustrated.

the course of the supposed swine flu pandemic, which started as a strain of the common cold in Mexico and in 2009 consumed not only considerable amounts of tax dollars, but also created a heavy demand for appropriate vaccines and drugs around the world, would be a social orchestration, which at best was questionably grounded in reality. The following example using SARF illustrates how this exaggerated perception of a minor – viewed both objectively and retrospectively – risk was possible.

Because the SARF postulates that individually perceived risk is a social construction, the primary question in the model analysis is how players arrive at the information necessary for estimating risk: “Social amplification of risk denotes the phenomenon by which information processes, institutional structures, social-group behavior, and individual responses shape the social experience of risk ...” (Kasperson 1988, p. 181).

The information that players use as the basis for their perception of risk is socially filtered, which means that it is amplified (e.g. swine flu), reduced (e.g. traffic accident) or focused (e.g. nuclear energy or genetic engineering). Players always absorb information from their environment that others have disseminated and thereby manipulated. Manipulations are undertaken by amplification institutions such as scientists who allude to a certain risk, media, non-governmental organization (NGOs, for example patient organizations), social groups or personal networks (Kasperson et al. 1988).

These amplification institutions intervene in the flow of information illustrated in Figure 5 and modify or interpret the event. The flow of information can be expanded by regularly reporting frequently and in detail about a certain event. It can be dramatized by overemphasizing or overestimating the consequences of a particular event, it can be furnished with symbolic connotations (e.g. consequences for future generations) and it can be expressed as controversial (Slovic 2000). All of these forms of influence affect the player exposing himself to the flow of information.

The framework does not assume that the player is defenselessly exposed to information. Instead, he processes the information made available to him (Rosa 2003):

- He assesses the information on the basis of his own experience as well as direct or indirect communication. For example, with regard to the risks of genetic engineering, personal experience is primarily not a factor, thereby giving communication related to genetic engineering major significance.
- He filters the information through his own senses, through informal networks or through professional information providers – for example: If attention is initially drawn to the dangers of genetic engineering, then the player perceives the reporting in the media, for example, accordingly.
- He weighs the information according to its origin from opinion leaders, governmental authorities, the internet or NGOs. Depending on his attitude, the player is more inclined to believe the statements of certain groups than those of others.
- He perceives certain components of the information processed in this way, decodes, evaluates and transfers it to his social context; for example by seeking products produced without genetically modified ingredients or homeopathic medications.
- He reacts to his assessment of the information by, for example, changing his attitude, participating in political activism or other forms of action such as protesting against the approval of genetically modified potatoes for technological applications, rejecting embryonic research or by simply not taking medications from companies he rates as “negative”.

As further illustrated in Figure 5, the results of the evaluation process, i.e. the player's actions, retroact on the player's environment and can

yield consequences on a wide range of levels – from the individual to society. SARF thus indexes considerable – self-amplifying – consequences for the affected company, since players draw negative behavior consequences from a risk event attributed to a company (e.g. the Contergan scandal mentioned in the introduction). Possible examples are an open boycott of the (medical) products of a specific company or the refusal of vaccines or similar products (Gregory, Slovic & Flynn 1996).

A player's processing of the flow of information as presented as well as the influence that various institutions can exert on the processing of the flow of information or on the existing flow of information illustrate which problems estimating risk entails, since the players in reality have incomplete or incorrect information:

“When lay people are asked to evaluate risk, they seldom have statistical evidence on hand. In most cases, they must make inferences based on what they remember hearing or observing about the risk in question. Research has identified a number of general inferential rules that people use in such situations. These rules, known as heuristics, are employed to reduce difficult mental tasks to simpler ones” (Slovic, Fischhoff & Lichtenstein 1981, p. 17-18).

This means that although SARF allows for the possibility that players could arrive at a correct risk assessment of a medication, most players do not utilize this possibility since they do not (cannot) apply the necessary work, time and patience. To facilitate a clearer understanding of the special features of perceived risk with which the patients are confronted when taking the medication, research results are presented in the subsequent sections which provide insight into the formation of risk perception in the pharmaceutical context and illustrate possibilities for reducing the perceived risk.

1.3 Perception of risk in the pharmaceutical context

The perception of the risk associated with a product or an action is at the same time a variable that structures and controls a player's decision. This perception aids him or her in making uncertainty predictable. Therefore "perceived risk" is a frequently examined aspect in the framework of social psychology research, wherein it has not only been confirmed that "[W]hat human beings perceive as threats to their well-being is influenced by their values, attitudes, social influences, and cultural identity" (Renn, Burns, Kasperson, Kasperson & Slovic 1992, p. 158)", but a series of factors has been found in the context thereof that influence the individual assessment of the risk associated with an action, a product or an event.

Barron, Leider and Stack (2008) have examined how warning signs, i.e. information on the risks associated with certain activities impact the behavior of the warned players. The results show that "even after being adequately warned, some people may continue to take risks simply because they incurred good outcomes from the same choice in the past" (Barron, Leider & Stack 2008, p. 141). In other words: Past personal experience makes the appropriate players immune to warning signs. Under somewhat different evidence, Cox, Cox and Mantel (2010) came to the realization that consumers either underestimate or overestimate the side effects reported in the package insert. In very rare cases did patients adequately process and evaluate this information.

Ferguson, Farrell, Lowe and James (2001) demonstrated on one hand that the risk associated with blood transfusions was perceived as too minor by those receiving blood transfusions. On the other hand, this perception was not at all based on "objective knowledge". In their study, Gregory, Slovic and Flynn (1996) show that despite improved living conditions worldwide, the perception of risk associated with new health technologies and medications has increased. The authors

attribute this to a stigmatization of new technologies, precipitated above all by the media.

Siegrist (2002) showed that the perceived risk of genetically engineered products – i.e. also medications – varies with the degree of trust that the persons surveyed had toward the companies using genetic engineering. Gaither, Kirking, Ascione and Welage (2001) yielded similar results demonstrating with regard to generics⁸ that perceived risk decreases when patients who were administered generic drugs had a direct consultation with their physician or a different “health care professional”, such as a member of a patient organization.

1.4 Managing perceived risk

In the theory of perceived risk, a risk aversion on the part of the players’ is assumed. In specific cases, the parties affected by medication risks – patients, but also indirectly physicians – accordingly take measures to reduce the perceived risk (Kroeber-Riel & Weinberg 2003). Literature discusses various mechanisms for reducing perceived risks that refer back to the two previously presented components of perceived risk (Cox 1967; Roselius 1971; Sheth & Venkatesan 1968; von Rosenstiel & Ewald 1979):

First, the reduction of uncertainty regarding the occurrence of negative consequences, secondly the reduction of the severity of the consequences. Because the latter can barely be estimated for medications and the person taking the medication (patient) as well as the person prescribing the medication (physician) can barely exert any influence thereon (Chao, Nau & Aikens 2007), the relevant decision here is to either prescribe/take the medication or not.

⁸ Generics are more economical imitation products containing the same active ingredients no longer covered by patent protection.

The degree to which the patients take medication or not as prescribed by the physician is an important question of medical research and has been examined for several decades. This question is especially important in the case of chronic diseases, since therapy focuses primarily on medications for controlling symptoms, improving the patient's ability to function and finally on the patient's survival (Treharne, Lyons, Hale, Douglas & Kita 2006).

Because of the aggressive nature of several diseases, e.g. the autoimmune disease systemic lupus, many patients are burdened with treatment plans that require taking medications often entailing severe side effects. These requirements frequently result in non-compliance with the treatment plan, which can ultimately contribute to the patient's (accelerated) death (Koneru, Kocharla, Higgins, Ware, Passo & Farhey 2008). These considerations should suffice for the postulation that it is not possible to reduce the negative consequences for the players – i.e. physicians and patients prescribing and taking, respectively, the medications of the pharmaceutical company. The following paragraphs therefore focus on the uncertainty components of perceived risk.

Present discussion shall focus on the search for information as the most important technique for reducing uncertainty, with distinction being made between internal and external information search (Murray 1991). With internal information search, the person relies on his or her own knowledge, which, in the pharmaceutical context, is often insufficient and can therefore not be consulted for the purpose of reducing uncertainty in these cases. With external information search, the person relies on information from his or her environment as was presented within the framework of SARF. This may be an additional reason why physicians and patient organizations are preferably consulted – but even they generally do not have access to serious external sources of information beyond that provided by the manufacturer.

As a source of information, the pharmaceutical company has a fundamental credibility problem since it is within the manufacturer's self-interest to sell its medications. The basic assumption of new institutional economics is that players strive to exploit their latitude to optimize their own cost-benefit relationships (Williamson 1990). Furthermore, there is the prevailing general information asymmetry between companies and information recipients (i.e. also physicians and patient organizations) in the provider's favor – as already presented – (Spremann 1990), which the provider can opportunistically exploit at the stakeholders' expense.

To bridge the risks which exist despite technological and regulatory safety precautions in the pharmaceutical context, "trust is an especially effective and efficient mechanism" (Einwiller 2003, p. 11). As explained above, an important function of trust is to reduce perceived risk. By reducing the sense of uncertainty, trust facilitates a reduced perception of risk and thereby increases the likelihood of physicians and members of patient organizations engaging with pharmaceutical companies. Building, maintaining or deepening the trust of these two stakeholder groups examined in this dissertation is thus critically important to the success of drug manufacturers.

1.5 Reducing uncertainty through trust

Because it is difficult to obtain objective information in the pharmaceutical context due to manufacturing companies being the sole relevant source of information for physicians and patient organizations, the question of trust toward these manufacturers presents itself as the central determinant of perceived risk or the possibility of the reduction of uncertainty. The concept of trust, which is explored in depth in B.2, is closely related to the concept of perceived risk. According to Coleman (1991), "situations in which trust plays a role constitute a sub-group of situations that contain a certain degree of risk" (p. 115). Trust accordingly has

an impact in situations in which negative consequences may occur and implies a reduced perception of risk (Oswald 1997).

This reduced perception of risk results from a reduced sense of uncertainty based on a combination of knowledge and trust. Risk thus plays a double role for trust – on one hand a precondition, on the other hand a consequence in the sense of a reduction in the perceived risk: "Perceived risk is a necessary antecedent for trust to be operative and an outcome of trust building is a reduction in the perceived risk of the transaction or relationship" (Mitchell 1999, p. 174).

Trust originates on the basis of knowledge and serves to reduce the perceived residual risk that can be dispelled neither through knowledge nor the search for additional information. Trust is therefore always employed when sufficient information is not available (Luhmann 1989). Using the available knowledge base, the player deduces whether the pharmaceutical company is behaving opportunistically and decides whether or not to give the company his or her trust on the basis of future expectation. Trust can thus be characterized as "a reasonable belief that the trustee will act consistently with the trustor's interests" (Levi 1998, p. 79).

Deliberate trust-building in the pharmaceutical company may thus positively influence the opinion of stakeholders and thereby the pharmaceutical company's actual customers (the patients) as well, since it minimizes risk (Brammer & Millington 2005; Kionsis, Popesch & Mitrook 2007; Keh & Xie 2009 also along these lines):

"Our results show that certain types of corporate image associations (specifically, **a company's associations ... of trustworthiness ...**) have a greater impact on consumer evaluations of an individual product made by that company in purchase decision situations in which a high level of risk is perceived" (Gürhan-Canli & Batra 2004, p. 203, emphasis added).

Because the context of this dissertation has been laid out and the background of the work clarified by the preceding explanations on the special

perception of risk in the pharmaceutical context and the risk-reducing effect of trust, the actual object of examination, trust in pharmaceutical corporations as well as the impacts and reasons thereof, can be addressed in the following sections.

2 Trust in pharmaceutical corporations

As the preceding section made clear, trust plays a decisive role in situations associated with uncertainty or risk (and very frequently encountered in the pharmaceutical context) by reducing the perceived risk. This dissertation first introduces different concepts of trust and then develops a conceptualization and operationalization of the trust construct by providing a synopsis of various perspectives.

2.1 Formation and impact of trust

Trust has become an increasingly important issue of discussion in economics, psychological as well as sociological research (Schoorman, Mayer & Davis 2007; Ferrin, Dirks & Shah 2006). In this section, sociological, psychological and economic perspectives in the research of trust are introduced and evaluated for this dissertation with regard to the properties of the trust construct.⁹

2.1.1 Trust from a sociological perspective

The presence or absence of trust has far-reaching consequences for all social interactions. This fact explains why even sociology cannot help but intensively examine the topic of trust. Given the diverse range of theoretical concepts in sociology, only the central theoretical explanation approaches representative for the discipline should be outlined here: the action-theoretical and system-theoretical approach (see Funder 1999).

⁹ Praxmarer offers a detailed survey (2009).

The action-theoretical approach is based on Deutsch's (1962, 1973, 1976) concept of "trust as confidence" in interpersonal relationships. According to this concept, a player's decision to trust depends on which consequences are expected as a result of the decision.

A person is then granted trust if the subjective probability of the appearance of a positive consequence is greater than that of a negative consequence. Trust thus also increases one's own vulnerability, because the decision to trust entails a risk, since the potential loss may be greater than the possible gain. This is illustrated by the risk-minimizing effect of trust presented in B 1.

Because the approaches based on Deutsch's work assume a rationalistic concept of trust, it is not possible to consider causes of trust other than the players' rational calculation. The concept of trust therefore features not only "problematic anthropological assumptions, i.e. an imagined consistently rational player, but also fails to take into consideration the fact that social interaction is connected with the problem of "double contingency" or reciprocity of expectation (...) To explain his formation and reproduction conditions (those of trust, author's remark), it is not possible to ignore cultural shaping, normative dispositions and social structures" (Funder 1999, p. 80).

If "trust is portrayed as a mechanism for structuring interaction and systems, then one does not reach the goal by exclusively taking action theoretical approaches [...] into consideration" (Funder 1999, p. 80). Amid this background, Luhmann's (1989) concept of trust proves to be helpful. This concept differs from both those based on the assumption that humans are egotistic as well as on approaches that feature a moralistic impetus and make altruistic action their point of reference. In Luhmann's system-theoretical perspective, the trust specifically serves to contribute to the reduction of uncertainty.

According to Luhmann, trust “always concerns a critical alternative in which the damage in the event of a breach of trust can be greater than the advantage derived from the granting of trust” (Luhmann 1989, p. 24). According to Luhmann, trust can therefore generally be regarded as a risky form of advance payment. In Luhmann’s point of view, trust anticipates the future. It thus constitutes a mechanism for reducing social complexity – “one confidently acts on the assumption that his own expectations will not be disappointed” (Luhmann 1989, p. 97). According to Luhmann, trust distinguishes itself through a “risky relinquishment of possible further information” (Luhmann 1989, p. 23), i.e. an accompanying “relinquishment of control and knowledge” (Funder 1999, p. 82). From a system-theoretical and sociological perspective, trust is thus a rational substitution for absent information in risky situations.

2.1.2 Trust from a psychological perspective

According to Petermann, individuals seek to make risky and unpredictable situations acceptable through trust. They want to “hope for something and thereby dispel uncertainty” (Petermann 1996, p. 9). To Petermann trust is a central prerequisite and variable for shaping a relationship, since it serves as a basis upon which everything else can be further built.

A second approach is the theory of social learning. In this context, trust is defined as “a generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied on” (Rotter 1967, p. 651). This generalized trust corresponds to a person’s basic disposition to trust individuals or groups that are relatively unfamiliar to the person. Trusting as well as distrustful dispositions may be the result of the generalization of a person’s past experiences. Generalized trust accordingly possesses the character of a relatively stable personality feature, which can be clearly differentiated from the specific trust in a pharmaceutical company relevant in this case.

2.1.3 Perspectives on trust from the field of economics

Trust has been long discussed within the field of economics under the following points of reference in descending order: First within the framework of the agency theory (see Eisenhardt & Martin 2000 in detail), for the purpose of explaining cooperative behavior that was not precipitated through explicit control measures. Secondly within the transaction cost theory (see Williamson 1979 in detail), which views economic activities as a use of cost-entailing resources that can be reduced through corresponding coordination and trust. Third through game theory (see Nash 1950 as well as B 1.1 in detail), which views trust as phenomenon of visible cooperative behavior and equates it to cooperation. As a solution to the central problems in this model – opportunism and asymmetry of information – rules or contracts are postulated that create a “basis of trust”.

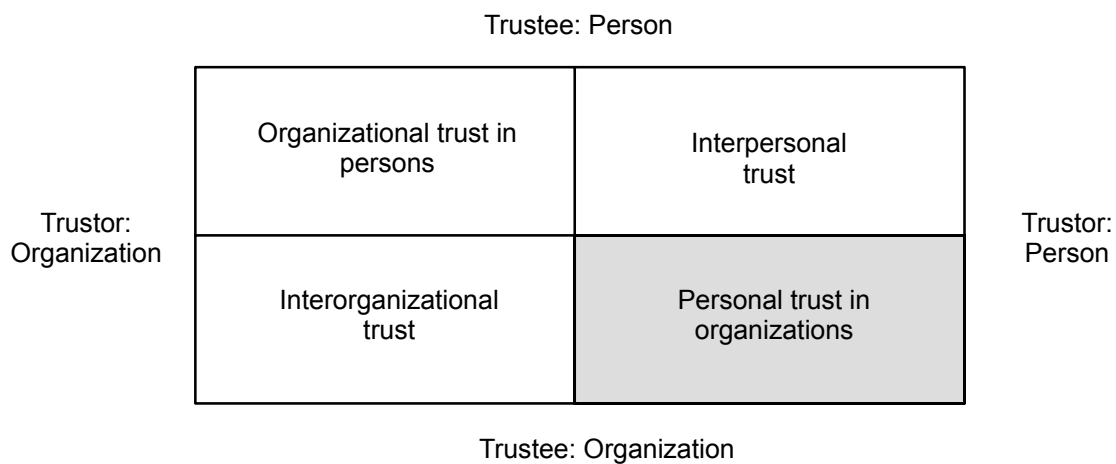
The economic perspective of the role of trust in reducing uncertainty (Kahneman & Tversky 2000) is also of interest. In this context, trust is viewed as an aid for dealing with risk as well as reducing perceived risk. Accordingly, trust in a pharmaceutical company is not an irrational decision on the part of an individual, but can by all means be an expression of a rationally calculated decision: “trust is the expectation that others will behave honorably and that there will be a mix of give and take in the relationship” (Svendsen 1998, p. 142). In this connection, marketing literature focuses primarily on a concrete object of trust:

“In the buyer-seller literature, ... research has concentrated purely on interpersonal trust, that is trust of another person. However, when a buyer does business with a seller, trust of the salesperson is only one category of obligation; s/he also needs to consider ... the company that stands behind the product/service.” (Plank, Reid & Pullins 1999, p. 331.)

While specialized literature provides two differing views as to whether exclusively interpersonal trust can exist or whether “trust in systems” is

also possible, there is a strong trend suggesting that trustees can also be organizations (Bouncken 2000; Greschuchna 2006). Figure 6 shows the possible trustee – trustor constellations:

Figure 6: Types of trust



Source: Taken from Ahlert, Kenning and Petermann (2001, p. 286).

Because this dissertation concerns itself exclusively with stakeholders as trustors, the organization cannot be further examined as a trustor at this point¹⁰. Furthermore, it is not trust in other persons that is relevant here, but “organizational trust”, i.e. the stakeholder’s trust in the pharmaceutical company. This organizational trust can be characterized as a tendency or conviction that the needs of the trustee will satisfy the needs of the trustor (Anderson & Weitz 1989).

Marketing literature offers a wide array of publications on the causes and effects of trust.¹¹ The ability to foster customer loyalty is regarded as

¹⁰ Whenever this dissertation speaks of patient organizations as trust-givers being examined, it means the individual representatives/members of these organizations (i.e. persons).

¹¹ Refer to Neumann (2006) and Ebert (2009) for an overview.

the primary function of trust in customer relationships (Morgan & Hunt 1994). The antecedent customer satisfaction is analyzed as the key determinant of customer trust (Zboja & Voorhees 2006). In recent publications, the focus has increasingly shifted toward corporate reputation (Kaluscha 2004). These findings are readdressed and explored in greater depth in B 2.4 and B 3.

2.1.4 Central elements of trust

Research disciplines that examine the construct of trust each emphasize different elements of trust. An analysis of the approaches in trust research identifies a total of four interdisciplinary characteristic elements of trust (see Neumann 2006):

- Time reference

The time reference constitutes the first central aspect of the construct of trust. On the one hand, this time reference is future-oriented, because the point in time of the action of trust occurs prior to the appearance of the consequences of the trust rendered (Kirchgeorg & Lorbeer 2006). On the other hand, however, trust also features a specific reference to the past, because, despite being oriented toward the future, trust can only be based on past experiences with the object of trust (Luhmann 1989).

- Risk

The trustee's risk is defined as the second element of trust. Without risk, trust is unnecessary, which makes it a constitutive component of any action of trust. Trust therefore always presupposes the existence of a scenario that is harmful to the trustor (Mayer, Davis & Schoorman 1995).

- Hazard of loss

Because the trustor must in principle render a payment or service in advance and has no control over the outcome of the situation, he is dependent on the trustee. Trust thus means that the player knowingly

places himself in a situation in which the outcome can be worse than an avoidance of the situation (Luhmann 1989).

- Lack of control

Trust is also associated with a transfer of control to the trustee. The trustor is dependent on the information and actions of the trustee and cannot verify whether they are good for him or factually correct. Trust is therefore regarded as a substitute for control (Rousseau, Sitkin, Burt & Camerer 1998).

2.1.5 Recapitulation: Explanatory approaches for the formation of trust

One could assume that psychology, which concerns itself in particular with mental principles, developmental processes and the effects of human behavior and experience, gives considerable attention to the issue of trust. Schweer (1997) and Thomas (2004) regret that this is not the case, even though a growing interest has been observed.

Both authors point to the fact that even within social psychology, it was not until the mid 1990s that text books were published with chapters addressing the topic of trust (e.g. Brown & Gaertner 2003). Luhmann (1989, p. 23) as well already complained “that in psychology ... a much broader and less defined concept of trust is argued, the operationalization of which has not yet truly been accomplished.” The same is also true today: “Our knowledge of how trust is generated, sustained, and compromised in relationships remains surprisingly limited” (Simpson 2007, p. 267).

In the field of economics, the tendency is to narrow the concept of trust to a cost-benefit calculation, in which trust is substituted preferably by rules or contracts intended to ensure, regardless of the underlying motives, that the desired action consequences occur (Bowles 1998). Because of the central importance of trust in the organization of economic exchange relationship, in particular the trust held by consumers and stakeholders in the organization, a branch of research dedicated to trust in customer relationships has developed especially in marketing science. In

this context, trust is understood as a party's belief in its needs being satisfied by the other party.

The most comprehensive approaches on the topic of trust can be found in sociology. Action theorists such as Deutsch view trust as a conglomerate of cognitive-instrumental, affective and normative action dimensions. Luhmann adds a functional dimension to the concept of trust. On this basis, the following section shall attempt to specify the concept of trust for the context of this dissertation.

2.2 Defining the concept of trust

According to Lewis and Weigert (1985), trust has cognitive-instrumental, affective and normative action dimensions. This conceptualization is very similar to that formulated by Rosenberg and Hovland (1960) for attitude. According to their three-component model, an attitude is composed of the components cognition, affect and behavior. Before the concept of trust can be defined for the needs of this dissertation, it is necessary to first briefly digress to the concept of attitude, which itself is of central importance to this dissertation.

2.2.1 Definition of attitude

Attitude is among the most significant concepts of modern social psychology (e.g. Allport 1954; Bohnert & Wänke 2004). The key reason for its importance is grounded in the goal of psychology to research behavior and the fact that attitudes are assumed to influence behavior:

“The assumption that individual behavior has an antecedent evaluative foundation is an important component of theories in sociology, psychology, political science, and economics. In its simplest form, the antecedent evaluation is a positive or negative attitude toward an object that may affect an individual's object-related behavior” (Friedkin 2010, p. 196).

This also explains the significance of attitudes for applied sciences. In the concepts of social psychology for explaining human behavior, it is assumed that behavior is influenced to a great extent by intentions, which in turn are based on opinions and attitudes on the attitude objects being encountered (Ajzen & Fishbein 1980; Fishbein & Ajzen 1975).

In view of the major relevance of attitude in predicting behavior, numerous researchers have attempted to define the concept as the following brief survey of work outlines (Table 1):

Table 1: Definitions of attitude

Author / year	Definition
Rosenberg & Hovland 1960, p. 3	predispositions to respond to some class of stimuli with certain classes of response
Ajzen & Fishbein 1975, p. 6	a learned disposition to respond in a consistently favorable or unfavorable manner with respect to a given object
Petty & Cacioppo 1986, p.4	general evaluations people hold in regard to themselves, other people, objects, and issues
Eagly & Chaiken 1993, p. 1	a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor
Kroeber-Riel & Weinberg 2003, p. 169	subjectively perceived suitability of an object for satisfying a motivation
Trommsdorff 2004, p. 159	state of a learned and relatively permanent predisposition to normally react more or less positively or negatively to the encountered object in an appropriate situation

Based on the definitions listed in Table 1 the functional and teleological aspects of an attitude are outlined below. A synopsis then summarizes these aspects with regard to the object of examination.

- Functional aspects

One of the frequently used definitions of attitudes was formulated by Rosenberg and Hovland (1960). These authors describe attitudes as predispositions to react to certain stimuli in a certain manner. These

stimuli are divided into three categories: affective (emotions), cognitive (opinions) and conative (behavior). Kroeber-Riel & Weinberg (2003) speak of a subjective perception. This subjective perception simultaneously facilitates a subjective assessment and as such constitutes a key feature of attitudes (Ajzen & Fishbein 1977; Eagly & Chaiken 1993).

The linear single component model represents an alternative to a multi-dimensional conceptualization of an attitude in which attitude constitutes only the affective or evaluative components, while opinions (cognitive components) are regarded as based on attitude and behavior or behavioral intention (conative components) as influenced by attitude (Ajzen & Fishbein 1975).

- Teleological aspects

The primary function of attitude is for assessing a situation (Petty & Cacioppo 1986; Eagly & Chaiken 1993). This assessment is then used in making a decision regarding an adequate behavior ("response" according to Rosenberg & Hovland 1960). Fishbein and Ajzen have intensively studied the attitude-behavior relationship ("to respond in ... manner").¹² According to this relationship, attitudes can lead to exhibiting or at least favoring a certain behavior. Trommsdorff (2004) expresses the same idea with a focus on reactionary behavior.

- Synopsis

Attitudes cover a wide range of cognitive, affective and behavioral elements that enable the player to successfully act or "correctly" behave in various situations. The central elements include a (behavior-oriented)

¹² The distinguishable dimensions of attitudes, their relationships among one another as well as their influence on behavioral change are presented in detail in Fishbein's attitude-behavior model (1967), in Fishbein's and Ajzen's theory of reasoned action (1975) as well as in the form of their further refinement the theory of planned behavior (Ajzen 1991).

tendency based on the assessment of an attitude object (e.g. a pharmaceutical company). In addition, there is a connection between attitude and the performance of actions, or, more specifically: handling certain situations. Because it explicitly takes these factors into consideration, the definition of Eagly and Chaiken (1993) is used in this dissertation:

Definition of attitude
“a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly & Chaiken 1993, p. 1)

2.2.2 *Definition of trust*

Because it comprises complex subject matter on which the scientific community has been unable to reach a consensus, trust is a difficult concept to grasp (Brinkmann & Meifert 2003). Table 2 provides an overview of the frequently used definitions for trust:¹³

Table 2: Definitions of trust

Author / year	Definition
Deutsch 1958, p. 266	An individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed.
Rotter 1967, p. 651	A generalized expectancy held by an individual that the word, promise, oral or written statement of another individual or group can be relied on.
Luhmann 1989, p. 18	the willingness to take the risk of presuming the other party's good intentions
Moorman, Deshpandé, Zaltman 1993, p. 82	the willingness to rely on an exchange partner in whom one has confidence
Morgan & Hunt 1994, p. 23	when one partner has confidence in the exchange partners' reliability and integrity

¹³ Neumann (2006, p. 18 f) offers a detailed overview of the definitions of trust.

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Author / year	Definition
Doney & Cannon 1997, p. 36	the perceived credibility and benevolence of a target of trust
McKnight, Choudhury & Kacmar 2002, p. 303.	Trusting beliefs are the trustor perception that the trustee possesses characteristics that would benefit the trustor ... – integrity (trustee honesty and promise keeping), benevolence (trustee caring and motivation to act in the trustor's interests), competence (ability of the trustee to do what the trustor needs), and predictability (consistency of trustee behavior).
Neumann 2006, p. 36	a consumer's attitude toward the system company ... [based] on the perception of certain features of the company
Fladnitzer 2006, p. 14	Trust is the intention to act as if persons or impersonal systems would behave in the assessed, beneficial manner. This assessment is based on experiences and the player is aware of the subsequent risk.

The definitions in Table 2 highlight how heterogeneously the concept of trust is used. The presented definitions of trust are now described in terms of their functional and teleological aspects and transformed through a synopsis into a basic definition of trust for the purposes of this study.

▪ Functional aspects

According to Neumann (2006), the object-related dimension of the concept of trust can be described through the practical existence of a trustful attitude, which McKnight, Choudhury and Kacmar (2002) understand as the tendency to positively evaluate an attitude object (e.g. a pharmaceutical company) with regard to its integrity, benevolence, competence and predictability.¹⁴ Similarly, Morgan and Hunt (1994) as well as Doney and Cannon (1997) also define the essence of trust as a basic, positive tendency toward a reference object that is developed, according to Fladnitzer (2006), from past experiences. To Deutsch (1958), trust encompasses positive expectations with regard to the future behavior of other players. This

¹⁴ Compare to the definition of attitude for this dissertation in B 2.2.1.

perspective is shared by Rotter (1980) and Luhmann (1989). The latter explicitly emphasizes that trust constitutes a risky situation, an argument also held by Fladnitzer (2006).

- Teleological aspects

In principle, the definitions tell us little about which purposes or goals stem from the construct of trust. However, further readings of the publications mentioned show that the consequence of trust can be transferred into three central dimensions: The first function of trust is in assessing reference objects (Moorman, Deshpandé & Zaltman 1993; Doney & Cannon 1997). The second is the resulting intention to act based on a trustful assessment – “the willingness to rely on an exchange partner” (Moorman, Deshpandé & Zaltman 1993, p. 82; similar: Deutsch 1958; Fladnitzer 2006). The third function of trust is to bridge the gap of uncertainty by reducing complexity (Luhmann 1989).

- Synopsis

Trust constitutes a complex construct in the perception of a reference object. It is closely connected to the construct of attitude and is based on past experiences with the reference object among other factors. In this context, the construct of trust expresses itself in two ways: On one hand in a positive attitude toward a reference object, on the other hand in a positive behavioral intention in relation to the corresponding object. Because attitude can be concretely understood as the positive assessment of the properties of competence, predictability, benevolence and integrity, this dissertation uses the definition of trust (see Table 2) based on McKnight, Choudhury und Kacmar (2002):

Definition of trust
Trust is a positive attitude toward certain properties of the reference object that is based on past experiences and brings about a trustful behavioral intention.

2.3 Specifying the construct of a trustful attitude

Using the aforementioned definition as a basis, this section shall attempt to conceptualize and operationalize the construct of trust (or: construct of trustful attitude, since trust, as argued in B 2.2, is a construct similar to attitude). For this purpose, a survey of the literature on the topic is presented from which the key frame elements of the construct and its impact can be derived.

2.3.1 State of research on the construct of trust

By listing all relevant current publications, Neumann (2006) provides an initial literature survey on the topic of “consumer trust” in marketing, the essence of which is similar to stakeholder group trust relevant in this present context. He concludes that there is a high degree of heterogeneity in specifications, lack of theoretical and empirical foundation and that it is necessary to specify the construct according to context (Neumann 2006).

Schoorman, Mayer and Davis provide another current literature survey, albeit limited to English language publications, coming to the following conclusion:

“While a great deal of research has occurred in the area of trust over the past decade, the new research only suggests that there is a lot more to be done and many very promising avenues to pursue” (Schoorman, Mayer & Davis 2007, p. 352).

They also specifically remark that the question regarding the formation of trust still remains open and has not been adequately researched: “An open question is how to best build trust. Trust building is an under-researched topic” (Welter & Smallbone 2006, p. 471). However, it is consistently established that trust-building is a highly context-dependent process (Praxmarer 2009).

Over the last several years, there has thus been an increase in the volume of economics and social science publications focused on explaining trust and its role in economics, although the trend is more a case of the economic thinking tradition opening itself to insights from psychology and sociology than the development of a free-standing theory (Najoux 2009).

Because a detailed literature survey has already been provided by other authors (see Neumann 2006; Schoorman, Mayer & Davis 2007; Praxmarer 2009), it is not necessary to present one here. Instead, Table 3 exclusively lists the (few) publications that address trust in the pharmaceutical industry:

Table 3: Publications on the topic of "trust in the pharmaceutical industry"

Author / year / title	Focus	Method	Contribution to knowledge
Lagace, Dahlstrom & Gassenheimer 1991 "The Relevance of Ethical Salesperson Behavior on Relationship Quality"	Ethical behavior of pharmaceutical agents toward physicians as a success factor in pharmaceuticals marketing	Literature-based model-building Structural equation method; n=90	Ethical behavior and long-term business relationships have a positive impact on satisfaction and trust.
Hahn 2006 "Patient Relationship Management. A CRM approach for the pharmaceutical industry"	Relationship between service quality and commitment in diabetes patients	Theory-based hypotheses generating (social exchange theory) Structural equation method; n=262	Trust as an aspect of relationship quality is influenced by product quality.
Witzel 2006 "Relationship marketing in the pharmaceutical industry: Trust and commitment as success factors"	Trust and relationship commitment as success factor of pharmaceutical marketing	Theory-based hypotheses generating (social exchange theory) Structural equation method; n=125	High relationship commitment and physician's trust in a company increases his or her willingness to recommend innovative medications.

Table 3 illustrates that research on the subject of "trust in the pharmaceutical industry" needs to be expanded. The subject of building trust through pharmaceutical company reputation is not central to any of the

three studies outlined in Table 3. None of these publications features a corresponding literature review and all three conclude by stating the need for further research.

However, two important implications for this dissertation can be derived from both the findings outlined in Table 3 and found in earlier literature on the subject of trust: First, several empirical studies showed that the development of trust can be actively influenced (see Table 3). Secondly, it becomes clear that trust is a highly complex construct and must be specified for each application context (Neumann 2006), which the following section shall seek to achieve.

2.3.2 Conceptualization and operationalization of trustful attitude

According to the definition used for this dissertation, trust expresses itself as the trustor's positive attitude (in the present case: physicians and patient organizations) toward a trustee (in this context: pharmaceutical companies), which in turn facilitates a trustor's behavioral intention that is advantageous for the trustee. Amid the background of scientific perspectives on trust, perceived risk is also a characterizing component of the construct. This (perceived) risk is reduced by past trust-building experiences. With this reference to the past, trust shares parallels with the concept of attitude discussed here, since, like attitudes, it is formed on the basis of past experience with an object of trust. In academic literature, trust is thus conceptualized as a specific form of attitude (e.g. Einwiller 2003; Ebert 2009).

A systematic examination of various forms of trust is wise when specifying the concept of trust. In this context, distinction is made between generalized and specific trust (Ripberger 1998, see also B 2.1). Generalized trust describes the basic disposition to generally trust third parties. Specific trust, in contrast, concerns a concrete object of trust and a trustee such as a pharmaceutical corporation, therefore making it the form of trust that is of interest in this context. Further specification would require

stating the specifics of the company on the basis of which the company is trusted.

The construct of trust describes the process of stakeholders evaluating pharmaceutical companies on the basis of different properties. Trustworthy organizations are those seen as willing to act in the trustor's best interests. Furthermore, they must be adjudged to have the ability to satisfy the expectations of the trustors' to their satisfaction. Trustees must therefore be assessed as adverse to deceive the trustors and willing and competent to satisfy their needs (see definition in B 2.2.2).

To operationalize the construct, it is necessary at this point to specify the characteristics that must be ascribed to a pharmaceutical company deemed to have the four characteristics dimensions of competence, predictability, benevolence and integrity, which are ascribed to a trustworthy player based on the definition borrowed from McKnight, Choudhury and Kacmar (2002). Table 4 shows the results of a meta-analysis of McKnight's und Chervany's (2000) publications on trust, on which the categorization used here is based:

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Table 4: Characteristics of trust and assignment to characteristic dimensions

Characteristic of trust	Named (as a percentage)		Superordinate dimension
Competent	14	14.3%	Competence
Expert	3	3.1%	
Dynamic	3	3.1%	
Predictable	6	6.1%	Predictability
Good, moral	6	6.1%	Benevolence
Good will	10	10.2%	
Benevolent, considerate	18	18.4%	
Cooperative	4	4.1%	
Honest	11	11.2%	Integrity
Credible	1	1.0%	
Dependable	8	8.2%	
Reliable	6	6.1%	
Open	3	3.1%	Miscellaneous
Careful, safe	3	3.1%	
Common vision	1	1.0%	
Personally attractive	1	1.0%	
	Σ 98	Σ 100 %	

Source: McKnight and Chervany (2000, p. 829).

On the basis of these subordinate elements, the four dimensions of competence can be expressed in concrete terms by resorting to the definition (see B 2.2.2): Integrity means that the trustee is dependable, making honest and credible statements. Benevolence means that moral goodness and care is accorded and the trustor treated considerately. Competence means in particular that the trustee is able to satisfy the needs of the trustor. The last dimension, predictability, concerns the consistency of the trustee's behavior.

In the proprietary qualitative pre-study (see C 3), the test subjects were asked to indicate the characteristics that pharmaceutical companies must exhibit to gain stakeholders' (physicians and members of patient organizations) trust. The results are listed in Table 5:

Table 5: Indicators for measuring trustful attitude

Construct	Indicator	Formulation
Trustful attitude	vE.1	Company x is competent.
	vE.2	Company x is reliable.
	vE.3	Company x is credible.
	vE.4	Company x always acts in an open and honest way.
	vE.5	Company x demonstrates high customer focus.
	vE.6	Company x readily answers questions of customers and patients.
<i>Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)</i>		

The results primarily reflect the central characteristic dimensions of trust according to McKnight and Chervany (2000), wherein customer orientation (vE.5 and vE.6) apparently constitutes a specific characteristic of the pharmaceutical industry in this form. The advantage of operationalization with an individual scale is also evident here, namely the fact that the indicators are specifically tailored to the subject matter of the study. Because similar scales have already been used in trust research (Chiou & Droge 2006, Zboja & Voorhees 2006), their empirical usability and validity can be assumed (Rossiter 2005).

2.4 Trustful behavioral intention

The relationship between attitudes and behavior is expressed in the attitude-behavior hypothesis (Ajzen & Fishbein 1977). The direct behavioral relevance of attitudes formulated therein is valid, however, only if the attitude toward a behavior is sufficiently specific (Ajzen & Fishbein 2008) and is called upon during a decision (Fazio 1989). In this case, trustful attitude is in relation to the company. It can therefore be postulated that a positive and trustful behavioral intention develops from a trustful attitude: "Based on Fishbein and Ajzen's (1975) theory of reasoned action, we expect beliefs (trust) to precede behaviors" (Eisingerich & Bell 2007,

p. 255). A brief look at the relevant research should substantiate this statement to allow the trustful behavioral intention to then be specified.

2.4.1 State of research on trustful behavioral intention

In the area of customer behavior, customer relationship research examines the purchasing behavior of consumers in particular. In this context, focus is placed on purchasing intentions, which are understood as “mental state that reflects the buyer’s plan to buy some specific number of units of a particular brand in some specified time period” (Howard & Sheth 1969, p. 41). At the same time, customers who exhibit a positive intention to buy are found to be willing to further recommend the company’s products:

“Accordingly, clients are likely to act ‘co-operatively’ toward trustworthy service firms by recommending the organization to others and maintaining or increasing transaction volume in the future” (Eisingerich & Bell 2007, p. 255).

Table 6 shows several more recent findings from consumer research related to the influencing factors of customer behavior:

Table 6: Publications on consumer behavior

Author / year / title	Focus	Method	Contribution to knowledge
Ranaweera & Prabhu 2003 “The influence of satisfaction, trust and switching barriers on customer retention in a continuous purchasing setting”	Influence of satisfaction and trust on customer behavior	Developing models on the basis of the commitment-trust theory Structural equation method; n=432	Satisfaction and trust must be promoted to prevent customer reluctance.
Patterson 2004 “A contingency model of behavioral intentions in a services context”	Examination of influencing factors on purchase decision	Development of models on the basis of the social exchange theory Structural equation model; n=728	Consumers’ personal attitudes influence purchasing behavior more than satisfaction.

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Author / year / title	Focus	Method	Contribution to knowledge
Eisingerich & Bell 2007 “Maintaining customer relationships in high credence services”	Study and measurement of the influence of loyalty and trust on the customer relationship	Literature-based model development; Structural equation method; n=1.125	Loyalty and trust as key factors of success for further recommendation and repeated use of the service offered.

The publications listed in Table 6 show that there is a relationship between an attitude and the resulting behavior as well as in particular for the trustful attitude conceptualized in this context: “our results provide strong support for the main and interaction effects of trust ... on customer retention” (Ranaweera & Prabhu 2003, p. 391). This interdependency is also confirmed by other authors (e.g. Einwiller 2003; McKnight & Chervany 2000).

The trustful attitude to a company thus influences the trustful behavior intention in two respects: First, trustors are ready to purchase the products of the company or – when applied to the pharmaceutical context – are willing to use the company’s medications when they are faced with an illness. Secondly, the behavioral intention is expressed in the fact that the players are willing to further recommend the company being trusted. The following section expresses these findings in the specification and operationalization of the construct in concrete terms.

2.4.2 Conceptualization and operationalization of trustful behavioral intention

According to Fishbein and Ajzen (1975), behavioral intention is characterized by the expectations of a person in relation to his or her own behavior in a certain situation. In attitude research, this intention is conceptualized partly as a subjectively perceived likelihood “to exhibit the specific behavior in the future (e.g. Reinecke 1997) and partly as a deliberate plan” (Einwiller 2003, p. 78; similar: Warshaw & Davis 1985).

In the context of this dissertation, behavioral intention is less about whether a person actually exhibits a behavior and much more about the extent to which this person would be potentially willing to rely on the interaction partner (Einwiller 2003). In this sense, trustful behavioral intention of physicians and members of patient organizations can also be expressed by these parties being generally willing to rely on the pharmaceutical company or its representatives without exhibiting corresponding behavior – for example further recommending medications. It is thus the behavioral *intention* that is significant in this context.

Muramatsu and Hanoch (2005) have shown that human behavior is essentially determined by the fact that players take actions from which they can yield, or at least expect to yield, a positive effect. Because trust, according to the definition presented here and the specification in the previous section and similar to the trustful attitude, implies the expectation of positive behavior on the part of the trustee, it can be assumed that the intention to act in the interests of the pharmaceutical company increases if there is a strong trustful attitude toward the company. The following hypothesis for this dissertation can be derived from this statement:

***Hypothesis 1:** The stronger the stakeholders' trustful attitude toward a pharmaceutical company, the stronger is their trustful intention to act in the interests of the particular company.*

In the interaction with the stakeholder's relevant for this work – physicians and members of patient organizations – two behavioral aspects are of interest as a product of the trustful attitude that are also relevant to the pharmaceutical companies from an economic perspective. The first is the stakeholders' intention to use the medication themselves when confronted with an illness, while the second is their willingness to recommend this product to others. Table 7 shows the operationalization of these two aspects:

Table 7: Indicators for measuring trustful behavioral intention

Construct	Indicator	Formulation
Trustful behavioral intention	vH.1	I would take the medicines of company x in case of illness.
	vH.2	I would recommend my family/friends to take the medicines/products made by company x in the case of illness.
<i>Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)</i>		

3 Corporate reputation as determinant of trust

The standing of a reputation object is based on the opinions and assessments that third parties hold toward said object. These assessments are exchanged, disseminated, constructed or also destroyed by players within social networks. In this connection, Schwaiger and Cannon (2004, page 239) conclude that “reputation is a construct similar to attitude”, while Post and Griffin (1997) actually view attitudes as a key feature of reputation. Reputation can thus be defined as an attitude-based construct that should be comprehended in a similar manner as attitudes (Fuchs 2009). However, these attitudes must be differentiated from the trustful attitude, which was examined in B 2.3. Below, the complex topic “Corporate reputation as determinant of trust” is briefly introduced (3.1). In the subsequent section, differentiation is made among attitude constructs (3.2).

3.1 Reputation as determinant of trust in business relationships

As indicated before, the development of trust in business relationships is a repeatedly examined topic with a broad theoretical foundation. However, it was not until the early 1990s with the emergence of reputation research that the topic “Reputation as determinant of trust” was explicitly emphasized. The following Table 8 provides an overview of the state of research on the topic:

Table 8: Publications on corporate reputation as a determinant of trust

Author / year / title	Focus	Method	Contribution to knowledge
Morgan & Hunt 1994 “The commitment-trust theory of relationship marketing”	Development of (reputation-based) trust and commitment toward a corporation	Creation of a new theory Structural equation method; n=204	Shared values, communication, reputation and altruistic behavior as key drivers of trust.
Doney & Cannon 1997 “An examination of the nature of trust in buyer-seller relationships”	Trust as antecedent parameter of purchasing decision	Multi-theory, literature-focused approach Structural equation method; n=210	Various corporate characteristics, including reputation, build trust.
Einwiller 2003 “Trust through e-business reputation”	Trust as a tool for reducing the perceived risk of online transactions	Hypothesizing based on TRA/TPB Structural equation method; n=473	Reputation breeds trust in the seller and online systems, which positively influences purchasing intention.
Ramchurn, Sierra, Godo & Jennings 2004 “Devising a trust model for multi-agent interactions using confidence and reputation”	Reputation as driver of trust	Game theory No empirical validation	Trust results from security and reputation.
Eisenegger 2005 “Reputation in the media society”	Media communication as driver of reputation	Literature and model-based analysis No empirical validation	Reputation breeds a perceived trustworthiness.
Eberl 2006 “Corporate reputation and purchasing behavior”	Influence of positive reputation on willingness to pay and the attitude toward banking products	Hypothesizing on the basis of S-O-R paradigm Structural equation method; n=104	Reputation constitutes a decisive determinant in the purchase decision-making process.

B: Minimizing risk through trust

Author / year / title	Focus	Method	Contribution to knowledge
Herger 2006 “Trust and organization communication: Identity – brand – image – reputation”	Brands and reputation as concepts for generating trust	Multi-theory, primarily literature-based hypothesizing No empirical validation	Trust is a complex concept with multifaceted influencing factors including (and especially critical) reputation.
Greschuchna 2006 “Trust in management consulting: influencing factors and consequences”	Criteria of small and medium-sized companies when selecting consultants	Analysis of theoretical approaches, yet literature-based hypothesizing Structural equation method; n=261	Reputation is an influencing factor of trust that affects selection of provider.
Helm 2007b “Corporate reputation and stakeholder loyalty”	Connection between reputation, own experience and loyalty of the stakeholder of a consumer products manufacturer	Multi-theory approach Structural equation method; n=1,912	Reputation has a positive influence on loyalty, albeit weaker than that of stakeholder experience.
Michaelis, Woitschläger, Backhaus & Ahlert 2008 “The effects of country of origin and corporate reputation on initial trust”	Country-specific influence of reputation on consumer trust	Literature-based hypothesizing Experimental design; n=184	Reputation and risk are key determinants of trust.
Boero, Bravo, Castellani & Squazzoni 2009 „Reputational cues in repeated trust games”	How knowledge of “reputation” influences willingness to cooperate and trust	Literature-based representation of game theory principles Experimental design; n=120	Reputation in person-to-person context identified as behavioral determinant.

All of the eleven publications listed in Table 8 single out corporate reputation or related concepts as determinant of trust. Only three publications do not test their postulates empirically (Ramchurn et al. 2004; Eisenegger 2005; Herger 2006). The remaining eight studies use complex statistical methods, structural and measurement models.

With regard to theory, it can be established that all of the outlined publications are theoretically based with most of them employing similar basic theories. As a result, there is repeated reliance on the S-O-R paradigm as well as the (related) approaches of Theory of Reasoned Action and the Theory of Planned Behavior. The Commitment-Trust Theory developed by Morgan and Hunt is also grounded on sociopsychological approaches. Only one of the studies (Boero et al. 2009) uses the game theory as scientific approach.

The interdependency between reputation and trust was examined by Morgan and Hunt (1994) and applied by Doney and Cannon (1997) in the economics discussion. These authors demonstrated the trust-building effect of reputation using this approach, while others (e.g. Williamson 1985) attribute a trust-strengthening effect to reputation or label it as a “generator of trust” (Einwiller 2003, page 108) or “similar to attitude” (Eberl 2006, page 12). Other authors such as Eisenegger (2005, page 34) point out that reputation produces “trust in functionally justified and normative as well as morally correct action”.

Einwiller (2003) made an important contribution to knowledge by studying the connection between reputation and trust as well as operationalizing the two constructs. As with pharmaceuticals, the context of this study, e-trade, is associated with high risks, even if human lives do not directly depend thereon (as in the pharmaceutical context).

Recent specialized literature also takes into consideration the fact that, as a factor influencing trust, reputation is multidimensional. In this connection, Fombrun’s approach must be cited, which allows for the multidimensionality of reputation when measuring reputation among corporate stakeholders using “reputation quotient” (i.e. Gardberg & Fombrun 2002).

Viewed collectively, neither the contributions of Gardberg and Fombrun (2002), Einwiller (2003), (Eberl 2006) and Helm (2007b) nor those of the

other authors sufficiently allow for the special complexity of trust-forming processes between pharmaceutical corporations and their stakeholder groups, thus confirming the initially argued academic void.

At the same time, the literature review showed that the specific problem present here, particularly as it relates to the construct of corporate reputation, also runs into an academic void. For this reason, a detailed picture of corporate reputation in the context of pharmaceutical corporations is developed in Chapter C. As a substantive conclusion it can be established that reputation constitutes a type of preliminary stage or condition for the development of stakeholder trust toward the corporation, making it necessary to examine in detail the aforementioned interdependency in the following section.

3.2 Modes of action of reputation in generating trust

As discussed under B 1.1 in the discussion of the Social Exchange Theory, reputation can serve as the basis of a prognosis of future, non-opportunistic behavior of the interaction partner. Because trust, as explained in B 2, constitutes the assumption of non-opportunistic behavior of this type, it is an obvious conclusion that reputation promotes trust. This section outlines the theoretical development of this postulate.

Literature presents two specific mechanisms via which reputation promotes trust in a reputation receiver. If a player finds himself in a risky situation in which he must decide to either trust or distrust another player, reputation, as a form of external information, can significantly contribute to reducing uncertainty (Yamagishi & Yamagishi 1994), as demonstrated in B 3.2.1. Secondly, the trust giver is sometimes able to damage the reputation of the trust receiver in the event of a breach of trust, for example by disseminating negative information (Spremann 1988). This topic is addressed in greater detail in B 3.2.2.

3.2.1 Reputation as information

In B 2 it was demonstrated that trust is important particularly in situations involving incomplete information (Luhmann 1989). This can be attributed to the fact that if one side of an interaction relationship has the majority of information, it will gain an advantage that facilitates opportunistic behavior. This problem of asymmetrical information is present particularly for trust-based goods such as medications, the characteristics of which the consumers are unable to verify both prior to and following purchase (Darby & Karni 1973).

The challenge for the drug manufacturer as a producer of a trust-based good lies in transforming trust characteristics into search characteristics (Sammer & Wüstenhagen 2006), i.e. factors that can be identified prior to taking the drug. In these situations, reputation gains a special role: buyers can

“infer the trustworthiness of a supplier through the words and actions of other people and organizations ... [which] predict a positive relationship between supplier reputation’ and the buyer’s trust in the supplier” (Suh & Houston 2010, page 747; citation within citation Doney & Cannon 1997, page 39).

The reputation held by the supplier is an important piece of information on the basis of which the credibility – one of the central characteristic dimensions of trust – of the commercial partner can be gauged (Doney & Cannon 1997). Reputation can also serve to gauge the likelihood of negative consequences occurring, allowing overall reputation to be characterized as a carrier of information for the coordination of trust (Chiles & McMackin 1996, page. 87).

3.2.2 Reputation as penalization option

The trustor’s potential to damage reputation in the event of the pharmaceutical company’s negative behavior can be used as a threat of punishment. The purpose of this option is to influence the opportunity costs of

the trustee's opportunistic behavior in such a manner that it no longer benefits the trustee to abuse its trust (Einwiller 2003).

The rationale of damage to reputation causing increased opportunity costs is based on costly-signaling-theory. This theory concerns the temporal or monetary effort exerted to convey traits that cannot be observed directly (Gintis, Smith & Bowles 2001). The value of this effort can be regarded as a form of "security deposit" for reputation. The size of security deposit for reputation is indicated to the trustor through various signals. Major investments in reputation can be deduced from, for example, the scope of marketing and communication activities, while major investments in marketing activities can become useless if negative information about the company is disseminated. A breach of trust, e.g. resulting from the sale of medications with unforeseen side effects, can inflict considerable damage on a pharmaceutical manufacturer's reputation, as was the case with *Vioxx* from Merck & Co.

This scenario is possible only if the trust recipient values its reputation and the trustor actually has the capability to render lasting damage to reputation (Petermann 1996). This possibility exists because pharmaceutical corporations depend on both the prescription-writing behavior of physicians and the recommendation-issuing behavior of patient organizations in the context relevant in this case.

The mere existence of (positive) corporate reputation of pharmaceutical companies thus offers stakeholders the opportunity to negatively sanction any breach of trust. This in turn gives reputation a factual value, which can, if necessary, be used to offset the risks undertaken by the trustor, thus decreasing the perceived risk (Nakayachi & Watabe 2005).

4 Summary

By focusing on prescription medication, this dissertation addresses a topic that is characterized primarily by entailing high risks for the users (pa-

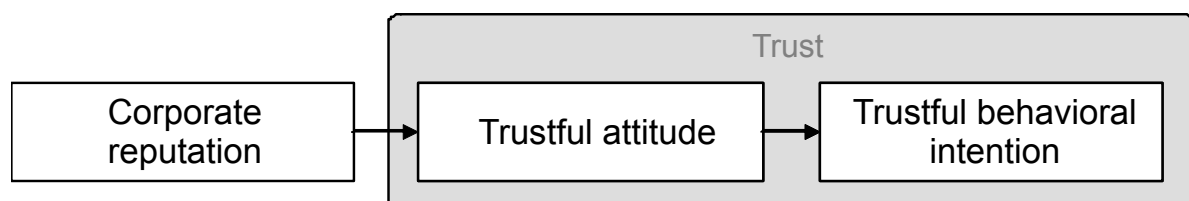
tients). As B 1 illustrates, trust is a mechanism of social interaction that can reduce the perceived risk of those involved.

Aided by sociological, psychological and economic approaches to explaining trust, B 2 specified trust in pharmaceutical companies as a multi-dimensional construct. Differentiation is made between trustful attitude – characterized by the trustor ascribing the trustee with the attributes of benevolence, competence, integrity and predictability– and trustful behavioral intention of the trustor.

B 3 addresses the effect of reputation on the process of generating trust. This effect is shown in a literature survey on the basis of numerous empirical results and, on the theoretical side, can be attributed to two causes. First, a pharmaceutical company's reputation constitutes a search characteristic, i.e. information that is accessible to the stakeholders and thus reduces the risks that are associated with the lack of information inherent in medications as trust goods. Secondly, reputation can also function as a form of deposit, which both reduces perceived risk and engenders trust.

Graphically summarizing the knowledge gained thus far, shows that there is a causal chain of effect with reputation acting as starting factor that creates trust – first in the form of a trustful attitude. As stated in Hypothesis 1, this impacts stakeholders' trustful behavioral intention. Figure 7 shows this chain of effect as a basic research model with the postulated effect relationships between the examination variables:

Figure 7: Basic research model for the study



Source: Own chart.

B: Minimizing risk through trust

With an analysis of literature on corporate reputation showing reputation to be a complex construct with various attributes, it is necessary to specify this construct throughout the further course of this dissertation. Therefore the purpose of the following explanations is to further illuminate the reputation construct for the context of this dissertation.

C Corporate reputation from stakeholder perspective

This research project seeks to define the formation parameters of corporate reputation that promote the trustful attitudes of stakeholders toward companies and their trustful behavioral intentions toward these organizations. With the preceding Chapter B illustrating the basic interdependency between the three constructs, it is now necessary to specify the reputation construct for the application context.

1 Defining the concept of reputation

In general language usage, reputation is synonymous with the terms “esteem”, “prestige” or “standing”. While these synonyms capture the essence of reputation, a scientific presentation dictates a more detailed analysis.

Existent since the early 1980s, research on corporate reputation was initially driven more by the companies themselves. Until the recently, there were two problems. First was the fact that a clear definition and differentiation to related constructs such as corporate image, for example, were insufficiently undertaken (Fombrun & van Riel 1997). Second was the circumstance that the conceptualizations of reputation were often sharply divergent in the various disciplines of economics, management, organization, sociology and accounting (Fombrun & van Riel 1997; Helm 2007b). Confirming this, Highhouse, Broadfoot, Yugo and Devendorf (2009) came to the following conclusion in their study:

“[The corporate] reputation construct remains poorly understood. There are a myriad of related concepts ... this area of scholarship appears Byzantine in complexity... The applied psychology literature has primarily been concerned with corporate reputation as it relates to employee attraction” (Highhouse et al. 2009, p. 782ff.).

According to Gotsi and Wilson (2001, p. 24) there is “no unambiguous, generally accepted definition of the term corporate reputation”. They attribute this fact to two fundamentally different schools of thought on reputation research that differ particularly in their definition of the construct “corporate image”. Barnett, Jermier and Lafferty (2006) provide a comprehensive inventory of academic definitions of reputation. In their analysis, the authors offer the following criticism: “Over the years authors have adopted different, sometimes even contradictory definitions for the term corporate reputation” (p. 27) and “it would be inaccurate to claim that there is something of an emerging consensus among researchers” (p. 35).

Rather than individually listing the plethora of definitions found in the topic, the three frequently used English definitions provided by Fombrun and van Riel (1997), Gotsi and Wilson (2001) as well as Barnett, Jermier and Lafferty (2006) are presented instead. These definitions are supplemented with definition variants frequently used in the German-speaking world. Table 9 provides an overview:

Table 9: Definitions of corporate reputation

Author / year	Definition
Fombrun 1996, p. 36	multiple images of a company held by all of its stakeholders, where an image can be conceptualized as a network of cognitive associations about a stimulus, a cognitive schema
Fombrun & van Riel 1997, p. 10	a collective representation of a firm's past actions and results that describes the firm's ability to deliver valued outcomes to multiple stakeholders
Gotsi & Wilson 2001, p. 29; similarly Eberl 2006, p. 11	A corporate reputation is a stakeholder's overall evaluation of a company over time. This evaluation is based on the stakeholder's direct experiences with the company, any other form of communication and symbolism that provides information about the firm's actions and/or a comparison with the actions of other leading rivals.
Bauhofer 2004, p. 17.	[Reputation] is constituted from experiences, feelings, findings, impressions and knowledge that humans gather over a longer period of interaction with persons or the company and distill into an overall impression.

C: Corporate reputation from stakeholder perspective

Author / year	Definition
Schwaiger 2004, p. 49	We conceptualize reputation as an attitudinal construct, where attitude denotes subjective, emotional and cognitive mindsets. Thus, evaluating corporate reputation not only appraises subjective perceptions of a company's attributes ... but also allows an intrinsic disposition towards these attributes.
Barnett, Jermier & Lafferty 2006, p. 34	observer's collective judgments of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time
Helm 2007b, p. 32	The reputation of a particular company from the perspective of a stakeholder is understood as the competence (capacity and will to perform) that the stakeholder ascribes to the company on the basis of his own opinions as well as his perception of the aggregated opinions of others and which can concern all types of services the company provides to markets as well as to society.
Kirstein 2009, p. 32	Corporate reputation is understood as the sum of reputation perceptions of all internal and external stakeholders, taking into account financial and social influences as well as environmental influences over the course of time.
Highhouse, Broadfoot, Yugo & Devendorf 2009, p. 783	Corporate Reputation is a global, temporarily stable, evaluative judgment about a firm that is shared by multiple constituencies.

A basic definition of corporate reputation for the purposes of this study shall next be generated on the basis of the following description of the functional and teleological aspects of the definitions listed above.

▪ Functional aspects

Barnett, Jermier and Lafferty (2006) categorize the terminology they examined in three basic definition groups: 1) perception-oriented, 2) assessment-oriented and 3) value-oriented. In their conclusion, the authors clearly favor the evaluative aspect of reputation, because it allows the term "corporate reputation" to be clearly differentiated from "corporate image", which in their opinion implies the basic perception of a company that does not involve evaluation.¹⁵

¹⁵ Corporate image is usually understood as a short-term, changeable and constructive – particularly in communicated messages of the company – "image", which

In view of the available definitions, this categorization does not appear to suffice. In fact, the definitions according to Fombrun and van Riel (1997) (value-oriented), Fombrun (1996), Gotsi and Wilson (2001), Schwaiger (2004), Barnett, Jermier and Lafferty (2006) and Highhouse et al. (2009) (evaluation-oriented) as well as Kirstein (2009) (perception-oriented) are still somewhat difficult to categorize in relation to one another. Helm's (2007) very comprehensive definition, however, spans all three areas and the other definitions also exhibit overlap with the other areas. Reputation is the product of the past experiences the parties have had with one another, as Kirstein (2009) explicitly mentions in her definition. In this context, Bauhofer states the following:

“While a company or a person can ‘buy’ an image for the short-term, reputation is earned only through hard work and concrete performance over a long period of time” (Bauhofer 2004, p. 17).

Despite all of the heterogeneity and the, in some instances, contradictions among the definitions, a basic consensus prevails that reputation is a social phenomenon composed of different reputation attributes and reputation dimensions. It can therefore be inferred that the majority of authors speak of a “heap” of opinions, attitudes and images. The relevant reputation attributes depend on stakeholder group and must therefore be specified for the application context (Schwaiger 2004).

does not necessarily have to correspond to the company's actual actions. In contrast, reputation more strongly describes a “realistic”, long-term oriented picture based on the company's actual behavior, which is determined by the direct experiences of its stakeholders and their communication about their experiences (Eberl 2006; confirmed by: Fuchs 2009). For a detailed discussion on the topic “reputation and image”, see Gotsi and Wilson 2001 as well as Gray and Balmer 1998.

- Teleological aspects

The explanations on the objective as well as meaning of a reputation are only peripherally addressed in the definitions listed. Corporate reputation leads to an “acknowledgement of competence” (Helm 2007b, p. 32), i.e. the company’s ability and willingness to perform as perceived by the target group or stakeholders. It provides information about the company that distinguishes it from the competition (Gotsi & Wilson 2001) and produces an intrinsic disposition or affection toward the company (Schwaiger 2004). Reputation is found to have an expanded spectrum of effect on shareholders’ attitudes (Einwiller, Herrmann & Ingenhoff 2005).

- Synopsis

Corporate reputation is a complex construct with a multitude of subjective, cognitive and affective influencing factors (Schwaiger 2004), to which personal and outside experiences and opinions contribute (Helm 2007b). In addition, Barnett, Jermier and Lafferty (2006) mention that corporate reputation is a “collective judgement”, i.e. an attitude shared by a social group. This same idea is reflected by Fombrun and van Riel (1997), Gotsi and Wilson (2001) as well as Eberl (2006). According to Schwaiger (2004), this attitude is based on the perception and evaluation of various attributes of the company. Borrowing the Gotsi and Wilson (2001) definition established in academic literature and supplementing it with the attributes emphasized by Schwaiger (2004), corporate reputation can be defined as follows:

Definition of corporate reputation
Corporate reputation denotes the assessment of a company over time by its stakeholders, which is based on the evaluation of different corporate attributes relevant to the stakeholders.

The following section shall individually clarify the “corporate attributes relevant to the stakeholders” and explain how they are obtained for the pharmaceutical context relevant to this dissertation.

2 State of research on corporate reputation

The term corporate reputation had been gradually gaining importance in economics since the mid 1980s, before then rising steadily between the late 1990s and today. The field has had its own journal, *Corporate Reputation Review*, since 1997 and specialized institutes have been established for the management of corporate reputation in the Anglo-American world (Fombrun & van Riel 1997). In the last ten years, the German-speaking world has also witnessed an increased interest in research on the topic.

This section, shall first present the most common academic approaches in the field. It shall then introduce the most important of the reputation rankings published mostly in the business press to provide an integrated overall picture of the existing level of knowledge on corporate reputation.

2.1 Scientific approaches to corporate reputation

Schwaiger sums up that while a “wide variety of scientific and semi-scientific publications” exists (Schwaiger 2004, p. 46), the theory is not yet mature. Wiedmann also criticizes the scientific quality of research work in general (Wiedmann & Buxel 2005). To illustrate the state of research, the following section shall present the literature published on the topic.

Table 10 illustrates that there has been a relatively high degree of research intensity in the area of corporate reputation for roughly a decade. Because there has been a multitude of publications on this topic in the meantime,¹⁶ this dissertation shall address only the publications that are

¹⁶ See Berens and Van Riel (2004). The authors provide a detailed literature review of publications up to 2004.

of central importance for the study and yield implications with regard to the research questions. In this context, empirical work is examined above all.

Table 10: Publications on corporate reputation

Author / year / title	Focus	Method	Contribution to knowledge
Schwaiger 2004 „Components and Parameters of Corporate Reputation”	Conceptualization and measurement of corporate reputation	Literature-based model development, exploratory interviews for validation Structural equation method; n=900	Four determinants (quality, financial performance, attractiveness and responsibility) decide competence and sympathy perception as two dimensions of reputation.
Walsh & Wiedmann 2004 “A Conceptualization of Corporate Reputation in Germany”	Applicability of reputation quotient for financial analysts in Germany	Literature-based model-building Exploratory interviews; n=40	Influencing factors for supplementing the RQ: fairness, sympathy, transparency and perceived customer orientation
Schütz 2005 “The relevance of corporate reputation for investor decisions”	Impact of corporate reputation on investment decisions	Approaches from behavioral finance Experimental design	Reputation has a positive influence on investment behavior.
Wiedmann & Buxel 2005 “Corporate Reputation Management in Germany”	Significance and goals of reputation management in practice	Exploratory study without use of theory Frequency evaluation; n=131	Reputation is used as a tool to influence stakeholders, particularly as marketing tool.
Carter & Ruefli 2006 “Intra-Industry Reputation Dynamics Under a Resource-Based Framework: Assessing the Durability Factor”	Temporal stability of corporate reputation in the petroleum and pharmaceutical industry	Generating resource theory-based hypotheses Aggregated secondary statistics	Corporate reputation is subject to temporal changes. The petroleum industry is more susceptible to influence from current events than the pharmaceutical industry.

C: Corporate reputation from stakeholder perspective

Author / year / title	Focus	Method	Contribution to knowledge
Walsh, Dinnie & Wiedmann 2006 "A Conceptualization of Corporate Reputation in Germany"	Effect of modified (see Wahls & Widmann 2004) on public utilities customers	Literature-based model development Structural equation method; n=462	Reputation has no influence on consumers changing supplier, but has a strong correlation with satisfaction
Graham & Bansal 2007 "Consumers' Willingness to Pay for Corporate Reputation"	Airline customers' willingness to pay on the basis of corporate reputation	Literature-based hypothesizing Experimental design; n=71	Reputation increases with financial performance, company size, company age, positive opinions of third parties and low number of crashes.
Helm 2007b "Corporate reputation and stakeholder loyalty"	Connection between reputation, own experience and loyalty of the stakeholder of a consumer products manufacturer	Pluralistic theory approach Structural equation method; n=1,912	Reputation has a positive influence on loyalty, albeit weaker than that of stakeholder experience.
Loefert 2007 "Corporate reputation and M&A transactions"	Significance of the roll a company's reputation in the context of M&A transactions in the US banking and telecom industry	Exploratory character, no theory-based hypothesizing Non-parametric difference test, no original investigation	Reputation has no detectable influence on the assessment of M&A transactions.
Obloj & Obloj 2007 "Diminishing Returns From Reputation: Do Followers Have a Competitive Advantage?"	Value of a reputation in a homogenous market (for example eBay)	Theory-guided hypothesizing (transaction cost theory) Evaluation of objective data on eBay from n=78 transactions	Reputation is subject to the concept of diminishing marginal utility as a function of competitors.
Kirstein 2009 "Corporate reputation"	Corporate social responsibility as a driver of reputation and the impacts thereof on purchasing decision	Literature-based development of a structural model (Schwaiger); Approaches from the S-O-R paradigm are used. Structural equation method; n=965	Corporate social responsibility and a company's attractiveness as drivers of reputation are found to have an influence on car-buying decisions.

C: Corporate reputation from stakeholder perspective

Author / year / title	Focus	Method	Contribution to knowledge
Fuchs 2009 "Corporate reputation and market strengths"	Possibility and purpose of an integrated measurement of reputation and market strength in the consumer goods sector	Based on Schwaiger's reputation model, no theoretical foundation Structural equation method; n=1,498	Reputation facilitates a perception of the company as good and competent and results in above average market returns.

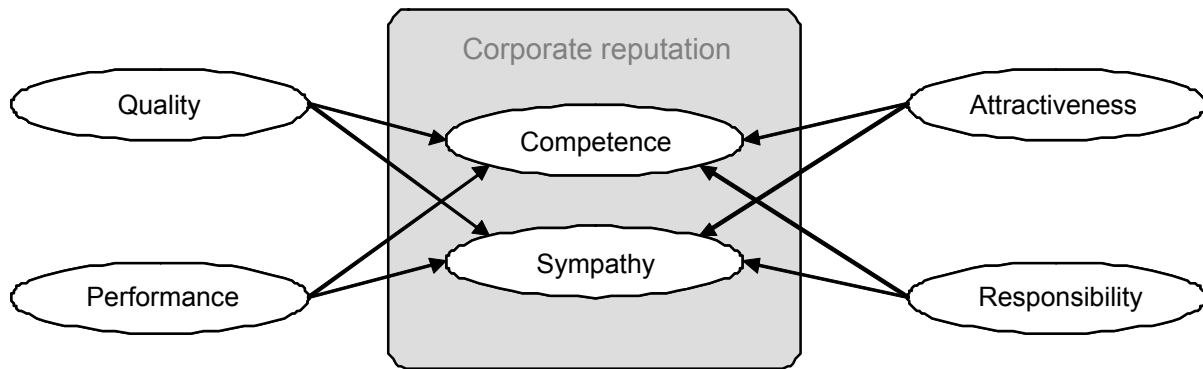
The publications listed in Table 10 centrally examine the influencing factors and the measurement as well as impacts of corporate reputation, while differing significantly in their theoretical and empirical foundation. With regard to theory, it can be established that several of the publications do not possess an original theoretical foundation, others build on secondary literature and four use basic theories, albeit varying widely from one another. These specific publications rely on the resource-based view (Carter & Ruefli 2006), the transaction cost theory (Obloj & Obloj 2007), the S-O-R-paradigm (Kirstein 2009) as well as the approaches of behavioral finance (Schütz 2005). The publications examined prove to be ambitious in terms of their empirical approaches: Six of the listed authors work with multivariate analytical methods and with a high number of cases. Two publications stand out with their complex experimental design.

Because the publications show considerable overlap with regard to the conceptualization of reputation, it is not necessary to present each publication in detail. However, Schwaiger's model is briefly addressed below, which is repeatedly used in academic literature as a concept for measuring corporate reputation (e.g. Schütz 2005; Eberl 2006; Fuchs 2009). To gain deeper insight into the state of research, the concepts of Walsh and Wiedmann (2004) as well as Helm (2007b) are introduced below.

To develop a model, Schwaiger resorted to existing practice-oriented measurement concepts as well as explorative expert surveys. Through exploratory analysis of factors, a structural model with four influencing

factors was derived from the abundance of data gathered in this process. The four factors explain two sub-areas of corporate reputation, specifically competence and sympathy (Schwaiger 2004), as Figure 8 illustrates:

Figure 8: Schwaiger's corporate reputation model

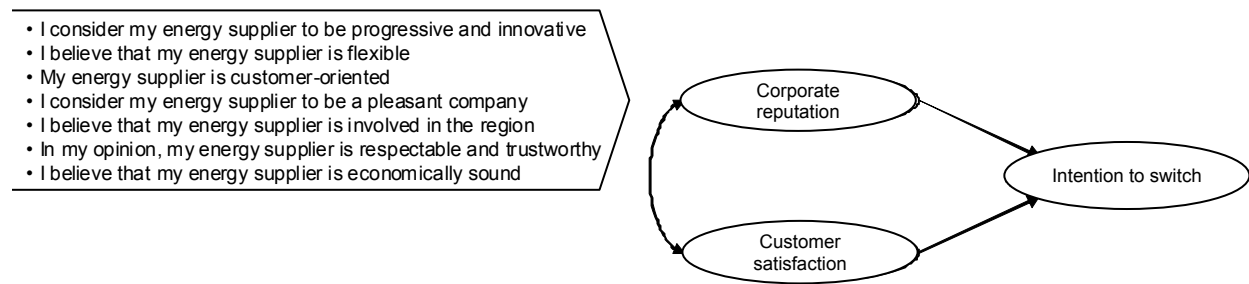


Source: Own chart based on Schwaiger (2004, p. 66).

In this context, it is the author's approach in developing the model that is more important than the model itself. Following literature-based considerations, indicators were generated through expert interviews and then distilled to constructs by means of exploratory factor analysis. This approach lends itself to the present dissertation as well. According to Schwaiger (2004), reputation attributes and the indicators thereof are valid only for certain stakeholder groups and types of companies and must be individually specified for each research context (stakeholder groups and industry).

Figure 9 presents the research model of Walsch and Wiedmann (2004):

Figure 9: Corporate reputation model of Walsh and Wiedmann



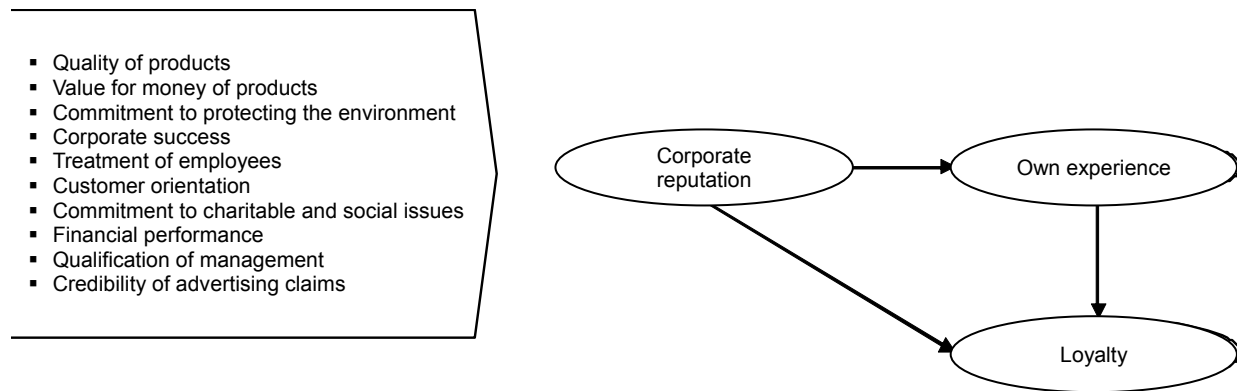
Source: Own chart based on Walsh, Dinnie and Wiedmann (2006, p. 415).

While the authors do not establish that reputation has any direct influence on the intention to switch suppliers, they do find a strong correlation with satisfaction, which in turn has a positive and significant impact on the intention to switch suppliers. The intention to switch suppliers studied here can be understood as a potential (negative) manifestation of the target parameter “trustful behavioral intention” discussed under B 2.4. Furthermore, the results of the three authors confirm that effect – also supposed in this – of corporate reputation mediated through attitude conceptually exists.

The seven examined attributes of corporate reputation, which are also presented in Figure 9, are also of interest. It should be pointed out that these seven total attributes are not *dimensions* of the reputation construct as defined in this dissertation, but are instead *indicators* of a *one-dimensional reputation construct*. The essentially same remark also applies to the Helm’s research model¹⁷, which is illustrated in Figure 10:

¹⁷ Figure 10 lists the ten indicators with which corporate reputation is measured in Helm’s model (Helm 2007b, p. 410).

Figure 10: Helm's corporate reputation model



Source: Own chart based on Helm (2007b, p. 254 ff.).

In her publication, Helm studies the effect of corporate reputation on stakeholder loyalty, which can be “understood as a state of association to a company based on positive attitudes” (Helm 2007b, p. 6). She postulates that reputation – together with personal experiences, which simultaneously serve as a mediating parameter – has a positive impact on loyalty.

The author deduces her measurement model for corporate reputation from existing literature. She uses – which makes the publication special – a formative measurement model based on a central realization that can also be understood through in-depth examination of all publications listed in Table 10: The majority of the causal analysis studies published to date are based on reflective measurement models. In reflective measurement models, the construct causes the variables attributed thereto. The opposite are formative measurement models in which the indicators in their entirety determine the latent construct (Homburg & Giering 1996; in detail in D 1). Reflective models allow only the effects of latent variables (such as corporate reputation) to be identified and measured. They do not reveal the propelling individual factors (observable indica-

tors) that facilitate the development or expansion of corporate reputation (Diamantopoulos & Winklhofer 2001, p. 271)

In reflective measurements, relationships and influences are presented only on the whole dimensional level. This means that concrete measures that could function to systematically increase reputation by means of appropriate “reputation management” cannot be methodically derived from reflective models (Helm 2007a). For a goal-oriented reputation management, this detailed information on the influence of individual indicators on the target parameters is of elementary importance however. For this reason, the formative operationalization shall be used for reputation measurement in this dissertation (see D 1).

Another realization gained from the analysis of the research models presented is that there is a multitude of corporate reputation attributes that must be specified for each individual study context according to Schwaiger’s instructions (2004). Before possible attributes for the measurement of pharmaceutical company reputation as defined in this dissertation can be discussed in C 2.3, the existing practice-oriented measurement concept must first be introduced.

2.2 Reputation rankings in the media

In the meantime, a vast number of reputation rankings (183 as counted by Fombrun 2007) have been published in the media, all of which of course cannot be presented here. Instead, insight into the methodology of this type of practice-oriented reputation concepts should be provided by presenting the key approaches to draw conclusions for the conceptualization of the reputation construct.

Since 1997, Fortune has published a global list of the “*World’s Most Admired Companies*” (WMAC) each spring parallel to the US list “*America’s Most Admired Companies*” (AMAC). Manager-Magazin publishes another model for measuring the overall reputation of companies. A feature titled

“Imageprofile” lists the corporations with the best as well as the worst reputation in Germany. The Reputation Institute offers another approach with its *Reputation Quotient* and *RepTrak*-ranking, which it publishes annually in the online edition of the business news magazine *Forbes*. These three approaches repeatedly cited in academic literature are presented below and are analyzed with regard to their contribution of knowledge for this dissertation.

- Fortune: World’s Most Admired Companies

Fortune has annually published a ranking of America’s Most Admired Companies (AMAC) since 1983. The ranking is based on an index value, the Overall Reputation Score (ORS), which is calculated as the average of eight reputation attributes. Companies are evaluated according to these items on a scale of 0 to 10 by executives from within and analysts specialized in the industry. The company’s final point total is determined by calculating the arithmetic mean of the added assessments of the individual items and corresponds to the ranking position for the particular industry.

The international “World’s Most Admired Companies” ranking (WMAC) is designed as analogous to the AMAC, yet includes an additional reputation attribute for assessing degree of internationality. Figure 11 shows the questionnaire with the relevant aspects:

Figure 11: Rating scale for WMAC pharmaceutical industry ranking

0 1 2 3 4 5 6 7 8 9 10									
POOR		FAIR		GOOD		VERY GOOD		EXCELLENT	
Pharmaceuticals	Quality of management	Quality of products/ services offered	Innovative ness	Value as a long term investment	Soundness of financial position	Ability to attract, develop, and keep talented people	Responsibility to the community and/or the environment	Wise use of corporate assets	Effectiveness in conducting its business globally
Abbott Laboratories									
Amgen									
AstraZeneca									
Bristol Myers Squibb									
Eli Lilly									
GlaxoSmithKline									
Johnson & Johnson									
Merck									
Novartis									
Pfizer									
Roche Group									
Sanofi Aventis									
Schering Plough									
Wyeth									

Source: Fortune (2008).

Although both of these Fortune rankings are actively cited in academic literature (Roberts & Dowling 2002), they should be viewed “in terms of both concept and measurement theory as highly problematic” (Eberl 2006, p. 13). A key point of criticism is their focus on only one or a narrow selection of stakeholder groups (executives and a few industry analysts). A radical examination of the conceptual and defining fundamentals of the term reputation is lacking, which is academically unacceptable according to Diamantopoulos and Winklhofer (2001).

Using a factor analysis, Fryxell and Wang (1994) show that seven of the eight factors of the AMAC are influenced by the financial potential of each company, thereby distorting the perception of the persons surveyed. “The Fortune Corporate Reputation Index apparently measures financial performance as perceived by the persons surveyed and not

much else" (Kernstock & Schubiger 2004, p. 307). Helm (2007) sees further methodical problems for which the approach employed by Fortune is unclear whether reputation is a one- or multi-dimensional construct. Bromley (1993) also criticizes the lack of terseness in the categories used.

Although the AMAC and WMAC Ranking can be regarded as pioneers of regularly published reputation measurement tools, a survey involving only upper management and analysts is not sufficient for providing a picture of corporate reputation that transcends industries and stakeholder groups. Nevertheless, the wide and permanent dissemination of the surveyed attributes – which, analogously to the aforementioned remarks on the research models of Walsh and Wiedmann as well as Helm (see C 2.1) would have to be correctly labeled as *indicators* – exhibit their relevance. For this reason, it shall be revisited throughout this dissertation.

- Manager-Magazin: Imageprofile

Germany's Manager-Magazine has been conducting surveys to gauge the reputation of Germany companies since 1987. In 2008 the magazine surveyed 2,500 upper management personnel by telephone to measure the overall reputation of Germany's 152 highest grossing companies. The persons surveyed were prompted to indicate the overall reputation of a company on a scale of 0 to 10 and then the reputation of each company in terms of five reputation attributes – customer orientation, quality of products and services, management quality, innovativeness and ethical behavior (Manager-Magazin 2008).

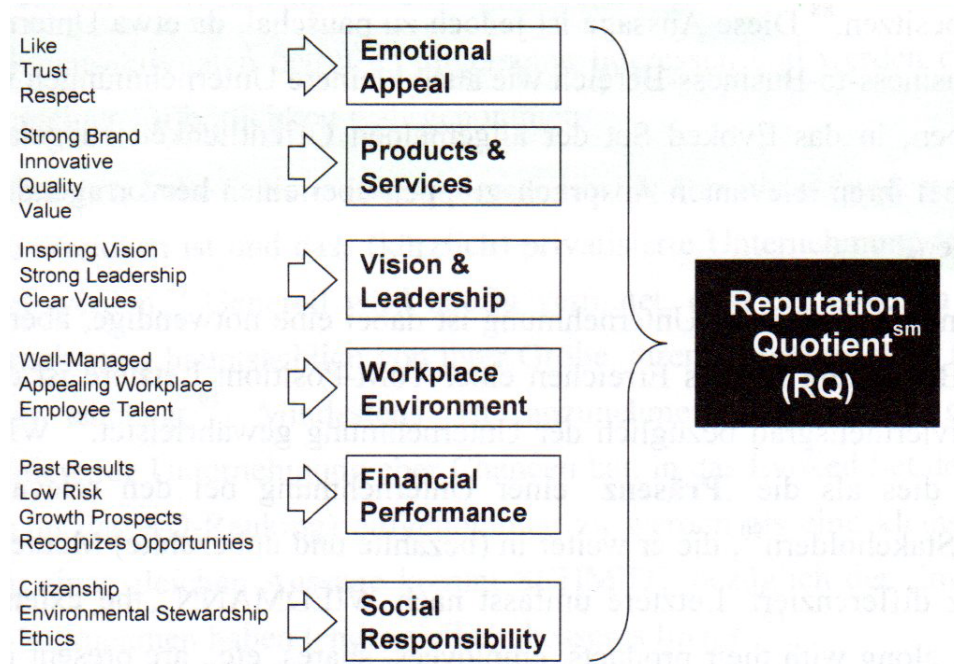
Although other measurement attributes are sometimes used in generating the image profile, the study has the same basic design as the AMAC and WMAC. In essence only one stakeholder group is surveyed: corporate upper management. The academic applicability of the approach is therefore undermined by the same limitations found in the WMAC (Eberl 2006).

It should also be noted that automobile manufacturers such as Porsche, BMW and Audi regularly take top place in this ranking by a significant margin. The above average performance of the automobile industry may be attributed to the selection of persons surveyed. Very few countries would seem to foster the same strong affection for automobiles among managers as “Autoland” Germany (Canzler 2005). While this type of informant bias (Huber & Power 1985) cannot always be avoided in empirical surveys, such as high degree must be viewed critically.

- Reputation Institute: Reputation Quotient and RepTrak

Together with the marketing research institute, Harris Interactive, Charles Fombrun developed a standardized tool, which he first released in 1997: the “Reputation Quotient” (RQ). The tool is designed to measure corporate reputation across industry lines (Fombrun & Wiedemann 2001) and tackle the challenge of quantifying the contributions of the individual reputation attributes (Fombrun, Gardberg & Barnett 2000). The individual attributes of the RQ are illustrated in Figure 12:

Figure 12: The reputation quotient

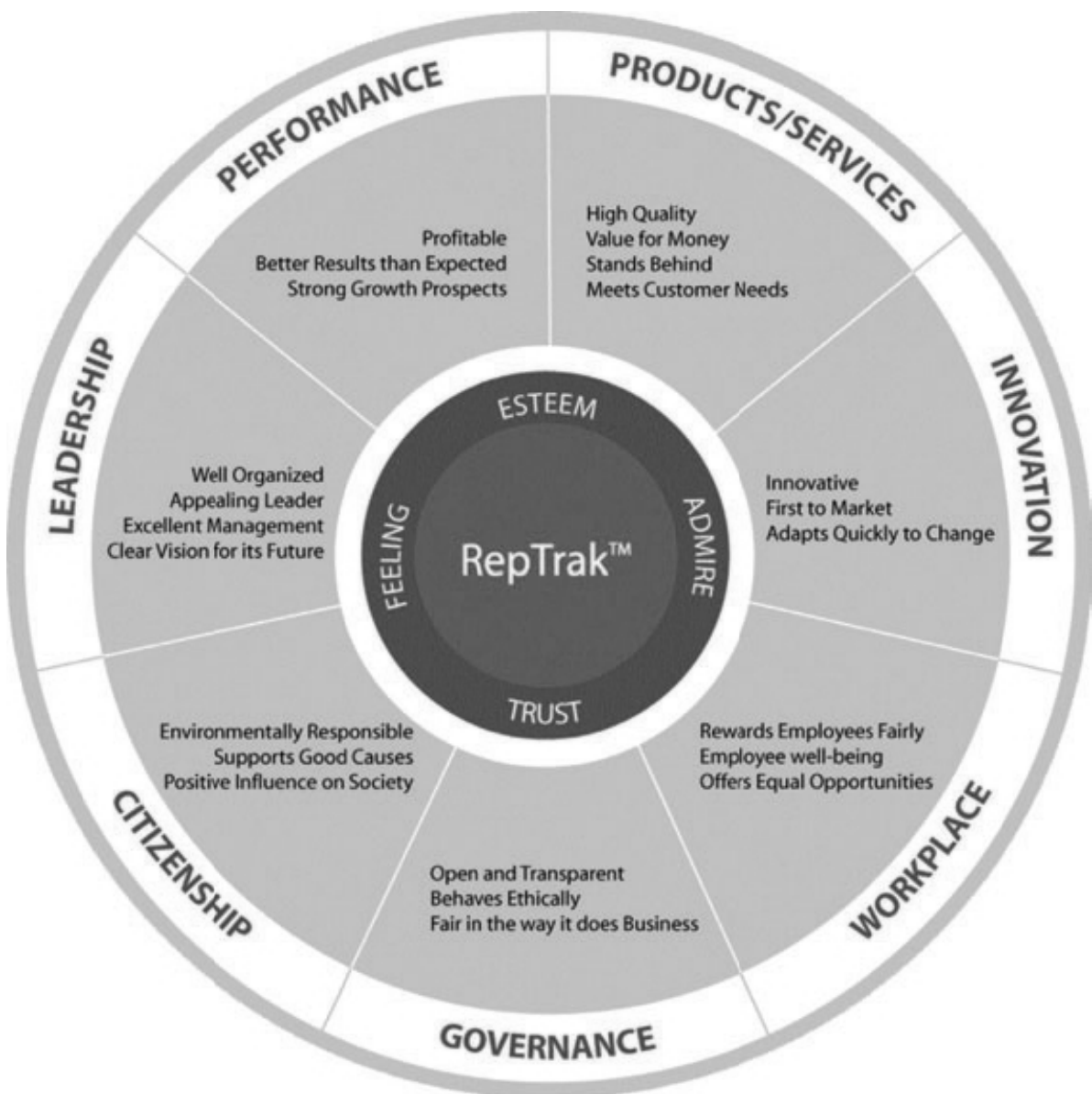


Source: Fombrun & Wiedemann (2001, p. 14).

Fombrun recognized that individual reputation attributes can have different relevance for different stakeholder groups: Because investors, for example, place more importance on a company's financial performance than consumers would and NGOs place more importance on social responsibility than financial performance, Fombrun asserts that it is important to survey a representative basic population (Fombrun & Wiedemann 2001).

Since 2006, the Reputation Institute has used the "RepTrak-model", an advanced version of the RQ. The results of the studies are regularly published by Forbes.com as a ranking of the "World's 200 Most Reputable Companies". To generate the 2009 rankings, 60,000 consumers in 32 countries were surveyed regarding the 600 largest corporations. The companies are evaluated according to seven reputation attributes, which are listed in Figure 13:

Figure 13: The RepTrak-model



Source: Ter Maat (2008).

Explanations as to why the reputation attributes of RepTrak were expanded to seven (compared to the six of the RQ) and in some cases re-named are not publically available. The relationship of the individual attributes and their explanatory contributions to the central reputation construct also remain unclear (Eberl 2006).

Helm criticizes the fact that there are regularly major discrepancies in the type of companies nominated in country-by-country rankings. “While several food manufacturers make the top ten in Italy, for example, these positions are occupied by various store chains in Great Britain, technology-oriented companies in Germany and pure business-to-business companies in the United States, which may also be attributed to general cultural differences and values (2007b, p. 149). Kroeber-Riel and Weinberg (2003) as well as Wartick (2002) also criticize the fact that only a very un-specific stakeholder group is examined and surveyed: the general public. Overall, Groenland also cites the concept as lacking in theoretical basis: “... a rigorous conceptual definition still lacks in this study” (2002, p. 308).

2.3 Central findings on the state of research

The models introduced feature methodological problems in measurement: As the discussions on the previous research concerning the reputation construct have shown, reputation is a complex construct that cannot be readily grasped. For this type of *latent*, i.e. not directly measurable construct, it is necessary to differentiate between one- and multi-dimensional structures (Bagozzi & Fornell 1982; Hattie 1985). One-dimensional constructs represent an individual, uniform concept or thesis, while multi-dimensional constructs can be understood as an aggregate of different, yet related or synergetic dimensions (Law, Wong & Mobley 1998).

The lack of consensus with regard to a theoretical grounding of the corporate reputation construct makes practical measurements difficult. To this effect, literature remains divided as to which attributes of reputation should be measured at all (Helm 2007b). In practice, a wide range of approaches are used to measure reputation. In addition, consulting firms increasingly appear with their own approaches and generally do not disclose their methodology (ibid.).

The decision to conceptualize a theoretical construct as one- or multi-dimensional depends on how sophisticated an issue needs to be measured. Multi-dimensional constructs facilitate a comprehensive picture of complex issues and are increasingly used for conceptualization in the social sciences (Law & Wong 1999; Edwards 2001; Pavlou & El Sawy 2004). In the approaches introduced above, however, only Schwaiger's model and that of RQ are multidimensional in the sense that they each use multiple indicators for the individual dimensions of reputation. While all other studies accept the attributes as indicators, they then distill them to a single one-dimensional reputation construct. Because the reputation construct is a focus of this dissertation, a sophisticated measurement would appear to be appropriate in this context (see methodology of Jarvis, MacKenzie & Podsakoff 2003).

The preceding presentation of different approaches has revealed several inherent problems: For example, it can be assumed that stakeholders, when evaluating reputation, also use criteria that are actually (exclusively) important to other stakeholder groups. However, reputation attributes certainly impact various stakeholder groups differently (Rauscher 2008). "Future research will thus have to show which dimensions are relevant for which stakeholders" (Schwaiger & Cannon 2004, S. 257). More precisely, specific attributes of reputation must each be conceptualized. Table 11 summarizes which attributes of corporate reputation must be used in similar form in the approaches introduced above (C 2.1 and C 2.2):

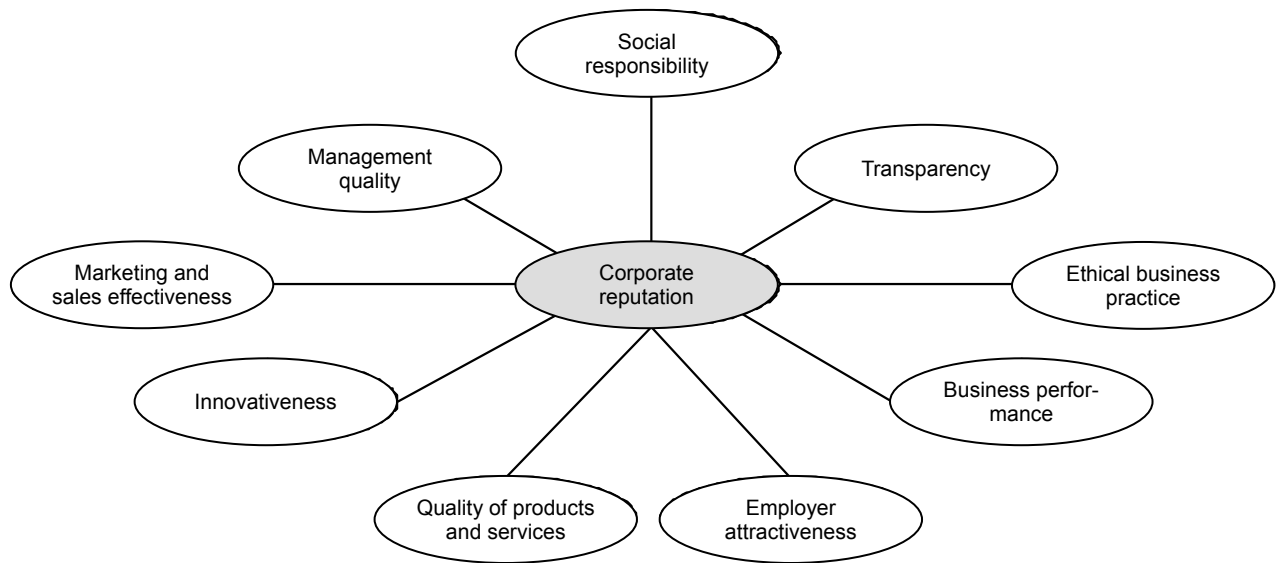
Table 11: Reputation attributes in various approaches

Study Attributes	Schwaiger 2004	Walsh & Wiedman n 2004	Graham & Bansal 2007	Helm 2007	Kirstein 2009	WMAC	Image- profile	RQ & RepTrak
Quality of products and services (QPS)	✓		✓	✓	✓	✓	✓	✓
Innovativeness (IN)		✓				✓	✓	✓
Marketing and sales effectiveness (MSE)		✓	✓			✓	✓	
Management quality (MQ)				✓	✓	✓	✓	✓
Social responsibility (CSR)	✓	✓		✓	✓	✓		✓
Transparency (TR)						✓	✓	✓
Ethical business practice (EBP)		✓		✓			✓	✓
Business performance (BP)	✓	✓	✓	✓	✓	✓		✓
Employer attractiveness (EA)	✓		✓	✓	✓	✓		✓

Looking at the attributes present in the eight approaches introduced above, shows that a total of nine attributes are frequently examined: Quality of products and services, innovativeness, marketing and sales effectiveness, management quality, social responsibility, transparency, ethical business practice, business performance and employer attractiveness. Of these nine total attributes, between four and eight are used in all of the approaches listed. There thus appears to be a consensus as to which attributes of corporate reputation are relevant in specifying the construct and should accordingly be taken into consideration.

On the basis of the results summarized in Table 11 a *nine-dimensional model of corporate reputation* can be assumed in the following section, which is illustrated in graphic form in Figure 14:

Figure 14: Nine-dimensional model of corporate reputation



Source: Own chart.

These nine reputation dimensions, which were extracted from existing literature in a first step performed above, must now be specified for the context of the study and operationalized using indicators to justify being identified as “dimension” of corporate reputation from a stakeholder’s point of view in the pharmaceutical context. This process is presented in the following section.

3 Specification and operationalization of corporate reputation

On the basis of the publications listed in Table 11 and the nine reputation dimensions contained therein, a comprehensive picture of corporate reputation was presented. Because the present study is conducted in the context of pharmaceutical companies and their central stakeholders – physicians and patient organizations – the reputation construct must be specified in the following sections. This necessitates an in-depth examination of

the reputation dimensions defined above supported by literature on the topic.

For specifying corporate reputation, the C-OAR-SE method proposed by Rossiter (2002) should be followed, which is a refinement of the approach employed by Homburg and Giering (1996). Following basic construct definition (C) and the establishment of the corresponding aspects (O) from the preceding sections, relevant attributes (A) derived from literature and the perspectives of stakeholders ("raters", R) are converted to measurement scales (SE).

Within this framework, a qualitative pre-test (1st preliminary study) was conducted as recommended by Homburg and Giering (1996) with experts from the pharmaceutical industry, the results of which were used accordingly for conceptualization and operationalization. The purpose of this first preliminary study was to have experts confirm the relevance of the nine reputation dimensions identified in literature for the pharmaceutical context. In this process, two central goals were pursued with the expert meetings:

First, a feeling for the relevance and content validity of the initial theoretical model from Figure 14 was to be attained. For this purpose, the applied understanding of corporate reputation and the individual dimensions of the corporate reputation model were discussed with the experts. The results of the interviews were not regarded as validation of the study hypotheses, but as qualitative confirmation that the model was in harmony with practical experience. Secondly, the expert interviews were used to further advance the development of theory and to supplement theoretical considerations with practical perspectives. In particular, the goal was to discuss the content-based facets of the individual dimensions and to define potential indicators for measuring the constructs (Churchill 1979).

The talks held with the aid of a service provider were conducted in the form of structured, exploratory interviews between May and July 2006. In

the internationally designed studies, a total of 13 persons familiar with the pharmaceutical industry were surveyed. In addition to evaluating the relevance of reputation dimensions from Table 11, the persons surveyed were asked to indicate qualitative factors that influence their perspectives of pharmaceutical companies. The goal was to compile specific properties of the present dimensions and to supplement them if necessary.

To predict the effectiveness of the indicators selected on this basis in a confirmatory factor analysis, a second pre-test (2nd preliminary study) was conducted – likewise with the help of an external service provider – as proposed by Homburg and Giering (1996). The corresponding questionnaire was answered in written form by 17 scientists and 30 pharmaceutical managers and was used in evaluating the substantive validity of the indicators, i.e. their intelligibility and appropriateness of content to the particular construct. Table 12 shows an excerpt from the questionnaire:

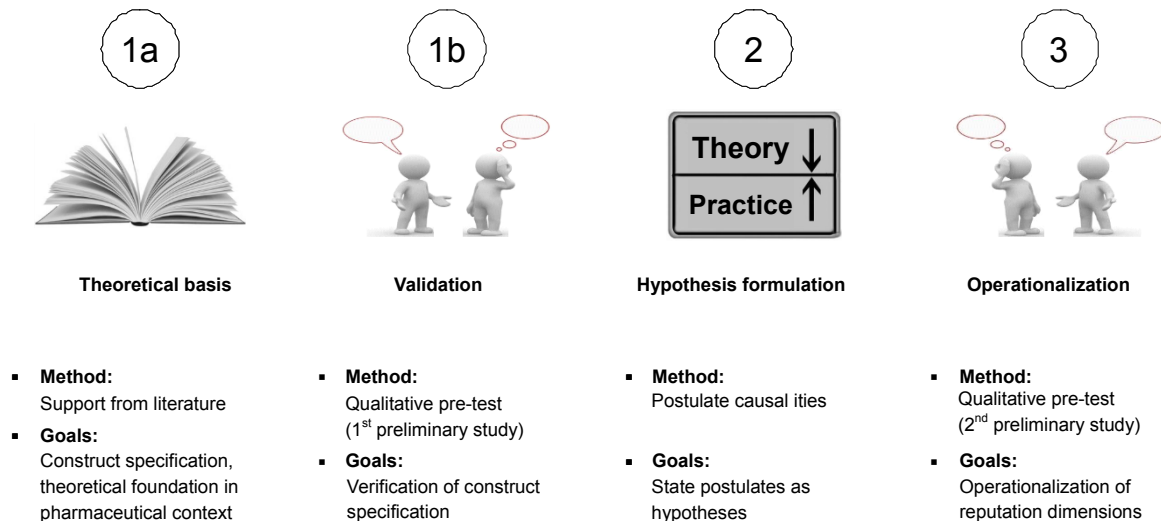
Table 12: Excerpt from preliminary test questionnaire

Business Performance (BP): The long-term business and financial success of a company including the generation of shareholder value			
Statement	Is the statement clearly understandable & applicable?	Does this statement represent a component of the construct?	If not, component of:
		Apparent component No component at all	
1. Company x is very profitable.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
2. I consider company x to be a market leader OR to be able to effectively compete with the number one in the pharmaceutical sector.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
3. Company x is growing very strongly.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
4. Company x provides a very high ROI to its shareholders.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
5. Company x achieves outstanding revenues.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
6. Company x is financially very strong.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
7. Company x is globally present.	☐ yes ☐ difficult ☐ no	① ② ③ ④ ⑤	
Additional remarks:			

Relevant results from both pre-tests are presented in the following sections for specifying each of the dimensions of reputation. Figure 15 sum-

marizes the multi-stage procedure in specifying the construct and the structure of the following sections:

Figure 15: Procedure for specifying construct and model



Source: Own chart.

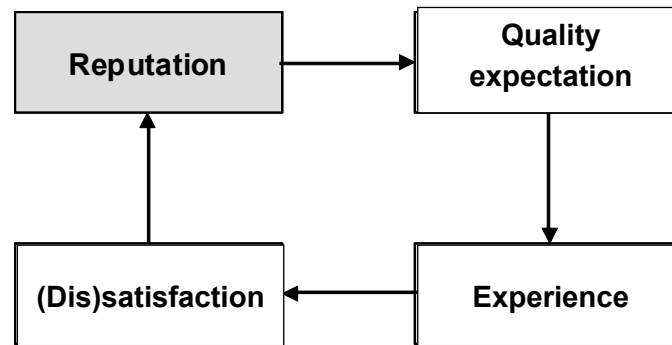
3.1 Specification and operationalization of quality of products and services

3.1.1 Theoretical foundation and validation in pharmaceutical context

While quality of products and services is represented in all ranking measurement concepts introduced above (C 2.2), Schwaiger (2004) and Helm (2007a) incorporate these dimension into their reputation concepts (see Table 11) Several authors even define corporate reputation as exclusively related to quality: “firm has a good reputation if consumers believe its products to be of high quality” (Shapiro 1983, p. 659). Marketing literature as well focuses on product quality in relation to a purchasing decision: Reputation accordingly emerges through the evaluation of stakeholders’ quality expectations (Ringbeck 1986).

This is a multi-stage process, however, and must therefore be examined more closely. Bearden and Shimp (1982) provide a basic effect model for the quality-reputation-relationship, which Figure 16 illustrates:

Figure 16: The quality-reputation-relationship



Source: Own chart based on Bearden and Shimp (1982, p. 230).

In the Bearden and Shimp model (1982) consumers assign, on the basis of existing (perceived) corporate reputation, quality expectations to the pharmaceutical company products and services offered as additional benefits to the products. If these expectations are sufficient for convincing the player to request the company's services, then the consumer gathers new experiences with the products and services, which – insofar as they meet or exceed his expectations of quality – bring about his satisfaction. These experiences in turn have a positive impact on the reputation perceived by the consumer (Bearden & Shimp 1982).

In this model, the development of reputation is based on a learning process (see also Kolb 1984): The player compares current and past experiences as well as expectations, thereby forming new assumptions with regard to the company and thus endowing it with at least an individual reputation. A company's reputation among a stakeholder group can be further strengthened if an individual player further recommends the company based on his experiences (Gerhard 1995).

At this point, it can be established that quality of products and services must be classified as a reputation-boosting factor, which the persons surveyed in the qualitative preliminary examination also confirmed. Basically two factors are of importance in trust-building between a company as trustee and a stakeholder as trustor: direct experience and communication with third parties about the company (Ripperger 1998). Both of these experiences elicit impressions and attitudes in the stakeholders, which can vary in degree of trustfulness. The participants in the open qualitative preliminary study confirmed this view.

3.1.2 Hypotheses on quality of products and services

Because good quality of products and services results in positive personal experiences and a high degree of willingness to recommend (Kotler & Bliemel 1999), it can thus be assumed that quality also promotes trust (Eisingerich & Bell 2008; Cho & Haiyan 2009). This promotion of trust is also substantiated by multi-stage game theory research in the field of psychology (e.g. Liberman, Samuels & Ross 2004), leading to the following hypothesis:

***Hypothesis 2:** The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful attitude toward this company.*

The impact of quality of products and services on the willingness to recommend is implied within the frame work of the effect model (Figure 16) allowing not only an indirect (via trustful attitude), but also a direct interdependency to be assumed (Stauss & Seidel 1998), which results in the following research hypothesis with regard to stakeholder groups:

***Hypothesis 3:** The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful behavioral intention in the interests of this company.*

3.1.3 Operationalization of quality of products and services

For the operationalization of the quality of products and services, the persons surveyed in the exploratory preliminary study were asked to indicate aspects that are important for the reputation of a pharmaceutical company with regard to the quality of its products and services: *“Please state aspects, which are important for the reputation of a pharmaceutical company with regard to the ‘quality of its products and services’”*. Using the multi-stage analytical process described by Homburg and Giering (1996) eight measurement items were formed from the answers and are presented in Table 13:

Table 13: Indicators for measuring quality of products and services

Construct	Indicator	Formulation
Quality of products and services (QPS)	1.1	The medicines/products of company x are safe.
	1.2	The medicines/products of company x are effective.
	1.3	The medicines/products of company x are result of exhaustive and reliable research.
	1.4	Company x provides clear, understandable and comprehensive product information (concerning side effects, precautions etc.).
	1.5	The medicines/products of company x are easy to administer (i.e. ointment easily applicable, pills easy to swallow etc.).
	1.6	Company x offers valuable services along with their products (e. g. beneficial training for patients).
	1.7	Products and/or services of company x have a good price-performance ratio.
	1.8	Company x continuously improves medicines/products that are already established in the market.
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

3.2 Specification and operationalization of innovativeness

3.2.1 Theoretical foundation and validation in pharmaceutical context

Various authors view innovativeness as a relevant dimension of reputation (see Table 11). Chun confirms this assessment: “The degree of Innovativeness of a firm is clearly an important factor that influences a company’s overall reputation” (Chun 2006, p. 63). The reasons for this effect relationship are manifold. The following section explores which aspects have an impact on stakeholders’ trustful attitudes and trustful behavioral intentions.

Innovations are among those few influencing factors that have long-term presence in the economy, since a homogenous market with multiple providers of comparable services makes pure price competition inevitable. This price competition in connection with the absence of unique selling points forces companies to invest large sums in marketing to promote their image without, however, being able to yield above-average earnings from these investments (Hilzenbecher 2005).

For pharmaceutical companies, this is evident in the generics market, as those surveyed in the open qualitative preliminary study stressed. The entrance of cheaper imitations into the market can cut the sales of the original drug manufacturer by up to 80 percent (Amacher & Nolmanns 2010). By forgoing the expensive drug research and development, generic manufacturers pursue a lucrative business with, compared to other industries, continued worthwhile profit margins, prompting many manufacturers to rush to the market. Furthermore, generic drugs are increasingly desired in most countries for political reasons, since they lower state health costs (see also Trilling 2008; Fischer & Breitenbach 2007).

However, entering the market pays only if a certain output volume is exceeded. The more competitors offering comparable products, the lower this volume is for each company on the market. As a result, the manufacturers’ margins decrease, occasionally causing them to operate unprofit-

ably. For example, according to estimates, a maximum of two to three manufacturers of imitation products in Switzerland are estimated to be profitable (Bas 2008).

While generic manufacturers in general provide an improvement for the economy as a whole by facilitating cost-savings, they also bring about macroeconomic disadvantages: In particular, state regulations for dispensing the most inexpensive medications results in “artificially overheated competition, which has triggered a rapid erosion of generic prices and manufacturers’ margins and profits”. This “threatens not only the generic scene in Germany. In the intermediate and long-term future, it will also undermine the quality of medication supply” (Schmidt 2009, p. 217).

In Germany, Austria and Switzerland – as well as in most other European countries – monitoring and inspection of drug manufacturing are stringently regulated. However, physicians surveyed on the topic of generics sometimes rated their quality as inferior: in a study of Pro Generika e.V. (2006), 17 percent; in an older study even 28 percent (no author 2006). Among medication consumers, these numbers are even higher, with roughly the majority of those surveyed (likewise no author 2002) preferring the original brand name medication to the corresponding generics.

3.2.2 Hypotheses on innovativeness

Pharmaceutical companies must therefore be innovative not only for financial reasons, but also to gain the trust of the relevant stakeholders, at least physicians. The same can be assumed for patient organizations, since they represent patients and should thus hold similar reservations as physicians against generic drug manufacturers. The following hypothesis can thus be formulated:

C: Corporate reputation from stakeholder perspective

***Hypothesis 4:** The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful attitude toward this company.*

A company's degree of innovation does not only affect the stakeholders' attitudes but also their behavioral intentions. As Joshi und Sharma (2004) maintain, this is indirectly promoted by the specific behavior of innovative companies. They show that companies with higher product innovation embrace their target groups more strongly and actively utilize the opinions and assessments of these groups. The company is also able to make these embraced groups more inclined, because of this experience, to view the company in a positive light and to issue positive reports – specifically to further recommend the company and its products. A direct interdependency between innovativeness and trustful behavioral intention can thus also be postulated:

***Hypothesis 5:** The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful behavioral intention in the interests of this company.*

3.2.3 Operationalization of innovativeness

To operationalize the construct of innovativeness, the persons surveyed in the qualitative preliminary study were asked, just like for the previous construct, to indicate the aspects that are important for the innovativeness of a pharmaceutical company: *“Please state aspects, which are important for the reputation of a pharmaceutical company with regard to its innovativeness”*. Table 14 lists the five residual measurement items according to the qualitative study (2nd preliminary study):

Table 14: Indicators for measuring innovativeness

Construct	Indicator	Formulation
Innovativeness	2.1	Company x develops new and effective medicines/products that meet patient needs better.
	2.2	Company x improves drug administration of medicines and products to increase the quality of life of patients.
	2.3	Company x uses the latest/advanced approaches for re-research and development.
	2.4	Company x provides medicines/products that contribute to reducing healthcare costs.
	2.5	Company x proactively partners with biotech firms /academic institutions for R&D.
<i>Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)</i>		

3.3 Specification and operationalization of marketing and sales effectiveness

3.3.1 Theoretical foundation and validation in pharmaceutical context

As a mental construct, corporate reputation primarily depends on how the organization is perceived by stakeholders. There are persons who are not patients, yet instead come into contact with the pharmaceutical company in the context of professional activity. For example, a physician primarily comes into direct contact with the companies through sales professionals (pharmaceutical representatives), while for patient organizations contact is through associates from so called “patient advocacy” departments as well as lobbyists. The influence of these sales and marketing officers must therefore be examined more closely.

The sales force is connected to the overarching marketing strategy of the pharmaceutical company (Meffert, Burmann & Kirchgeorg 2008). With regard to external communication, which constitutes a central aspect of marketing, associates are trained accordingly and instructed to conduct themselves in a certain manner. Brochures and conference booths are conceived and produced, while drug packaging is designed in harmony with a marketing concept.

The underlying marketing and sales concept of the pharmaceutical industry is traditionally product-oriented, a principle that has been maintained to date through the special elevation of the role of production manager as well as in new specialized books on pharmaceutical marketing (Trilling 2008). The focus of the marketing effort is to “highlight the value of a medication” and to make “marketing measures objective and relevant” (Trilling 2008, p. 54).

Over the last few years, however, emotional messages have been increasingly conveyed in public communication: “[the pharmaceutical industry] attempts in all countries to underscore its commitment to society, so that people recognize it as making a valuable contribution to the welfare of society as a whole” (Fischer 2009, p. 349) – albeit, as the author notes, with minor success. In this context, she cites the campaign of the association of pharmaceutical companies in Germany (vfa) “Research is the best medicine” [“Forschung ist die beste Medizin”] and winner of the German PR-award, which, in her opinion has (not yet) contributed to significantly improving the reputation of German pharmaceutical companies.

Like sales contacts, marketing and PR-measures can be important for the positive reputation of pharmaceutical companies. Van Kleef, Houghton, Krystallis, Pfenning, Rowe, Van Dijk, Van der Lans and Frewer (2007) stress that short-term campaigns cannot bring about an improvement in reputation. Rupp also clearly shares this opinion:

“It [(reputation)] is built, little by little, slowly and deliberately with countless actions and deeds. This distinguishes ‘reputation’ from ‘image’, or ‘brand’, both of which can be built in a relatively short time through high levels of marketing spend” (Rupp 2009, p. 325).

3.3.2 Hypotheses on marketing and sales effectiveness

To achieve a positive reputation, a company representative must come across as a reliable partner and communicate in a forthright manner (Rupp 2009). Because of their regular contact with physicians and mem-

bers of patient organizations, the pharmaceutical company marketing and sales associates specified above are given an important role. The interdependency between qualitatively “good” – frankly communicated and intelligible – marketing and sales force and trustful attitude can be postulated as follows:

***Hypothesis 6:** The more positive the stakeholders’ assessment of a pharmaceutical company’s marketing and sales effectiveness, the stronger their trustful attitude toward this company.*

The influence of marketing and sales effectiveness on the trustful behavioral intentions of physicians and members of patient organizations can be explained from a sales and marketing context: In this dissertation both an individual’s tendency to take a company’s medications in the event of illness and to recommend them to others are subsumed under trustful behavioral intentions. Because the two aspects – willingness to purchase and recommend – are regarded as central target variables of marketing, it can be assumed that marketing and sales efforts are intended to have a direct impact precisely on these behavioral intentions.

When it comes to physicians, a pharmaceutical representative’s sales tool of choice is handing out product samples. Holmes and Lett (1977) demonstrated in another context that this practice promotes recommendation behavior. In their empirical study, Campbell, Rao, DesRoches, Iezzoni, Vogeli, Bolcic-Jankovic and Miralles (2010) concluded that 84% of US physicians¹⁸ regularly receive product samples from the pharmaceutical industry. Items presented to physicians ranged from drug samples (64%) to food gifts (71%) all the way to payment of advanced training seminars (18%) or consultant and speaker’s fees (14%). According to the authors of

¹⁸ The survey conducted in 2009 yielded responses from 1891 physicians from the following specializations: internal medicine, cardiology, primary care and pediatrics, surgery, psychiatry and anesthesiology.

the study, it has been shown overall that the surveyed physicians with ties to the pharmaceutical industry are more likely to prescribe brand name pharmaceuticals than physicians without ties to the industry (ibid.)

From the perspective of patient organizations, however, these marketing practices can by all means have a negative effect – after all, the related marketing budget cannot be invested in the health-oriented research. Nonetheless, the members of patient organizations, as stated above, also have regular contact with pharmaceutical industry representatives, and this social contact promotes trust (Meyer & Allen 1997). It can accordingly be assumed that despite the use of the product being potentially subject to objections from both stakeholder groups there is a connection between marketing and sales effectiveness and trustful behavioral intention:

***Hypothesis 7:** The more positive the stakeholders' assessment of a pharmaceutical company's marketing and sales effectiveness, the stronger their trustful behavioral intention in the interests of this company.*

3.3.3 Operationalization of marketing and sales effectiveness

To specify the construct, the persons surveyed in the first preliminary study were asked to indicate the aspects that are relevant for the marketing and sales effectiveness of a pharmaceutical company: *“Please state aspects, which are important for the reputation of a pharmaceutical company with regard their marketing and sales excellence”*. The measurement items based on the results of the second preliminary study are listed in Table 15:

Table 15: Indicators for measuring marketing and sales effectiveness

Construct	Indicator	Formulation
Marketing and sales effectiveness (MSE)	3.1	I have a clear understanding of what company x offers.
	3.2	Company x communicates the USP/benefit of its medicines and products effectively.
	3.3	Company x has a high quality sales force.
	3.4	Company x executes successful market strategies.

C: Corporate reputation from stakeholder perspective

Construct	Indicator	Formulation
	3.5	Company x provides good customer support (e. g. product training for medical doctors and pharmacists, hotlines etc.).
	3.6	The product packaging of company x is easily recognizable and distinguishable from that of other companies.
<i>Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)</i>		

3.4 Specification and operationalization of management quality

3.4.1 Theoretical foundation and validation in pharmaceutical context

The trustful attitude emerges on the basis of different subjective impressions, which do not necessarily have to be based on facts. Complete facts are usually available only to the management of the company that, on the basis of this information reaches the relevant decisions for “its” company and thereby decisively co-determines the quality of the medications produced.

With regard to the development of corporate reputation from the perspective of stakeholders, it is thus particularly important to take into consideration that stakeholders positively assess management on the basis of company performance, (Loefert 2007 as well as five of the eight approaches listed in Table 11). Management decides on future corporate strategy, i.e. with regarding particular products, and it is important for a responsible physician to know that medications such as those for chronic diseases, for example, are available for the long term future (Seiden, Norchi & Pajwani 1996).

3.4.2 Hypotheses on management quality

Stakeholders are taught to trust that management makes decisions benefiting their interests. This trust is based on past experiences with the company’s management team, in particular a subjective assessment of team quality. In this respect, Chemmanur and Paeglis (2005) have shown that successful managers present their company to external stakeholders

with greater credibility and are thereby able to better reduce the information asymmetry mentioned earlier. The following hypothesis can therefore be drawn:

***Hypothesis 8:** The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful attitude toward this company.*

Stakeholder's approval of management's past behavior may result in positive recommendation behavior. In a study on trust in the food industry – an industry that is very similar to the pharmaceutical market on account of high product sensitivity and the related high perception of risk – van Kleef et al. show that manager assessment is “related to their competence and knowledge” (2007, p. 1576), which then impacts consumers' purchasing behavior. The following hypothesis can therefore be drawn:

***Hypothesis 9:** The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful behavioral intention in the interests of this company.*

3.4.3 Operationalization of management quality

The persons surveyed in the exploratory first preliminary study were asked to indicate the aspects that reflect a pharmaceutical company's management quality in their view: “Please state aspects, which are important for the reputation of a pharmaceutical company with regard to the ‘quality’ of the management team”. Table 16 lists the seven residual indicators from the second preliminary study:

Table 16: Indicators for measuring management quality

Construct	Indicator	Formulation
Management quality (MQ)	4.1	The management of company x listens to concerns raised outside the company.
	4.2	The management of company x reacts constructively to criticism and feedback.
	4.3	Company x has an experienced senior management.

C: Corporate reputation from stakeholder perspective

Construct	Indicator	Formulation
	4.4	The management of company x is honest and acts with integrity.
	4.5	The CEO of company x is a strong leader.
	4.6	The management of company x develops effective global strategies.
	4.7	The local/line management of company x effectively executes global strategies.
<i>Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)</i>		

3.5 Specification and operationalization of social responsibility

3.5.1 Theoretical foundation and validation in pharmaceutical context

While the concept of corporate social responsibility, (CSR) is not new, it has significantly gained importance for companies in recent years. Of the eight approaches presented in Table 11, only two do not incorporate the topic of social responsibility in their concept of reputation.

In principle, corporate social responsibility is based on the postulate that a manager's duty is not only to ensure the company's performance, but furthermore to assume responsibility for the company (Bowen 1953). However, CSR is increasingly not viewed as an end in itself. "Research has suggested ... that companies that make greater philanthropic expenditures have better overall reputations" (Highhouse et al. 2009, p. 87).

Economic research therefore concerns itself with the possibilities and limits of evaluating CSR activities. As early as the 1970s, Friedman (Friedman 1970) postulated that the assumption of social responsibility can have a positive impact on corporate results. Nonetheless, social responsibility exhibits a diminishing marginal utility¹⁹. A pure business-oriented perspec-

¹⁹ Marginal utility is the additional utility experienced by the consumer through an additional unit of a certain product or an "excess" in the case of a service. For

tive therefore does not always result in “true” assumption of responsibility (Meffert & Münstermann 2005, p. 15), which is in fact limited by financial considerations.

Commitment to social concerns thus becomes part of commercial value creation. Today, hardly any large companies forgoe public commitment to social responsibility – with management knowing “that a social commitment is most credible if it contributes traceably, substantially and sustainably to social and ecological improvement as well as corporate success” (Schaltegger & Petersen 2009, p. 68).

The target groups of CSR measures of this type are generally important stakeholders to the company from politics and NGOs such as human rights and environmental protection organizations, but also labor union and employee representatives and consumer organizations (Steinert 2007). Loew, Ankele, Braun and Clausen (2004) point out that CSR are targeted at the expectations and demands of stakeholders, while Argenti and Druckenmiller (2004) argue that commitment to CSR has a strong influence on corporate reputation (see also Highhouse et al. 2009).

At this point, the role of CSR in the reputation context becomes clear “because the two concepts are based on comprehensive consideration of the interests of corporate stakeholders” (Kirstein 2009, p. 51). In the context of this dissertation, CSR can thus be conceptualized from the perspective of physicians and patient organizations. A large number of persons surveyed in the qualitative preliminary study cited CSR in the open-ended portion of the survey, thereby further confirming the relevance of this dimension of reputation.

most goods, marginal utility (and thus their value) decreases proportionally to the quantity of the good already available. This is described as diminishing marginal utility (see Menger 2006).

3.5.2 Hypotheses on social responsibility

In addition to Kirstein (2009), Fuchs (2009) also demonstrates that CSR is also a factor relevant to reputation. In the empirical portion of Schwaiger's (2004) reputation model, social responsibility is identified as the key driver for sympathy. Schwaiger's sympathy construct describes the situation of personally identifying with a company, which can essentially be arranged between the two target constructs relevant in this context, "trustful attitude" and "trustful behavioral intention". It can therefore be assumed that, as a reputation element, CSR has an impact on both constructs.

The mechanism of action that a company's active assumption of social responsibility triggers is visible particularly when studying the risks of a delayed and defensive adaptation to stakeholders' expectations. These risks include in particular loss of prestige and acceptance (Macharzina & Wolf 2005). The absence of CSR thus entails a loss of trust, thereby allowing the following relationship hypothesis to be drawn from the converse argument.

***Hypothesis 10:** The more positive the stakeholders' assessment of a pharmaceutical company's social responsibility, the stronger their trustful attitude toward this company.*

On this basis, it can also be declared that CSR has an influence on the stakeholders' behavioral intentions toward the company. "Corporate Social Responsibility influences purchasing and recommendation behavior to a large degree" (Schreiber 2008, p. 19). The following interdependency can thus be postulated in the eleventh research hypothesis:

***Hypothesis 11:** The more positive the stakeholders' assessment of a pharmaceutical company's assumption of social responsibility, the stronger their trustful behavioral intention in the interests of this company.*

3.5.3 Operationalization of social responsibility

Given the assumption that companies that act in a socially responsible manner have better chances at being publicly acknowledged, those elements that are important to stakeholders with regard to CSR were identified for operationalization. The following nine items listed in Table 17 were distilled from the qualitative and quantitative preliminary studies:

Table 17: Indicators for measuring social responsibility

Construct	Indicator	Formulation
Social responsibility	5.1	Company x actively invests in philanthropic projects (e.g. fundraising campaigns after natural disasters).
	5.2	Company x is actively involved in community work.
	5.3	Company x makes drugs affordable to all segments of society.
	5.4	Company x fulfills its responsibility for public health education and prevention.
	5.5	Company x actively engages in environmental protection.
	5.6	Company x makes medicines/products affordable to patients in developing countries.
	5.7	Company x maintains or increases jobs in my country.
	5.8	Company x helps governments to combat diseases and to prepare for epidemics/pandemics.
	5.9	Company x invests in the development of orphan drugs (drugs for rare conditions, having low sales volume potential).
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

Here as well, the indicators are based on the analysis of the exploratory interviews regarding the question: *“Please state aspects, which are important for the reputation of a pharmaceutical company with regard to how the company fulfills its responsibilities towards the society”*.

3.6 Specification and operationalization of transparency

3.6.1 Theoretical foundation and validation in pharmaceutical context

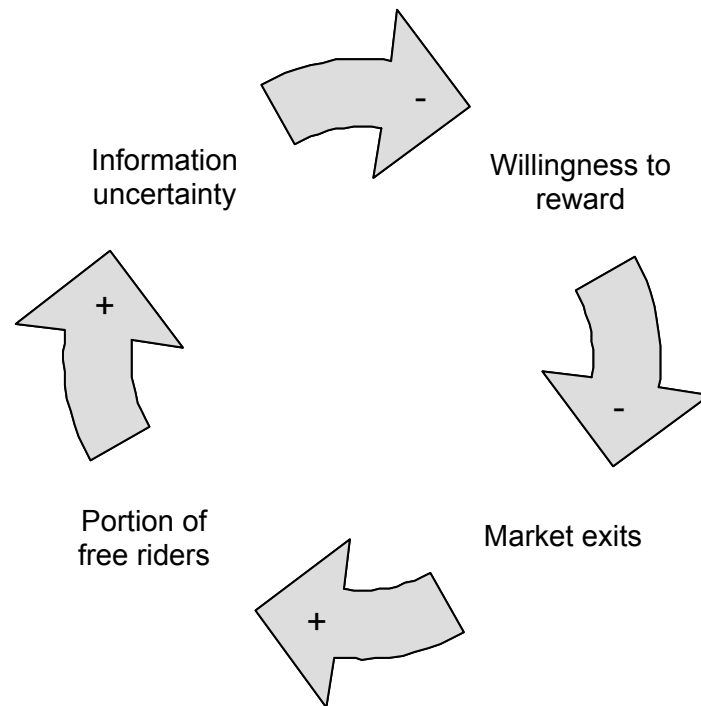
In C 3.4 it was shown that stakeholders, due to their limited information, have to rely on the quality of management and that management thus constitutes a dimension of reputation. At this point, it is necessary to reexamine the fundamental problem of the information deficit to show how the dissemination or publication of relevant corporate information – called transparency here – can, as a dimension of reputation, have an impact on stakeholders' trustful attitudes and trustful behavioral intentions.

In this context, it is of key importance to explain the reputation-promoting effect of transparency for the pharmaceutical industry as suggested by the Image Profile ranking, WMAC and RQ according to the literature analysis in Table 11. A well-established criticism provides a good starting point for analysis, since the pharmaceutical industry is accused by many parties of lacking transparency.

“The pharmaceutical market fails [...] because it is not an open market in which the conditions of complete transparency, competition and information are even remotely present.” [...] “The pharmaceutical business is criticized for its lack of transparency. The clinical research business does not appear to be any better when it comes to transparency. There is a great potential for fraud or adulteration, which is practically impossible to prove unless someone involved in research snatches the incriminating material” (Prat 2005, p. 503 and 507).

Transparency can thus play a special role as Schrader (2008) explains: A lack of transparency within the entire industry causes uncertainty among consumers. The less certain customers are with regard to identifying socially and ecologically beneficial services – in this current context transparency of clinical studies on drug safety, for example, – the less willing they are to reward companies for an actual or assumed transparency, as Figure 17 illustrates:

Figure 17: Market failure associated with lack of transparency



Source: Own chart based on Schrader (2004, p. 201)

However, the lower the willingness to reward, the higher the pressure on the company to reduce transparency when it is associated with additional costs. In the example of drug tests, high profile publication of negative clinical studies can have a bad impact on physician's and patient organization's opinions on the tested pharmaceuticals. Even after the product is modified appropriately and the deficiency has possibly been fully corrected, the stakeholders' negative attitudes still persist at least partly.

If these companies abandon pursuing transparency on the market, it increases the portion of fraudulent providers, who claim, but do not actually practice transparency. As a result, information uncertainty rises further and the cycle continues. In the opposite scenario in which the companies provide true, credible transparency, the uncertainty of information is reduced, thereby building trust. This fact was also emphasized by the persons surveyed in the qualitative preliminary study.

3.6.2 Hypotheses on transparency

Because companies deemed as transparent reduce the uncertainty of information, trust in them should thus grow, allowing a further research hypothesis to therefore be formulated.

***Hypothesis 12:** The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful attitude toward this company.*

Based on Figure 17, it is also possible to impute a direct influence of transparency to the stakeholders' behavioral intention. Ultimately, a direct connection between information uncertainty and willingness to reward can be assumed. If transparency reduces information uncertainty as postulated, then it thereby increases the willingness to reward in the sense of the stakeholders intention of using the pharmaceutical companies' products themselves or referring them to others.

***Hypothesis 13:** The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful behavioral intention in the interests of this company.*

3.6.3 Operationalization of transparency

To operationalize transparency, it was necessary during the exploratory preliminary study to define those elements that the relevant stakeholders feel pharmaceutical companies should communicate transparently. The seven indicators presented in Table 18 were gathered on the basis of the question *“Please state aspects, which are important for the reputation of a pharmaceutical company with regard to the ‘transparency’ of the company, i.e. how a pharmaceutical company communicates with its stakeholders and the public”* and the subsequent quantitative review in the second preliminary study:

Table 18: Indicators for measuring transparency

Construct	Indicator	Formulation
Transparency (TR)	6.1	Company x informs the public in an open and honest way about critical issues relating to health and drugs.
	6.2	Company x informs the public fully and comprehensibly on corporate and financial issues.
	6.3	Company x informs the public about all relevant results of clinical studies.
	6.4	Company x provides the capital market with accurate, relevant and timely information.
	6.5	Company x provides clear and precise information on its corporate governance.
	6.6	Company x provides useful information for the public on its social and environmental activities
	6.7	In crisis situations, company x communicates in a fast and transparent way.
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

3.7 Specification and operationalization of ethical business practice

3.7.1 Theoretical foundation and validation in pharmaceutical context

The discussion of ethics has a long tradition in the field of medicine. The Hippocratic Oath itself contains a “do no harm clause” (“I will not give a lethal drug to anyone if asked”, anonymous 2000). However, unlike physicians, pharmaceutical corporations are not bound by this oath. Nevertheless, a “growing significance of medical ethics in supply and research” is observed in the industry (Sass 2009, p. 439).

Thielemann (2008) explores the aspects of ethics relevant to corporations and argues that corporate-ethics questions do not constitute a systematic, regular subject matter of scientific discussions. In particular, the topic is very broad and also overlaps with the assumption of social responsibility described in C 3.5 (Thielemann 2008).

To clearly differentiate the two constructs from one another, it is first necessary to clearly define the concept of ethics before embarking on a dis-

cussion on the essence and effect of ethical business practice as a dimension of reputation. However, a thorough overview of the various definitions of ethics found in literature would exceed the scope of this dissertation and would accomplish little. Borrowing the definition of Homann and Blome-Drees (1992), the term ethics should thus be used here as a term circumscribing the importance of moral standards in the realization of profit.

In this connection it is not important *that* a company acts in an entrepreneurial manner, i.e. realizes a profit, but rather *how* it achieves this profit (Schneider 1990). In this context the basic maxim “condition of legitimacy and responsibility to all potential parties involved is assumed” (Ulrich 2001, p. 427). The term ethically correct business practice thus means “fair” conduct on the part of the company toward all stakeholders on a basis of shared values.

From this viewpoint, what is fair is prescribed by “values” that in today’s society – at least where they acquire social significance – are usually codified in rules. Laws that express (or are intended to express) the moral concepts of the general culture thus constitute an example of shared social values.²⁰

In this case, ethical behavior would mean adherence to laws, i.e. “compliance”. In general, the term compliance denotes a company and its employees behaving in conformity with rules when it comes to all mandatory requirements and bans. “Furthermore, it must be ensured that corporate business also conforms to all [other] social guidelines and values systems, with morals and ethics” (Rohde-Liebenau 2007, p. 275 f.).

The Rohde-Liebenau concept of compliance summarizes that which is understood under the concept of ethical business practice in this present dissertation: conduct that is consistent with social norms. Fischer, who is

²⁰ For a detailed discussion, see Detjen (2009).

cited as a critic of the pharmaceutical industry in C 3.3, regards this type of behavior as reputation-fostering (Fischer 2009). Walsh and Wiedmann (2004) as well as Helm (2007b) also confirm that ethical business practice is a dimension of reputation, while Imageprofile and RQ use it as a criterion for reputation ranking (see Table 11).

3.7.2 *Hypotheses on ethical business practice*

Laws function to provide a common, binding framework for market participants in which they conduct their interaction relationships. Failure to comply with these laws is deemed a breach of trust and the common basis is lost. Reliable interaction is then greatly undermined or no longer possible at all (see also Byrne 2000). The following research hypothesis can be derived from this principle:

***Hypothesis 14:** The more positive the stakeholders' assessment of a pharmaceutical company's ethical business practice, the stronger their trustful attitude toward this company.*

For the corporate ethicist Homann, to whom the present understanding of ethics can be attributed, ethical values have the function of a heuristic. They constitute a cognitive and search procedure, which hypothesis 14 presented above underscores. However, Homann goes further, stating that the perception of ethical values does not entail a behavioral procedure (Homann 2003). Ethical business practice thus cannot directly impact shareholders' behavioral intentions. The following hypothesis 15 is accordingly worded negatively:

***Hypothesis 15:** The stakeholders' assessment of a pharmaceutical company's ethical business practice has **no** influence on their trustful behavioral intention in the interests of the company.*

3.7.3 *Operationalization of ethical business practice*

In the process of operationalization, the objective was to cover as comprehensively as possible the relevant social values and standards in the compliance with which ethical business practice is defined. Because the

topic was already very broad, the persons surveyed in the exploratory preliminary study were asked to keep in mind the interests of the pharmaceutical industry when naming relevant aspects: „Please state aspects, which are important for the reputation of a pharmaceutical company with regard to its ethical business practices, i.e. how a company makes sure its operations are in line with common moral standards“. Table 19 lists the nine items derived from the analysis of the two preliminary studies:

Table 19: Indicators for measuring ethical business practice

Construct	Indicator	Formulation
Ethical business practice (EBP)	7.1	Company x refrains from providing incentives or donations to prescribing doctors in order to unlawfully influence their decisions or get favorable reviews about its products.
	7.2	Company x refrains from engaging in political lobbying to obtain decisions that are against patient interests.
	7.3	Company x refrains from abusing socially under-privileged people for clinical trials.
	7.4	Company x refrains from unjustified extension of patent protection (patent evergreening).
	7.5	Company x refrains from misleading advertisements or incorrect claims about products.
	7.6	Company x takes disciplinary action against any kind of discrimination among employees.
	7.7	Company x invests in R&D processes that minimize the need of drug testing on animals.
	7.8	Company x treats business partners fairly.
	7.9	Company x has a clear code of ethical standards to which it adheres.
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

3.8 Specification and operationalization of business performance

3.8.1 Theoretical foundation and validation in pharmaceutical context

More than half of the persons surveyed in the qualitative preliminary study listed a pharmaceutical company's business performance as a di-

mension of reputation. From a scientific viewpoint as well, it has been attempted to demonstrate connections between the reputation of corporations and their financial performance. In particular it was pointed out that corporations of superior reputation are typically those companies that exhibit better financial performance and are more highly valued on the stock market, (Eberl & Schwaiger 2005; Roberts & Dowling 2002). Except for "Imageprofile", all approaches listed in Table 11 contain business performance.

Argenti (2006) establishes a causal connection between corporations' communication activities and their current share price: "The solution we have developed ... identifies the causal relationship between communications activities and business value" (Argenti 2006, p. 38). In a comparative analysis of studies on the connection between the reputation and business performance of companies, Fuente Sabate and Quevedo Puente come to the following conclusion:

"The research reviewed in this paper shows empirical support for both directions of the relationship between corporate reputation and financial performance: corporate reputation influences financial performance and vice versa" (2003, p. 176).

Schwaiger and Cannon (2004) point out that the direction of action is not clear, triggering the question of whether corporate reputation is a cause or consequence of business performance. The factual existence of the connection and the significance of business performance as driver of reputation remains mostly undisputed and it is seen as evident that there is a connection between the reputation and business performance of pharmaceutical companies.

3.8.2 Hypotheses on business performance

The influence of business performance on trust is also discussed. Coomans is a proponent of the position that there is a connection between trust and business performance: "Trust is a major strategic element in

view of performance” (2005, p. 44). This type of effect can be observed at eBay, for example, where the more successful a seller is, the more products he or she sells. If the customers are satisfied, he or she receives many positive ratings, and thereby a good reputation. This is “fundamental in overcoming the trust issue” (Rietjens 2006, p. 56), so that a reputation-induced interdependency between success and trust can be assumed:

***Hypothesis 16:** The more positive the stakeholders’ assessment of a pharmaceutical company’s business performance, the stronger their trustful attitude toward this company.*

The connection between business performance and stakeholders’ recommendation behavior is clear particularly in the example involving stock market analysts. Recommendations to buy explicitly factor in the financial performance of corporations (Ng, Wang & Zaiats 2009). For physicians and patient organization as stakeholders, the connection is not as simple to establish, since the financial interests of these parties are as a rule supposed to be less dominant.

Yet, here as well there is possibly a connection. The exploratory preliminary study shows that many physicians invest in shares of pharmaceutical corporations. Furthermore, there is evidence that physicians also tend to prescribed medications from companies with which they are familiar (Black & Tagg 2007). The more successful a company is, the more areas of indication it can occupy and thereby increase its awareness (as a prerequisite for reputation), which in turn results in more physicians recommending its products.

In the same way, it can be argued from the point of view of the patients’ interests that those medications, particularly for long-term medications – i.e. for chronically ill patients, presumed to have ongoing availability tend to be recommended (Seiden, Norchi & Pajwani 1996). Because such availability is more likely to be ensured by a financially solid company, the following hypothesis can be formulated.

C: Corporate reputation from stakeholder perspective

Hypothesis 17: *The more positive the stakeholders' assessment of a pharmaceutical company's business performance, the stronger their trustful behavioral intention in the interests of this company.*

3.8.3 Operationalization of business performance

To operationalize business performance, the persons surveyed in the explorative preliminary study were asked to indicate the aspects that are relevant for the reputation of a pharmaceutical company with regard to its business performance: *"Please state aspects, which are important for the reputation of a pharmaceutical company with regard to its 'business performance'"*. The two preliminary studies yielded six measurement items, which are listed below in Table 20:

Table 20: *Indicators for measuring business performance*

Construct	Indicator	Formulation
Business performance (BP)	8.1	Company x is profitable.
	8.2	Company x is a market leader in my country.
	8.3	Company x is a global market leader.
	8.4	Company x is growing very strongly.
	8.5	Company x provides a high ROI to its shareholders.
	8.6	Company x is financially very strong.
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

3.9 Specification and operationalization of employer attractiveness

3.9.1 Theoretical foundation and validation in pharmaceutical context

Employees are credited with having a strong influence on a company's reputation (Bergen 2001, p. 24) and are even ascribed the most important role in some cases: "Employees have the highest potential impact on a company's reputation capital" (Fombrun, Gardberg & Barnett 2000, p.

91). It is also remarked that employer attractiveness is sometimes used synonymously for corporate reputation in psychological research.

“The applied psychology literature has primarily been concerned with corporate reputation as it relates to employee attraction. This has understandably led to operationalizations of the construct that look more than employer image measures than like corporate reputation assessments” (Highhouse et al. 2009, p. 788).

Schwaiger (2004), Graham and Bansal (2007), Helm (2007b) as well as Kirstein (2009) are of the view that employer attractiveness constitutes a dimension of reputation. In practice, this aspect is examined in the WMAC and RQ Ranking (see Table 11) and the persons surveyed in the open preliminary study also rated the attractiveness of pharmaceutical companies as an important reputation factor.

Because all employees are directly or indirectly subject to evaluation by third parties during each external interaction, their behavior continuously affects the external perception of the company and thus its reputation. Employees also influence the reputation of their company by reporting about their work to outsiders and thereby activating the communication process, on the basis of which a larger group of stakeholders forms an opinion or picture of the company's reputation (Cravens & Oliver 2006).

It is therefore especially important for companies that their employers are encouraged to present a positive – and reputation-promoting – image of the company to the outside world at all times (Hall 1993). It is additionally important that there is no disharmony between the employee's self-image and public image, i.e. that the employees themselves perceive the company just as positively as they present (or are supposed to present) it to the outside world. This is achieved if the company is just as attractive as an employer as it is as a provider of products and services (Esch, Strödter & Fischer 2006).

3.9.2 Hypotheses on employer attractiveness

The employees of an attractive employer tend to present positive external communication (Esch, Strödter & Fischer 2006). Under the premise that this positive communication is also understood as being honest, it can be assumed that it promotes trust, since honesty is a key influencing factor in the building of trust (Barney 2003). A company being an attractive employer also has a positive effect on stakeholders' trust in the company, since in interacting with employees they are conveyed an "honest" or authentic positive picture of the company.

This appears to be working for many pharmaceutical companies. In the journal *Science's* rankings for employer attractiveness to scientists of the journal, several of the internationally present pharmaceutical companies regularly occupy top slots on the list (Läscher 2008). The fact that it is employees who rate the company attractive as an employer is restrictive, since external stakeholders' opinions on the company are not taken into account. Because, however, employees communicate their image of the company to stakeholders (Esch, Strödter & Fischer 2006), it can be assumed that the stakeholders share their assessments, as expressed in the following research hypothesis:

***Hypothesis 18:** The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the stronger their trustful attitude toward this company.*

A relationship can be established between employer attractiveness and physicians's behavioral intention that a number of medical doctors may be seriously interested in becoming future employees of an attractive pharmaceutical company and are accordingly attuned toward the company, thereby allowing a further hypothesis to be formulated in conclusion to this conceptualization:

***Hypothesis 19:** The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the stronger their trustful behavioral intention in the interests of this company.*

3.9.3 Operationalization of employer attractiveness

In the qualitative preliminary study, the persons surveyed were asked to indicate which aspects are important for the reputation of a pharmaceutical company with regard to its attractiveness as an employer: *“Please state aspects which are important for the reputation of a pharmaceutical company with regard to its attractiveness as an employer”*. An analysis of the quantitative pre-tests yielded seven indicators, which can be found in Table 21:

Table 21: Indicators for measuring employer attractiveness

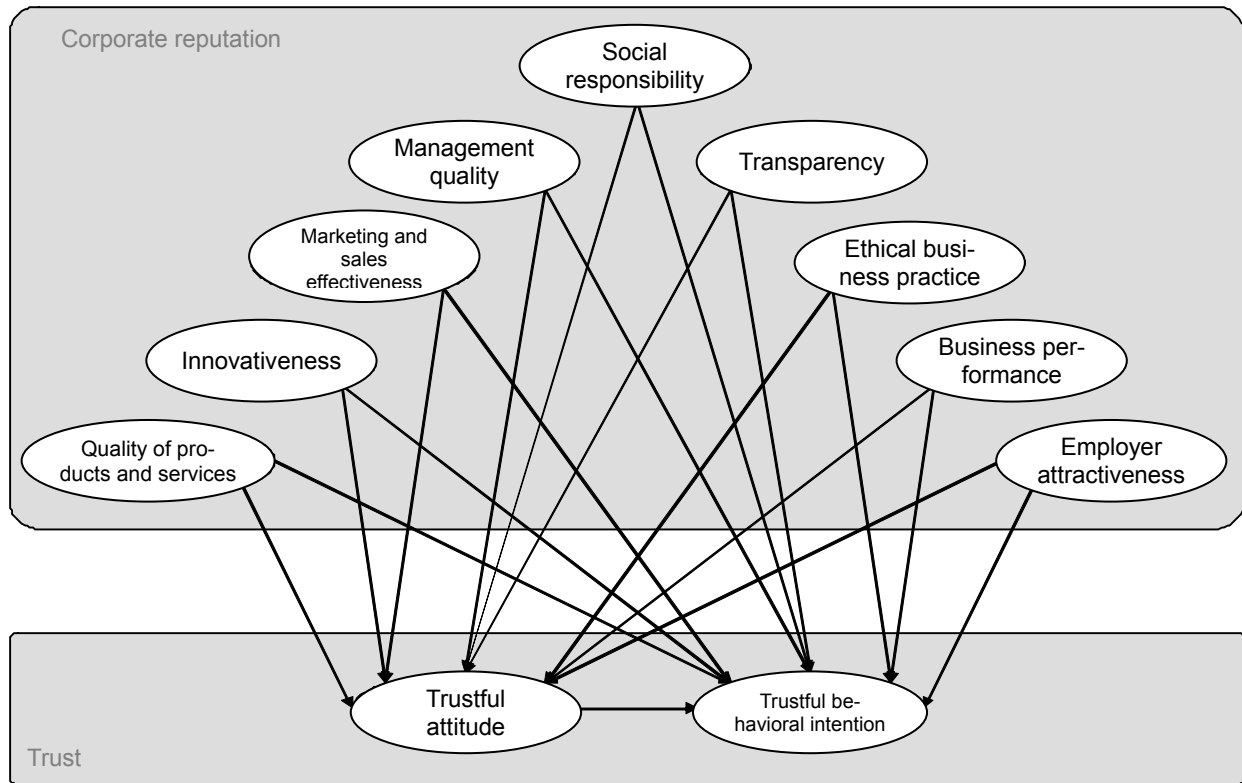
Construct	Indicator	Formulation
Employer attractiveness (EA)	9.1	Company x offers its employees good salaries.
	9.2	Company x offers its employees good social benefits (e.g. health insurance, employee pension scheme).
	9.3	Company x offers its employees an inspiring working atmosphere.
	9.4	Company x offers high job security.
	9.5	Company x invests in the training and development of its employees.
	9.6	Company x provides good career opportunities.
	9.7	Company x takes care to foster a good work-life balance.
Legend: Indicators are measured on a scale of 1 to 5 (1 = do not agree at all, 5 = agree fully)		

4 Overview: Research model and study hypotheses

With the preceding sections having conceptualized the dimensions and indicators of corporate reputation as exogenous variables and prior to that trustful attitude and trustful behavioral intention as endogenous variables and incorporated them into a nomological network through impact hypotheses, it is now expedient to show the research model in consolidated form. Figure 18 is an integrated presentation of the identified

constructs and their effect relationships postulated through the hypotheses:

Figure 18: Research model



Source: Own chart.

A glance at the model illustrates the dual role of the trustful attitude. First, it is the result of the reputation dimensions that simultaneously also directly affect the trustful behavioral intention. Secondly, it also directly impacts the trustful behavioral intention and is thus a *mediating variable* between the reputation dimensions and trustful behavioral intention.

Table 22 summarizes the 19 total study hypotheses, which Chapter D shall test empirically:

Table 22: Study hypotheses

No.	Hypotheses
1	The stronger the stakeholders' trustful attitude toward a pharmaceutical company, the stronger is their trustful intention to act in the interests of the particular company.
2	The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful attitude toward this company.
3	The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful behavioral intention in the interests of this company.
4	The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful attitude toward this company.
5	The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful behavioral intention in the interests of this company.
6	The more positive the stakeholders' assessment of a pharmaceutical company's marketing and sales effectiveness, the stronger their trustful attitude toward this company.
7	The more positive the stakeholders' assessment of a pharmaceutical company's marketing and sales effectiveness, the stronger their trustful behavioral intention in the interests of this company.
8	The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful attitude toward this company.
9	The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful behavioral intention in the interests of this company.
10	The more positive the stakeholders' assessment of a pharmaceutical company's social responsibility, the stronger their trustful attitude toward this company.
11	The more positive the stakeholders' assessment of a pharmaceutical company's assumption of social responsibility, the stronger their trustful behavioral intention in the interests of this company.
12	The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful attitude toward this company.
13	The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful behavioral intention in the interests of this company.
14	The more positive the stakeholders' assessment of a pharmaceutical company's ethical business practice, the stronger their trustful attitude toward this company.

C: Corporate reputation from stakeholder perspective

No.	Hypotheses
15	The stakeholders' assessment of a pharmaceutical company's ethical business practice has no influence on their trustful behavioral intention in the interests of the company.
16	The more positive the stakeholders' assessment of a pharmaceutical company's business performance, the stronger their trustful attitude toward this company.
17	The more positive the stakeholders' assessment of a pharmaceutical company's business performance, the stronger their trustful behavioral intention in the interests of this company.
18	The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the greater their trustful attitude toward this company.
19	The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the stronger their trustful behavioral intention in the interests of this company.

D Empirical study

Chapter D is dedicated to empirically testing the study model developed in the previous sections and the research hypotheses connected therewith. For this purpose, the methodology and procedure of the empirical study are first examined (D 1). D 2 introduces the basic boundary conditions, the body of data as well as the data-gathering tool of the study. The chapter then concludes by presenting the results of the empirical study (D 3).

1 Methodology and procedure of the empirical study

This dissertation is based on a causal analytical research design.²¹ It is thus distinguished from exploratory as well as purely descriptive research designs particularly on account of asking the question “why”. In this respect, connections shall be fathomed out and presented in the form of cause-effect relationships.

Because of the complexity of the effect relations, structural equation modeling lends itself as study model. In the following sections, the goal is to first provide a basic understanding of the structural equation model as well as analytical processes that constitute the core of the statistical analysis in the empirical portion of this dissertation (D 1.1). Finally, options and quality criteria for evaluating the structural equation models are discussed (D 1.2). On this basis, the procedure of this study is then presented (D 1.3).

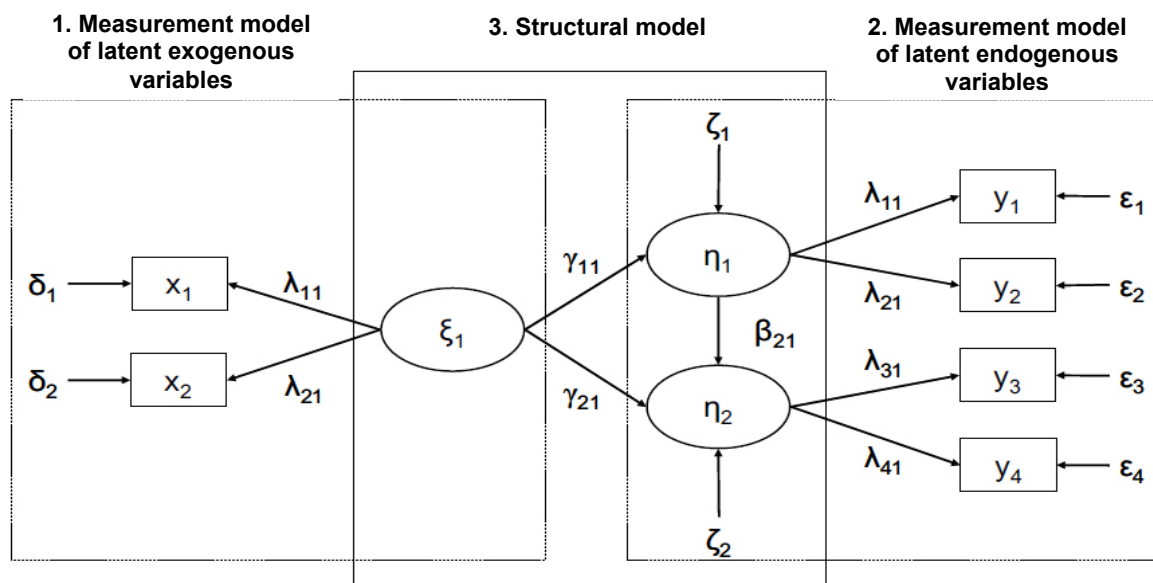
²¹ In a strictly methodical sense, the research does not concern true causal relationships, but rather relationships in which a directional influence is assumed. This hypothetical influence must first be substantiated in reality by means of a panel study. Because the terminology of structural equation analyses uses the terms influence and mechanisms of action (even if in a strict sense only to describe relationships), this terminology convention should be followed here as well.

1.1 Basic approaches of structural equation models

Testing deduced study hypotheses presents major challenges to a suitable evaluation method. On the one hand, it must be ensured that latent variables can be processed. On the other hand, the simultaneous testing of multiple effect relationships must be ensured in particular to facilitate testing the explicative part of the problem – the question regarding the influence of corporate reputation on the stakeholders' trustful attitudes and behavioral intentions.

Structural equation models constitute the starting point of empirical testing for developed study hypotheses. The basic elements of a structural equation model include (1) the measurement model of the latent exogenous variables, (2) the measurement model of the latent endogenous variables and (3) the structural model, which connects the endogenous and exogenous measurement models (Backhaus, Erichson, Plinke & Weiber 2003). Figure 19 shown below illustrates the structure of an abstract structural equation model:

Figure 19: Structural equation model



Source: Courtesy of Backhaus et al. (2006, p. 341).

Exogenous and endogenous variables differ from one another in that exogenous variables must not be dependent on further variables. The exogenous variables of the present study are the nine shown in Figure 14 and the dimensions of corporate reputation specified in C 3.1 through C 3.9. The measurement model of the latent exogenous variables contains the indicators that can be directly observed empirically and that function for operationalizing the latent exogenous variables. This represents the presumed relationships between these indicators and the exogenous constructs. Exogenous variables are supplied to the system from outside and constitute the independent variables in the hypothesis system (Backhaus et al. 2006).

The measurement model of the latent endogenous variables behaves in the same way. They are influenced by the endogenous factors, thereby constituting dependent variables. In this study they are the stakeholders' trustful attitudes and trustful behavioral intentions that are influenced by the reputation dimensions.

This interdependency between reputation dimensions and trustful attitude as well as trustful behavioral intention is illustrated in the structural model. The structural model is thus designed for testing the nineteen relationship hypotheses deduced (in Chapter C) between the exogenous and endogenous variables.

For analyzing structural equation models, two approaches must be differentiated: the covariance structure analysis with latent variables (referred to as LISREL approach on account of the original software available for this purpose) as well as the variance structure analysis with latent variables (PLS-path analysis, see Chin 1998b; Haenlein & Kaplan 2004).

Covariance structure analysis is based on the idea of selecting the parameters of the equation model in such a manner that the covariance matrix of manifest variables theoretically derivable from the model replicates the empirical data as closely as possible. It is thereby possible to statistically test the hypothesis that these two covariance matrices coin-

cide. On this basis, the structural equation model can then be rejected or supported and the theories expressed therein derived. While this process does not require explicit knowledge of latent variables, information on the distribution characteristics of the variables is necessary particularly for evaluating the model (Betzin & Henseler 2005).

The variance structure analysis follows a somewhat different route. It aims for a best possible reproduction of the actual data structure, i.e. the indicator values (Herrmann, Huber & Kressmann 2004). For this purpose, concrete estimated values for latent variables are first ascertained with the aid of a two-stage procedure. In the second stage, the remaining parameters are estimated using the aforementioned estimated values. The advantage of this method is that very few prerequisites are established for the distribution of the variables. However this also leads to there being no possibilities for interference statistical tests for global model evaluation (Betzin & Henseler 2005).

In the context of this dissertation, the advantage of variance structure analysis over covariance structure analysis is that multivariate normal distribution, interval scales or large sample sizes are not necessary (Fornell & Bookstein 1982). While the covariance structure analysis places greater weight on the general model adaptation and is thereby “closer to the model, more confirmatory, and more model analytic” (Barclay, Higgins & Thompson 1995, p. 302), the variance structure analysis is more oriented toward prediction and attempts to maximize the declared variance in the constructs. As a result, this method is “closer to the data, more exploratory, and more data analytic” (Barclay, Higgins & Thompson 1995, p. 302).

According to Chin and Newsted (1999) the variance structure analysis is to be preferred over the covariance structure analysis when analyzing structural models where certain conditions are present. One of these conditions is the existence of formative measurement models, since the integration of formative indicators into the covariance structure analysis

is possible only if difficult prerequisites are satisfied (see also Jarvis, MacKenzie & Podsakoff 2003; Götz & Liehr-Gobbers 2004). Even if new measurement models are used, which is the case in this dissertation, Chin and Newstead (1999) recommend the variance structure analysis.

An additional reason for using the variance structure analysis in the context of testing the structural model is the high level of complexity of the study model. The decision to use the PLS approach goes hand-in-hand with a decisive departure from classical quality criteria and the sequence of the test plan for structural equation models (Homburg & Giering 1996). D 1.3 shall address this issue after D 1.2 first provides a look into measurement theory.

1.2 Measurement theory

Theoretical constructs are generally understood as variables that are not directly measurable, i.e. latent variables. Therefore, once the basic features of structural models have been presented, measurement models shall be introduced in an additional step to allow the relationships between the theoretical constructs to be illustrated in a structural model.

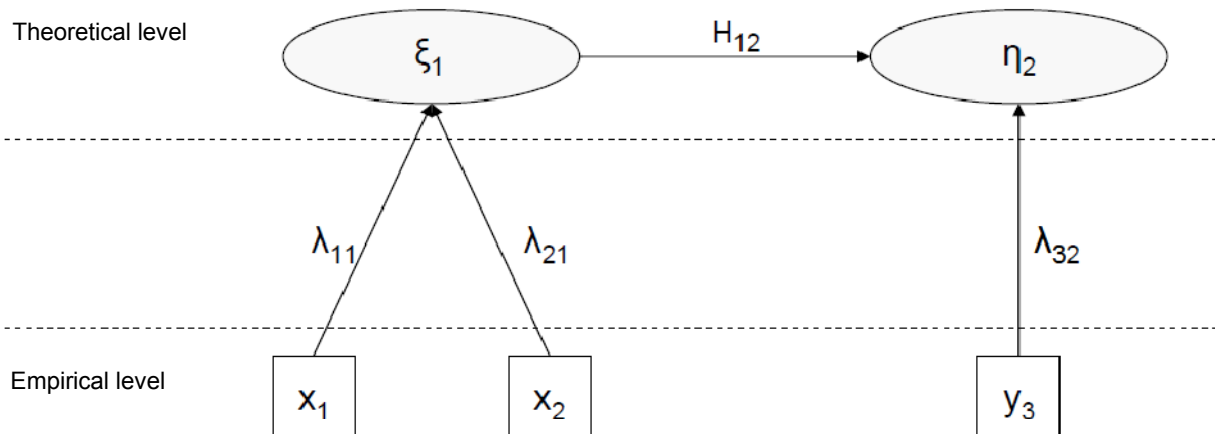
The relationship between constructs and the dimensions assigned thereto is often not adequately taken into account. An exact description of this relationship, however, is of crucial importance, since it constitutes the connection of non-observable abstracts and measurable empirical phenomena. For this reason, using measurement models for sensible testing of theories on the connections of constructs is necessary (Homburg 1995).

In the development, presentation and testing of scientific theories, fundamental distinction must be made between two levels of language according to Carnap (1965), who assumes that a theoretical model is also formulated in a theoretical language. To be able to describe reality with this language, the theoretical concepts – the constructs such as “ethical business practice” or “management quality”, for example, – must be

translated into an “observation language” (Kirsch, Seidl & van Aaken 2007). This process is called operationalization and is performed in the framework of this dissertation by using qualitative methods (see Chapter C). There are thus indicators for representing theoretical constructs.

To present the theoretical constructs on the basis of these indicators, correspondence rules are required, since the theoretical language is otherwise incompatible with empirical language. Applied to the operationalization of a latent construct, this means that the indicators constitute the empirical representation of the non-observable variables (Hodapp 1984). Figure 20 shows an abstract example:

Figure 20: Constructs, operationalization and correspondence rules



Source: Courtesy of Bagozzi (1984, p. 13).

On the theoretical level, a relationship is postulated between the exogenous theoretical construct ξ_1 and the endogenous construct η_2 using the hypothesis H_{12} . The theoretical constructs are operationalized using the indicators x_1 and x_2 as well as the indicator y_3 . The correspondence rules specified by Hodapp (1984) are expressed by the arrows λ .

In this way, there is a causal connection between the indicators and the constructs, which can be presented mathematically. If the hypothesis is

also formulated as a mathematical equation, then the construct connection can be computed as an unknown variable on the basis of a complex equation system of the indicator relationships (Fassot & Eggert 2005).

From the model in Figure 20, it is clear that the correspondence rules point from the indicators to the constructs. Homburg und Giering (1996) speak of formative measurement models in which the construct is determined by the variables assigned thereto. All reputation factors were operationalized for this dissertation in this manner as proposed by Helm (2007b).

The converse scenario in which the construct determines the indicators is called a reflective measurement model. If the character of the latent construct changes in a reflective measurement model, then this change should also be manifested in the form of the indicator values (Fornell & Bookstein 1982). The reverse does not apply. Changing an individual indicator does not necessarily change the latent construct, which is advantageous in practice. If one or more of the indicators in a reflective measurement model do not have a high degree of correlation to the others, then these indicators can be eliminated without any problems, which has a positive influence on the assessed quality of the measurement model because of the internal correlation of the indicators (Anderson & Gerbing 1982). In this dissertation, the endogenous constructs of trustful attitude and trustful behavioral intention are reflectively operationalized as is recommended for attitude-related dependent variables (Helm 2007b).

1.3 Quality criteria

In empirical social science research, the error-free measurement of theoretically deduced constructs is an unachievable goal. It is thus consistently assumed that measurements are not perfect but are erroneous (Homburg & Giering 1996). To facilitate sensible interpretation of the gathered data despite measurement errors, two general quality criteria that must be

heeded in standardized quantitative empirical social research are mentioned, namely reliability and validity.

According to specialized literature, the reliability and validity of a measurement tool can be tested using various criteria (Zaltmann, Pinson & Angelmar 1973). In this dissertation, however, the classical quality dimensions of empirical social research (for example Cronbach's alpha) are of minor importance, because they are primarily based on the correlation among the indicators of a factor (Campbell & Fiske 1959; Straub 1989). While correlations may also be present among formative indicators of a construct, this is not necessarily the case. In fact, one of the indicators can even be omitted in formative measurement models without requiring the measurement of the latent construct to be substantially changed, if it correlates strongly with another indicator (Diamantopoulos & Winklhofer 2001).

As quality criterion for formative measurement models, this dissertation exclusively uses testing for *multicollinearity*, which factors in this set of problems. The term multicollinearity refers to a high degree of linear dependency of the formative indicators among one another. High multicollinearity makes determining the influence of individual factors on the latent construct problematic, which can distort parameter estimates considerably (Diamantopoulos & Winklhofer 2001).

For multicollinearity, the variance inflation factor (VIF) has established itself as index value, which is calculated as the inverse of the difference of the coefficient of determination for the regression of an indicator to the remaining indicators of a formative measurement model (Backhaus, Erichson, Plinke & Weiber 2003). The degree of multicollinearity can be regarded as inconsequential as long as the VIF value of the indicator is less than or equal to ten (Kleinbaum, Kupper, Muller & Nizam 1998). If the limit is exceeded, then the indicator should be removed even if this by definition changes the nature of the construct to prevent impermissi-

ble estimated values due to weakly ascertained indicator influences (Hair, Black, Babin, Anderson & Tatham 2006).

In contrast, additional quality criteria can be imposed for the endogenous constructs of trustful attitude and trustful behavioral intention, since these constructs are measured reflectively. In this framework, so-called second generation criteria is used, which lends itself to testing the model quality on the level of individual factors (Homburg & Baumgartner 1995a). For this purpose, the confirmatory factor analysis is used as a basis. Factor reliability and average variance extracted are regarded as more important criteria for evaluating model quality (Hair et al. 2006).

Factor reliability (FR) represents how well the collection of all indicators measures the appropriate factor. It covers a value range of zero to one, wherein technical literature dictates a minimum value of 0.6 (Fornell & Larcker 1981). *Average variance extracted* (AVE) expresses how strongly the total variance of the indicators assigned to the factor is explained by this factor. In the case of standardized variables, it is calculated as the average of the indicator reliability of the indicators assigned to a factor. The AVE of a measurement model is deemed to be sufficient if it explains at least the majority of the variance of the observable variables ($AVE \geq 0.5$, see Hair, Black, Babin, Anderson & Tatham 2006). For standardized variables, the values are yielded as follows (Himme 2007):

FR	$rel(\xi_j) = \frac{\left(\sum_{i=1}^k \lambda_{ij} \right)^2 \varphi_{jj}}{\left(\sum_{i=1}^k \lambda_{ij} \right)^2 \varphi_{jj} + \sum_{i=1}^k \theta_{ii}}$	λ = estimated factor loading between the indicator x_i and the corresponding factor φ = estimated variance of the factor θ = estimated variance of the related measurement error
AVE	$dev(\xi_j) = \frac{\sum_{i=1}^k \lambda_{ij}^2 \varphi_{jj}}{\sum_{i=1}^k \lambda_{ij}^2 \varphi_{jj} + \sum_{i=1}^k \theta_{ii}}$	

As a further criterion of reliability, it is examined whether all related factor loadings of the individual indicators differ significantly from zero. For this purpose, the *t-test* is used, which follows the assumption of the null hypothesis that the parameter in the population equals the value zero. Calculation is performed analogously to the formula for assessing the regression function as a quotient from the estimated factor loading and the estimated standard error of the estimator in the framework of a bootstrapping procedure (Efron & Gong 1983). The examination is generally performed on the significance level of 10 %, 5 % and 1 % (Homburg & Giering 1996).

After the testing of measurement models has shown that the latent variables have been reliably estimated, their relationships in the inner path model should be subjected to an assessment. Based on the fact that PLS does not allow inference statistical tests for verifying the overall quality of the measurement model, it is necessary to switch to the following non-parametric test criteria for assessing the nomological validity in the framework of the structural model (Götz & Liehr-Gobbers 2004):

The coefficient of determination R^2 can be ascertained for latent endogenous variables. The *coefficient of determination R^2* measures the quality of the adaptation of the regression function to the empirically gathered data, with the residual variables constituting the basis. R^2 is calculated from the ratio of the declared spread to overall spread and thereby reflects the portion of variance of the endogenous construct explained by exogenous factors (Backhaus et al. 2006). In academic literature, R^2 values greater than or equal to 0.1 are accepted (Falk & Miller 1992), while in principle higher degrees are desired. Chin (1998b) therefore describes values over 0.67 as “substantial”, values starting at 0.33 as “good” and values starting at 0.19 as “weak”. This nomenclature is followed here.

Furthermore, the structural relationships in the structural model must be analyzed to satisfy the test requirements stipulated in the literature (Himme 2007). In this framework, the path relationships are tested that

ascertain the *prognosis relevance* Q^2 for endogenous and the *effect size* f^2 for exogenous constructs. To confirm or be able to not reject the hypotheses illustrated in the structural model, the parameter estimator for the path relationship must be statistically significant, pointing to the postulated direction and not trivial – i.e. reach a certain level (Herrmann, Huber & Kressmann 2004). A threshold value of at least 0.1 is postulated for the level of the path coefficients (Lohmöller 1989). To ascertain significance, the t-test is used as specified above.

Ascertaining the *prognosis relevance* Q^2 of certain latent endogenous variables with a reflective measurement model factors in the approaches of cross validation and is thereby based on a technique for recycling data (sample reuse technique). Q^2 is ascertained using the blindfolding procedure (Tenenhaus, Vinzi, Chatelin & Lauro 2005). In this procedure, parts of the empirically gathered data are systematically omitted for a specific block of manifest variables in each blindfolding round and then estimated using the derived PLS results.

This procedure is performed until all data points have been omitted and estimated. In the course of the blindfolding procedure, the total of the squared errors for the estimated values as well as for the original values is ascertained. Based on these values, Q^2 is calculated. Known as the Stone-Geisser criterion, it is a measurement of the prognosis relevance of a block of manifest variables (Chin 1998a). The model has sufficient prognosis accuracy when this quality criterion is greater than zero.

Finally, it can be tested within the framework of the variance structure analysis whether an independent (exogenous) latent construct exerts a substantial influence on a dependent (endogenous) latent construct. This is ascertained through *effect size* f^2 , which compares the *coefficient of determination* R^2 of an endogenous construct with and without the exogenous factor according to the following formula:

$$f^2 = \frac{R_{\text{inclusive effect}}^2 - R_{\text{exclusive effect}}^2}{1 - R_{\text{inclusive effect}}^2}$$

According to Cohen (1988) f^2 -values of 0.02, 0.15 and 0.35 serve as an evaluation standard to determine whether an exogenous latent construct exerts a minor, moderate or large influence on an exogenous construct in a relationship therewith.

The individual models ultimately serve to ascertain whether different constructs are actually being measured (discriminant validity). A method for testing discriminant validity is the *Fornell/Larckner criterion*. According to this method, two constructs must be estimated to have discriminant validity if the average variances extracted are each greater than the squared correlation between the two factors (Fornell & Larcker 1981). However, this is applicable only for reflective models. For formative models, sufficient discriminant validity is assumed if the construct correlations have a value less than 0.90 (Huber, Herrmann, Meyer, Vogel & Vollhardt 2007). Table 23 provides another overview of all quality criteria.

Table 23: Reliability and validity criteria

Criterion	Plane of reference	Criterion for	Requirement ²²
Variance inflation factor (VIF)	Factor	Multicollinearity	≤ 10
Factor reliability (FR)	Factor	Reliability and convergence validity	≥ 0.6
Average variance extracted	Factor	Reliability and convergence validity	≥ 0.5

²² If multiple values are indicated, then the first constitutes the minimum and the second the optimal requirement.

D: Empirical study

Criterion	Plane of reference	Criterion for	Requirement ²²
Coefficient of determination R^2	Endogenous factors in overall model	Reliability	≥ 0.19 / ≥ 0.33 / ≥ 0.67
Path relationships	Effect relationships in overall model	Reliability	Path relationship significant and ≥ 0.1
Stone-Geisser-criterion (prognosis relevance Q^2)	Endogenous factors in overall model	Validity	> 0
Effect size f^2	Endogenous factors in overall model	Effect size	$\geq 0,02$ / $\geq 0,15$ / $\geq 0,35$
Fornell-Larckner criterion	Reflective factors in overall model	Discriminant validity	Average variance extracted or $0.9 >$ as the squared correlation

From the point of view of science, one or the other value falling short of the threshold of the limit value does not necessitate discarding the entire model. Instead, the overall impression yielded by the quality criteria should decide the rejection or non-rejection of a structural equation model (Homburg & Baumgartner 1995b). However, failure to satisfy multiple criteria is regarded as a sign to reject the model. Nevertheless, there is the option of eliminating individual indicators to thereby improve the quality of the model as described in the next section (see also Homburg 1995).

1.4 Procedure

Building on the quality criteria, this section is devoted to illustrating the procedure for testing the operationalization of the constructs as well as the structural model. The test plan follows established procedures (Gerbing & Anderson 1988).

For each formative measurement model, the scale reliability is tested with regard to multicollinearity. Indicators with a VIF value above 10 are eliminated. If the VIF criterion is satisfied for all indicators, a confirmatory factor analysis is conducted using PLS.

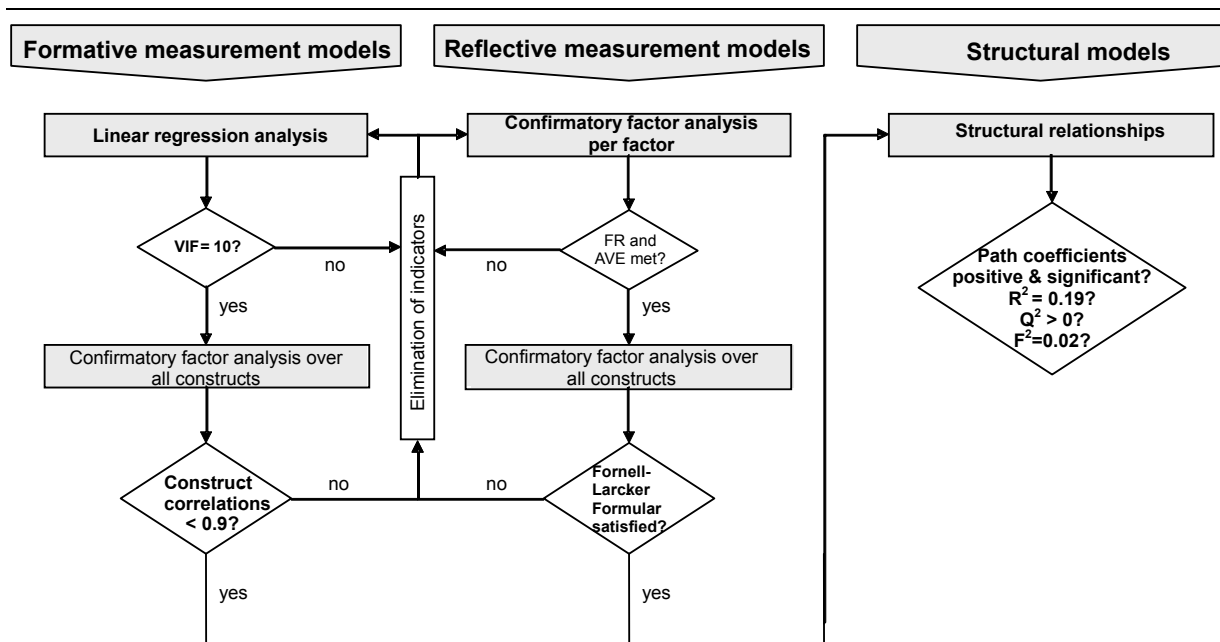
Reflective measurement models are evaluated using the quality criteria of factor reliability and AVE. If both adaptation dimensions are clearly

damaged, then the respective indicators with the lowest indicator reliability are eliminated (Homburg & Giering 1996).

Once the operationalization of all factors is complete, the discriminant validity of the reflective models is tested. As the last step of analysis, the structural model is tested with the interpretation of declared variances (R^2) in the endogenous variables, while prognosis relevance and effect size are examined.

In this study, measurement models were tested using the software packet SPSS 16.0 to the extent allowed by the scope of function. For continuative variance-based analyses, SmartPLS 2.0 is used (Ringle, Wende & Will 2005). Figure 21 provides a final overview of the procedure for testing measurement models:

Figure 21: Procedure for validating study model



Source: Own chart based on Giere, Wirtz and Schilke (2006, p. 686).

2 Data collection

Because absolutely no specific data on the subject matter studied by this dissertation was available, primary statistical investigation was indispensable. For this reason, the study relied on persons from the pharmaceutical stakeholder groups relevant in this case – physicians and patient organizations, who were surveyed with the aid of a standardized questionnaire. The reasons for this decision as well as the advantages and disadvantages are discussed below.

The study primarily explores the reception of corporate reputation among pharmaceutical company stakeholders and what effects this reputation has on stakeholders' trust. The ideal sample of the study would therefore be the entire population of all physicians and members of patient organizations worldwide. Because this would go beyond all temporal and financial resources, the study was conducted in cooperation with one of the largest global pharmaceutical companies, which desires to remain anonymous. The sample population consists of the physicians and patient organizations listed in the corporation's databases.

To yield meaningful and internationally applicable results, emphasis was placed on creating an international profile when selecting the persons to be surveyed. The decision was made to forgo gathering social statistics, since statistical inference questions such as those, for example, with regard to the representativity of the samples for the central question would be nearly impossible to verify. There exist, for example, no comprehensive statistics on personnel distribution within patient organizations.

In principle, written (including online), telephonic and face-to-face survey are the tools available for primary statistical empirical investigation. However, a written survey would entail a series of disadvantages in the context of this study. The specific problem would be that it would be impossible to verify whether the questionnaire was actually completed by

the person to whom it was addressed (Atteslander 1993). In the case of this study in particular, there is the risk that physicians, who are generally working under extreme time constraints on a daily basis, would delegate the task of completing the questionnaire to others, such as their medical office assistants.

The only remaining option for circumventing this risk is to conduct the survey in person or over the telephone. Because the study is international in nature, achieving an appropriate sample population through face-to-face survey by the author would require unreasonable effort and expense. However, sample size is of enormous importance in analyzing structural equation analyses. Accordingly, the reliability of the estimated parameters increases and the results of the model estimation become more dependable as sample scope expands (Kline 2005).

Academic literature contains divergent recommendations on this matter, according to which the minimum sample scope lies between five to ten cases per model parameter being ascertained (Bentler & Chou 1987; Nevitt & Hancock 2004). As a rule of thumb, a sample size exceeding by a factor of ten the indicator number of the most complex formative construct or the number of the most exogenous constructs that can affect an endogenous construct is recommended for PLS path models (Chin 1998b; Ringle, Boysen, Wende & Will 2006). In this dissertation, there are nine exogenous constructs, wherein the most complex likewise features nine indicators. In accordance with the rule of thumb stated above, a sample size of at least 90 participants per stakeholder group to be examined was specified for this study.

A telephone survey conducted between November 2006 and January 2007 was selected as an investigation method for both physicians and members of patient organizations. Because physicians, due to their extremely tight time constraints, have shown themselves to be not particularly willing to participate in surveys and a low rate of return and high

data-gathering effort and expense had to be assumed, a marketing research institute was commissioned to conduct the study using a standardized questionnaire consisting of the indicators developed during operationalization. Over the course of the data-gathering process, 8,900 physicians were contacted in four of Europe's five largest pharmaceutical markets by sales – Germany, France, Italy and Spain²³, yielding 404 completed questionnaires. For this extremely difficult to reach group, this figure corresponds to a response quota of 4.5 percent, which can be classified as normal.

The surveyed physicians were selected according to the relative importance of their respective medical specializations to globally present pharmaceutical corporations. These companies generally focus their research, development, production and marketing activities on the “endemic diseases” prominent in industrial countries such as the mostly chronic cardiovascular diseases (such as high blood pressure) and neurologically caused suffering such as Parkinson's or forms of dementia such as Alzheimer's disease.

Furthermore, the leading international pharmaceutical corporations are generally active in various therapeutic areas in oncology (cancer treatment) – the fastest growing therapy segment of the industry. Because the rate of occurrence of both cancer and dementia increases with age, the number of affected will rise in the future as a result of increasing numbers of people reaching very old age. It is calculated that by 2030, the number of new cases of cancer worldwide will increase by 50% (Albers & Sandies 2010).²⁴

²³ See footnote 6 for the selection of these four countries specified for the empirical investigation.

²⁴ See Fischer and Breitenbach (2007) for background information on the pharmaceutical industry.

In March 2010 a total of 861 active substance candidates against cancer were in clinical studies worldwide – twice as many as those against cardiovascular diseases. In late 2010, cancer had already overtaken cardiovascular diseases as the most common cause of death worldwide (Amacher & Nolmanns 2010).

Because many patients with diseases from the therapeutic areas specified above have regular contact with their primary care physician (not specializing in a particular area of indication), general practitioners were also surveyed. The following groups of physicians were thus defined as an object of the empirical survey for this dissertation: (1) cardiologists, (2) neurologists, (3) oncologists and (4) general practitioners.

As for patient organizations, those that inform, advise and represent patients or represent their interests to third parties in the three²⁵ central therapeutic areas listed above – cardiovascular medicine, neurology and oncology – were selected. Importance was placed on taking an appropriate cross section of large and small organizations. However, the main focus was on major patient organizations such as *Deutsche Krebshilfe*, *Association Française des Malades et Opérés Cardio Vasculaire*, *Parkinson Italia* or *Asociacion Española Contra El Cancer*. The large number of members in these organizations alone suggests that they can strongly influence the formation of opinions toward pharmaceutical companies and the reputations thereof.

A total of 420 members of patient organizations were addressed, yielding 201 responses. This response quote of 47.9 percent, which is very high for empirical studies and compared to that of the physicians, can be attributed to the fact that members of patient organizations (in contrast to

²⁵ Patient organizations for “general diseases” naturally do not exist, since the focus of these organizations is always on a specialized therapeutic area.

physicians) have not been the focus of regular surveys and are (still) somewhat positively inclined to answering questionnaires. Another possible reason may be that members of these mostly nonprofit organizations generally work voluntarily and therefore have more time at their disposal than gainfully employed physicians. Thirdly, the fact that members of such organization generally have relatives or friends affected by medical conditions renders them deeply involved personally and motivates them accordingly.

At the time of the investigation, eight of the world's largest pharmaceutical companies by sales served as reputation objects. To limit interview time to 30 minutes, each sample person was asked about two of the eight corporations selected on a random basis. The prerequisite was that the persons surveyed knew these two corporations by name (awareness: "I am aware of company X") and, furthermore, knew them well (familiarity: "Know company X well"). This allowed an industrial model valid for the entire pharmaceutical industry to be generated by integrating the results for the individual pharmaceutical companies into an industry profile.

To verify heterogeneity of answers, it was examined whether the answer patterns of the persons surveyed differed significantly regarding the eight corporations studied. For this purpose, the Kruskal-Wallis-H-test was performed for each item. The Kruskal-Wallis-H-Test is a parameter-free statistical test for group differences and is capable of comparing more than two groups with one another (de Sá 2003).

The results of this examination showed significant differences with regard to the assessments of the eight companies studied among 42 (physicians) and 61 (patient organizations) of the 66 total indicators. This demonstrates that reputation – as postulated in this dissertation – constitutes a company-specific construct and must therefore be measured on a highly individual basis. Because the goal of this dissertation is to

create an industry model of corporate reputation that is valid for as many pharmaceutical companies as possible, these differences between the individual companies are accepted.

3 Results of the empirical study

This section presents a summary of the results of the study. Based on the methodology described above (in D 1 and D 2) and the procedure of the empirical examination, analyses of the measurement models of the exogenous (D 3.1.1) variables, i.e. the dimensions of corporate reputation, are introduced below on the basis of the operationalizations to answer research question 1 concerning the conceptualization of corporate reputation. Subsequently, the endogenous constructs of trustful attitude and trustful behavioral intention are examined (D 3.1.3) to test the second research question concerning the conceptualization and operationalization of these two constructs. Finally, the effect relationships in the structural model are analyzed (D 3.2), which results in the answering of research question 3, the interdependency between corporate reputation, trustful attitude and trustful behavioral intention and thereby the examination of the research hypotheses. D 3.3 summarizes the knowledge gained.

3.1 Analysis of measurement models

The measurement models for the relevant constructs derived from operationalization facilitate an empirical observation of the dimensions and indicators of corporate reputation as well as the endogenous variables of trustful attitude and trustful behavioral intention. The following two sections present the analysis results for the measurement models.

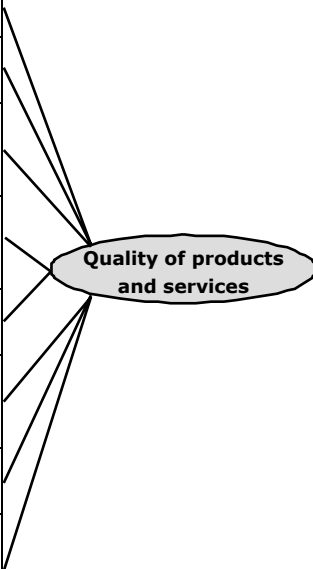
3.1.1 Analysis of the dimensions of corporate reputation

Chapter C developed a concept of corporate reputation with the nine dimensions of quality of products and services, innovativeness, market-

ing and sales effectiveness, management quality, social responsibility, transparency, ethical business practice, business performance and employer attractiveness. This section introduces the measurement models of the individual constructs of corporate reputation. In this context, the “substantive validity” of the individual indicators is discussed as required by Chin (1998a). Because the VIF values as central quality dimension for all items consistently remain below ten, for the most part even below three, multilinearity within the formative constructs cannot be assumed. Therefore, only the relative weights of the individual indicators are introduced and discussed.

Quality of products and services was postulated as a dimension of corporate reputation, because stakeholders have certain expectations of quality upon which they base their opinions on the company. Table 24 provides an overview of the factor weights of the eight indicators. The t-values indicated in the second column show whether the factor weight is significant. The limit values for evaluating significance lie at 1.281 (10% probability of error), 1.644 (5% probability of error) and 2.326 (1% probability of error). In principle, marginal statistical significance can be assumed at t-values greater than 1.281 (Hair et al. 2006).

Table 24: Assessment of quality of products and services²⁶

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
1.1	The medicines/products of company x are safe.	0.235	1.706	-0.175	0.985	
1.2	The medicines/products of company x are effective.	0.256	1.943	0.428	1.981	
1.3	The medicines/products of company x are result of exhaustive and reliable research.	0.164	1.260	0.189	1.152	
1.4	Company x provides clear, understandable and comprehensive product information.	0.295	2.042	0.147	0.969	
1.5	The medicines/products of company x are easy to administer.	-0.037	0.317	0.257	1.594	
1.6	Company x offers valuable services along with their products (e.g. beneficial training for patients).	0.125	0.982	0.234	1.789	
1.7	Products and/or services of company x have a good price-performance ratio.	0.063	0.586	0.196	1.627	
1.8	Company x continuously improves medicines/products that are already established in the market.	0.237	2.112	0.089	0.540	

Concerning the reputation of pharmaceutical companies, physicians and patient organizations differ with regard to (the aspect of) quality of products and services. Among physicians, there is a relatively high weighting with values above 0.2 especially for the indicators of safety, effectiveness, product information, and drug further development.²⁷ Among patient organizations, in contrast, effectiveness (above 0.4), usability and service accompanying a drug (both above 0.2) as well as price-performance ratio (just around 0.2) have the highest weight. It can thus be established that

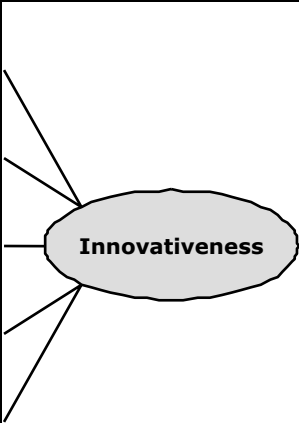
²⁶ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10 %), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

²⁷ For the sake of clarity, formulations that impute to the group it would actively weight certain indicators highly or ascribe major importance thereto are selected in the following sections in addition to the formulation "high path weights result in the aspects".

physicians and patient organizations have sharply divergent views regarding quality of products and services. However, both groups agree that the effectiveness of a medication is of paramount importance. At the same time, there are clear differences especially with regard to safety, the clarity of patient information and drug further development, which are important to physicians but not patient organizations. Conversely, user-friendliness, service as well as good cost-benefits ratio of the medication are relevant to patient organizations, but not physicians.

The innovativeness of pharmaceutical companies appears to be necessary not only from a financial perspective, but also fosters the trustful attitudes and thus the trustful behavioral intentions of physicians and patient organizations, which in turn can strengthen the reputation of drug manufacturers. Table 25 shows the factor weights of the five indicators of the reputation dimension innovativeness:

Table 25: Assessment of innovativeness²⁸

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
2.1	Company x develops new and effective medicines/products that meet patient needs better.	0.520	2.900	0.504	2.723	
2.2	Company x improves drug administration of medicines and products to increase the quality of life of patients.	0.189	1.084	0.264	1.411	
2.3	Company x uses the latest/advanced approaches for research and development.	0.166	1.031	0.046	0.200	
2.4	Company x provides medicines/products that contribute to reducing healthcare costs.	0.219	1.603	-0.027	0.184	
2.5	Company x proactively partners with biotech firms /academic institutions for R&D.	0.227	1.486	0.436	2.102	

²⁸ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10%), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

When it comes to innovativeness, the development of new and effective products clearly receives the highest weighting (each above 0.5) from both physicians and patient organizations, while a pharmaceutical company's cooperation with biotech companies and scientific institutions in research and development is very relevant for patient organizations (above 0.4) and relatively less relevant for physicians (0.2). In contrast, the user-friendliness of drugs plays a major role only for patient organizations, while physicians exclusively place importance on drug manufacturers offering products that reduce healthcare costs (both above 0.2).

Because both physicians and patient organizations regularly come into contact with sales and marketing representatives from pharmaceutical companies – be it directly via pharmaceutical consultants, lobbyists or indirectly through other channels –, this dimension is ascribed major importance with regard to reputation. Of the six indicators initially identified for this purpose, one was eliminated at the onset of the study: In the second preliminary test, *“I have a clear understanding of what company x offers”* proved to be unsuitable for measuring the reputation dimension, since it is limited to measuring only the effect. The results for the remaining five indicators are presented in Table 26:

Table 26: Assessment of marketing and sales effectiveness²⁹

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
3.2	Company x communicates the USP/benefit of its medicines and products effectively.	0.058	0.315	0.297	1.375	
3.3	Company x has a high quality sales force.	0.352	2.203	0.336	1.641	
3.4	Company x executes successful market strategies.	0.146	0.705	0.150	0.577	
3.5	Company x provides good customer support.	0.448	2.738	0.265	1.232	
3.6	The product packaging of company x is easily recognizable and distinguishable from that of other companies.	0.242	1.308	0.248	1.523	

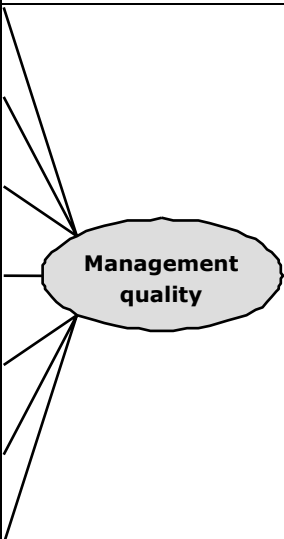
Customer support – for example through informational events, product training or hotlines – is regarded as a central factor for marketing and sales effectiveness (above 0.4) by physicians, while it plays no role for patient organizations. With a weighting above 0.3, both physicians and patient organizations view a high caliber of marketing and sales personal as beneficial to reputation, followed by distinctness of product packaging compared to that of other companies (each 0.25). In contrast, patient organizations ascribe relatively high importance to communicating the possible unique selling points of a product, while physicians give it no importance.

Pharmaceutical corporation managers are important, because they decide for one in which therapeutic areas “their” company invests its research funds and which products are available at which quality and for how long. Physicians and patient organizations would therefore have to assess the management quality of pharmaceutical companies as positive.

²⁹ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10%), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

Seven indicators were identified for measuring management quality, the weighting of which is shown in Table 27:

Table 27: *Assessment of management quality*³⁰

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
4.1	The management of company x listens to concerns raised outside the company.	0.102	0.502	0.006	0.032	
4.2	The management of company x reacts constructively to criticism and feedback.	0.215	0.993	0.128	0.770	
4.3	Company x has an experienced senior management.	0.149	0.881	0.271	1.146	
4.4	The management of company x is honest and acts with integrity.	0.343	1.799	0.266	1.257	
4.5	The CEO of company x is a strong leader.	0.149	0.862	0.058	0.293	
4.6	The management of company x develops effective global strategies.	-0.056	0.201	0.405	1.646	
4.7	The local/line management of company x effectively executes global strategies.	0.361	1.296	0.072	0.276	

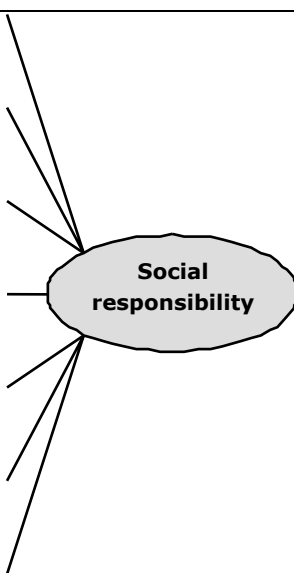
Physicians and patient organizations make diametrically opposite statements on the management quality of pharmaceutical companies. Physicians place relatively high importance on management's honesty/integrity as well as its ability to implement global strategies on a local level (0.34 and 0.36, respectively). To members of patient organizations, on the other hand, it is important with regard to perceived management quality that pharmaceutical company managers develop effective global strategies (0.36).

Because in the meantime almost every corporation has integrated social responsibility into its corporate strategy, it is all the more important that this social responsibility postulated to be good for corporate reputation be

³⁰ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10%), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

traceable and sustained if it is to be credible. To measure the dimension “social responsibility”, nine indicators were first generated, with the indicators regarding the availability of medications in developing countries and regarding the availability to all segments of society being removed due to significant negative weighting among the physician group and patient organization group, respectively.³¹ Table 28 shows the weightings of the remaining seven indicators:

Table 28: Assessment of social responsibility³²

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
5.1	Company x actively invests in philanthropic projects (e.g. fundraising campaigns after natural disasters).	0.077	0.315	-0.016	0.068	
5.2	Company x is actively involved in community work.	0.267	1.147	0.298	1.153	
5.4	Company x fulfills its responsibility for public health education and prevention.	0.227	1.119	0.499	2.601	
5.5	Company x actively engages in environmental protection.	0.333	1.270	0.143	0.718	
5.7	Company x maintains or increases jobs in my country.	0.212	1.05	-0.016	0.090	
5.8	Company x helps governments to combat diseases and to prepare for epidemics/pandemics.	0.207	0.885	0.392	2.067	
5.9	Company x invests in the development of orphan drugs (drugs for rare conditions, having low sales volume potential).	-0.028	0.099	-0.118	0.571	

The patient organization group shows high weightings with regard to responsibility for health education and prevention (0.49) as well as to supporting governments combating diseases (0.39), while clearly none of the seven indicators is relevant to physicians. In the context examined here, it

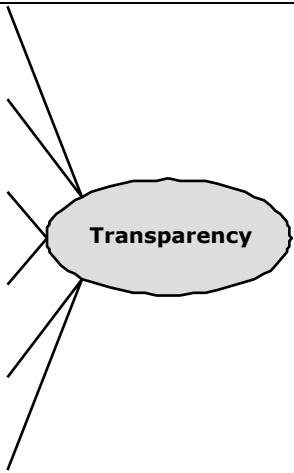
³¹ See Diamantopoulos and Winklhofer (2001) for an explanation of methodology.

³² The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10%), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

is apparently not important to physicians whether pharmaceutical companies act in a socially responsible manner.

To ensure that the stakeholders of a pharmaceutical corporation are secure with the information they have, management must act in a transparent manner to strengthen trust in the company. Transparency thus constitutes an important dimension of corporate reputation. Of the seven initially identified indicators, one regarding the information policy on the financial situation of companies was removed at the onset due to significantly negative weighting from the patient organizations³³. The remaining six indicators and their weights in the groups are listed in Table 29:

Table 29: Assessment of transparency³⁴

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
6.1	Company x informs the public in an open and honest way about critical issues relating to health and drugs.	0.461	2.697	0.571	3.610	
6.3	Company x informs the public about all relevant results of clinical studies.	0.341	2.383	0.070	0.387	
6.4	Company x provides the capital market with accurate, relevant and timely information.	0.163	0.903	0.395	1.356	
6.5	Company x provides clear and precise information on its corporate governance.	0.067	0.301	-0.013	0.048	
6.6	Company x provides useful information for the public on its social and environmental activities	-0.052	0.289	0.147	0.779	
6.7	In crisis situations, company x communicates in a fast and transparent way.	0.273	1.309	0.084	0.386	

³³ See Diamantopoulos und Winklhofer (2001) for an explanation of methodology.

³⁴ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10 %), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

When it comes to transparency, both groups exhibit very high weighting with regard to information on topics critical to health and pharmaceuticals that companies make available to the public (physicians: 0.46; patient organizations: 0.57). Information from the capital market is also highly important to patient organizations (0.39), yet irrelevant to physicians. It is important to doctors that pharmaceutical companies inform the public of relevant clinical studies (0.34) and communicate rapidly and transparently in crisis situations (0.27). These two aspects, in contrast, are irrelevant to patient organizations.

The construct of ethical business practice focuses on a company's values and how the company deals with its stakeholders. This type of behavior can sustainably shape corporate reputation. Because of significantly negative weighting exhibited by physicians, one item – the topic of “patent evergreening” – was eliminated.³⁵ The eight remaining indicators and the weighting thereof are listed in Table 30:

³⁵ See Diamantopoulos und Winklhofer (2001) for an explanation of methodology.

Table 30: Assessment of ethical business practice³⁶

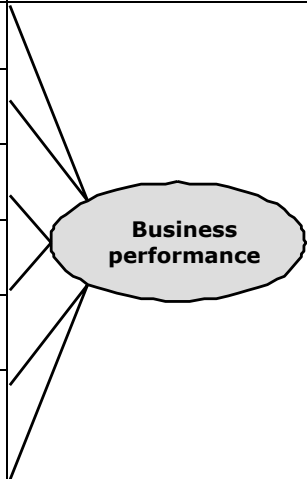
Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
7.1	Company x refrains from providing incentives or donations to prescribing doctors in order to unlawfully influence their decisions or get favorable re-views about its products.	0.110	0.612	-0.096	0.551	
7.2	Company x refrains from engaging in political lobbying to obtain decisions that are against patient interests.	-0.071	0.390	0.114	0.651	
7.3	Company x refrains from abusing socially under-privileged people for clinical trials.	0.064	0.346	0.095	0.538	
7.5	Company x refrains from misleading advertisements or incorrect claims about products.	0.461	2.342	0.154	0.850	
7.6	Company x takes disciplinary action against any kind of discrimination among employees.	-0.108	0.629	0.151	0.713	
7.7	Company x invests in R&D processes that minimize the need of drug testing on animals.	0.059	0.329	0.035	0.162	
7.8	Company x treats business partners fairly.	0.366	2.084	0.359	1.502	
7.9	Company x has a clear code of ethical standards to which it adheres.	0.394	2.189	0.455	1.668	

When it comes to ethical business practice, a clear code of ethical standards as well as fair treatment of commercial partners is very important for physicians (0.39 and 0.36, respectively) and members of patient organizations (0.45 and 0.35) alike. It is also extremely important to physicians that pharmaceutical companies refrain from making unclear or false statements in their product advertisement (0.46), while this aspect has no significance to patient organizations.

Because a close connection between commercial success and positive reputation is generally ascribed to companies, this dimension was explored using six items, the weights of which are listed in Table 31:

³⁶ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10%), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

Table 31: Assessment of business performance³⁷

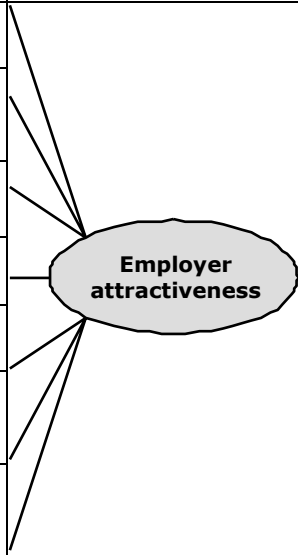
Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	t	
8.1	Company x is profitable.	0.188	0.804	0.069	0.303	
8.2	Company x is a market leader in my country.	0.362	1.480	0.308	1.265	
8.3	Company x is a global market leader.	0.174	0.673	0.241	1.020	
8.4	Company x is growing very strongly.	0.399	1.639	0.263	1.215	
8.5	Company x provides a high ROI to its shareholders.	0.205	0.868	0.028	0.112	
8.6	Company x is financially very strong.	0.012	0.038	0.369	1.407	

The statements of physicians and patient organizations regarding a company's business performance are extremely heterogeneous. The physician group finds strong growth (0.39) and local market leadership (0.36) to be highly important in a company, while these same factors are irrelevant for patient organizations. For members of patient organizations, only the financial strength of the companies (0.36) is relevant with regard to business performance, while this aspect is irrelevant for physicians.

Because employees are subject to direct or indirect assessment by third parties during each external interaction and also communicate about "their" company outside business hours, their behavior has a continuous impact on the reputation of "their" company. This factor was therefore integrated into the study as a reputation dimension and explored with seven items. Table 32 provides an overview of the results of the assessment:

³⁷ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10 %), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

Table 32: Assessment of employer attractiveness³⁸

Local adaptation dimensions						
Indicators		Physicians (n=404)		Pat. org (n=201)		Construct
		Weight	t	Weight	T	
9.1	Company x offers its employees good salaries.	-0.094	0.403	-0.137	0.628	
9.2	Company x offers its employees good social benefits (e.g. health insurance, employee pension scheme).	0.052	0.229	0.345	2.132	
9.3	Company x offers its employees an inspiring working atmosphere.	0.228	1.026	0.462	2.362	
9.4	Company x offers high job security.	0.282	1.556	0.148	1.085	
9.5	Company x invests in the training and development of its employees.	0.447	2.122	0.224	1.140	
9.6	Company x provides good career opportunities.	0.232	1.029	0.196	0.964	
9.7	Company x takes care to foster a good work-life balance.	0.044	0.207	-0.052	0.280	

As was the case with management quality and business performance, physicians and patient organizations are diametrically opposed to one another concerning the issue of employer attractiveness as a reputation-promoting factor. For physicians, the training and development of pharmaceutical company employees is the central aspect (0.44), while a high degree of job security for pharmaceutical company employees (0.28) is also important for this group.

For members of patient organizations on the other hand, these factors are inconsequential. They place great importance on a pleasant and inspiring work atmosphere (0.46) as well as good benefits (0.34) for pharmaceutical company personnel. These factors, in contrast, are not important to physicians in this context.

³⁸ The limit values for evaluating the significance of t-values (probability of error) lie at 1.281 (10 %), 1.644 (5 %) and 2.326 (1 %). Significant values are indicated in **bold print**.

3.1.2 Analysis of discriminant validity

Following the isolated analysis of the nine individual dimensions of corporate reputation, the entire reputation model is examined to test discriminant validity. As explained in D 1, formatively constructed factors have discriminant validity if the correlations of the factors are less than or equal to 0.9. Table 33 shows the correlations of the constructs in the physician group:

Table 33: Test of discriminant validity (physicians)³⁹

	QPS	IN	MSE	MV	CSR	TR	EBP	BP	EA
Quality of products and services (QPS)									
Innovativeness (IN)	0.63								
Marketing and sales effectiveness (MSE)	0.64	0.58							
Management quality (MQ)	0.55	0.58	0.54						
Social responsibility (CSR)	0.48	0.45	0.41	0.51					
Transparency (TR)	0.58	0.53	0.44	0.56	0.62				
Ethical business practice (EBP)	0.57	0.46	0.44	0.56	0.43	0.58			
Business performance (BP)	0.37	0.38	0.47	0.44	0.25	0.24	0.19		
Employer attractiveness (EA)	0.43	0.44	0.52	0.58	0.46	0.45	0.45	0.35	

Minimum requirement:
 ≤ 0.9

Because correlations are consistently below the required value of 0.9, good discriminant validity can be assumed for the nine dimensions of corporate reputation in the physician group. Table 34 shows the same analysis for the persons surveyed from patient organizations:

³⁹ The correlations of the reputation dimensions to one another are listed. The minimum requirement is ≤ 0.9 .

Table 34: Test of discriminant validity (patient organizations)⁴⁰

	QPS	IN	MSE	MQ	CSR	TR	EBP	BP	EA
Quality of products and services (QPS)									
Innovativeness (IN)	0.63								
Marketing and sales effectiveness (MSE)	0.54	0.61							
Management quality (MQ)	0.56	0.49	0.48						
Social responsibility (CSR)	0.54	0.53	0.50	0.54					
Transparency (TR)	0.55	0.51	0.51	0.53	0.57				
Ethical business practice (EBP)	0.52	0.55	0.55	0.50	0.55	0.55			
Business performance (BP)	0.44	0.45	0.53	0.50	0.43	0.38	0.45		
Employer attractiveness (EA)	0.46	0.41	0.50	0.48	0.40	0.48	0.59	0.50	

Minimum requirement:
≤ 0.9

Here as well, all correlations are far below the maximum value, thereby confirming the discriminant validity of the reputation dimensions for all groups.

3.1.3 Analysis of endogenous constructs

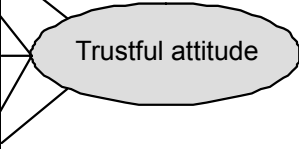
With the measurement models of the nine reputation dimensions of quality of products and services, innovativeness, marketing and sales effectiveness, management quality, social responsibility, transparency, ethical business practice, business performance and employer attractiveness having been introduced in the previous section, an analysis of the endogenous constructs of trustful attitude and trustful behavioral intention can be addressed and the results thereof presented.

A trustful attitude reflects a stakeholder's tendency to positively assess pharmaceutical companies in terms of competence, predictability, benevolence and integrity (see B 2.3.2). For this construct, six indicators were initially derived, five of which were integrated into the assessment with

⁴⁰ The correlations of the reputation dimensions to one another are listed. The minimum requirement is ≤ 0.9.

the VIF values of all lying below ten. The item regarding the company's responsiveness to customer and patient questions was excluded, having been found to be unsuitable for measuring trust, since it does not measure any of the defined trust dimensions of competence, predictability, benevolence, integrity and honesty.⁴¹ The results of the five indicators integrated into the evaluation are presented in Table 35:

Table 35: Reliability and validity criteria for trustful attitude⁴²

Local adaptation dimensions					
Indicators	Physicians (n=404)		Patient organizations (n=201)		Construct
	FL	t	FL	t	
Company x is competent.	0.823	39.414	0.836	29.069	
Company x is reliable.	0.893	69.292	0.907	49.146	
Company x is credible.	0.909	89.296	0.906	57.474	
Company x always acts in an open and honest way.	0.795	38.915	0.777	18.968	
Company x demonstrates high customer focus.	0.761	26.058	0.780	22.353	
Quality criteria					
AVE (physicians) (target: ≥ 0.5)	0.7033		FR (physicians) (target: ≥ 0.6)		0.9219
AVE (PO) (target: ≥ 0.5)	0.7118		FR (PO) (target: ≥ 0.6)		0.9248

This table shows only high and significant factor loading in both groups. For both physicians and patient organization groups the factor loadings for credibility and reliability show that they are central aspects of the trust construct followed by competence. Both groups load open, honest action as well as strong customer focus just below 0.8, which can likewise be regarded as overall very good.

The local adaptation dimensions of the second generation confirm the positive image of the construct "trustful attitude", because both the AVE

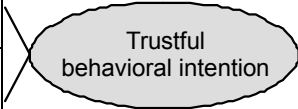
⁴¹ The item was originally accepted on the basis of the qualitative preliminary study, in which the experts adjudged it to have relevance.

⁴² The threshold value for evaluating the significance of the t-values (error likelihood) are 1.281 (10 %); 1.644 (5 %) and 2.326 (1 %).

and construct reliability (FR) in both groups are above the required minimums of 0.6 and 0.5 respectively, thus confirming that the indicators adequately measure the construct.

The indicators analogously confirm the construct with regard to trustful behavioral intention, which is understood as a person's expectations of his or her own behavior. Both indicators⁴³ highly and significantly load the construct, i.e. that the persons surveyed would take the medications themselves in the event of illness as well as recommend them to their families and friends. In addition, the quality criteria of both the first and second generation are consistently satisfied and confirm the quality of construct measurement facilitated by the indicators. Table 36 provides an overview of the results:

Table 36: Reliability and validity criteria for trustful behavioral intention⁴⁴

Local adaptation dimensions					
Indicators	Physicians (n=404)		Patient organizations (n=201)		Construct
	FL	t	FL	t	
I would take the medicines of company x in case of illness.	0.943	129.93	0.907	62.965	 Trustful behavioral intention
I would recommend my family/ friends to take the medicines/ products made by company x in the case of illness.	0.925	74.145	0.874	34.151	
Quality criteria					
AVE (physicians) (target: ≥ 0.5)	0.8733		FR (physicians) (target: ≥ 0.6)		0.9323
AVE (PO) (target: ≥ 0.5)	0.7941		FR (PO) (target: ≥ 0.6)		0.8852

⁴³ See B 2.4 for the two indicators of trustful behavioral intention used here.

⁴⁴ The threshold value for evaluating the significance of the t-values (error likelihood) are 1.281 (10 %); 1.644 (5 %) and 2.326 (1 %).

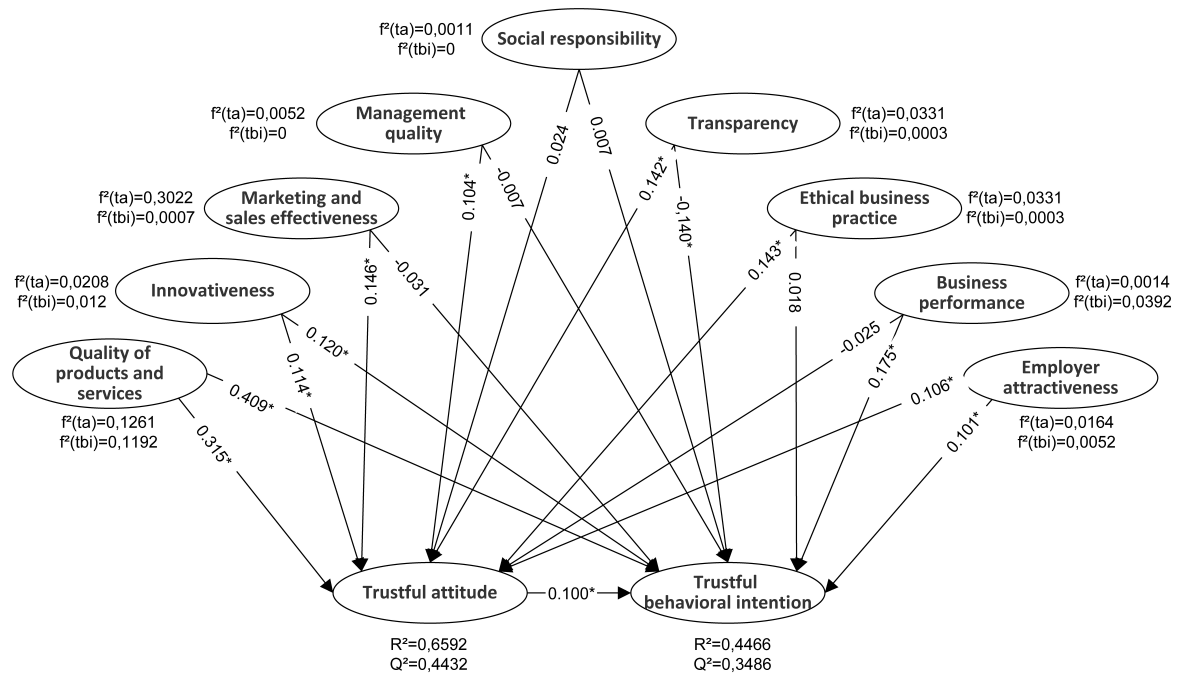
Testing discriminant validity according to the Fornell-Larcker criterion yielded values for the squared correlations of the constructs (0.268 for physicians and 0.269 for patient organizations) for the two constructs that were consistently lower than the average variance extracted of the factors. A good discriminant validity of the endogenous constructs can therefore be assumed.

3.2 Analysis of structural models

With the measurement model having been validated in D 3.1, the theoretically developed effect model can now be empirically tested in this section on the basis of said validation. The research model shall first be presented for physicians (D 3.3.1) and then for patient organizations (D 3.3.2). Afterwards, both shall be discussed separately and then subjected to a comparative evaluation (D 3.3.3).

3.2.1 Analysis of the structural model for physicians

In the analysis of structural models, path coefficients and quality criteria of the models are all presented combined in a figure. For the physician group, Figure 22 shows all information of the multiple regression analysis in PLS:

Figure 22: Structural model for physicians⁴⁵

Source: Own chart.

From the path coefficients, it is clear that dimension of quality of products and services has the strongest influence on trustful attitude (0.315) and behavioral intention (0.409). Both paths are highly significant. At approximately 0.12, the effect size (f^2) of quality of products and services is in the moderate range (requirement: ≥ 0.02) and, compared to behavioral intention, has a slightly stronger effect on physicians' trustful attitude toward pharmaceutical companies (0.126). The dimension of quality of products and services can thus be identified as a key driver or success factor of trustful attitude and trustful behavioral intention – more precisely of the recommendation behavior and willingness of physicians to

⁴⁵ Legend: $f^2(vE/vH)$: Effect size on trustful attitude / trustful behavioral intention; * denotes a statistically significant path coefficient ($p \leq 0.1$).

take the specific medications in the event of their own illness. Hypotheses 2 and 3 for physicians can thus be confirmed.

Marketing and sales effectiveness has the highest effect size (0.302) on physicians' trustful attitudes, with the associated path coefficient being significant at the 1% level (0.146). Marketing and sales effectiveness thus increases physicians' trustful attitude, thereby confirming hypothesis 6. In contrast, marketing and sales effectiveness does not significantly influence trustful behavioral intention. Hypothesis 7 is therefore rejected with regard to physicians. The behavior-fostering aspect of marketing and sales as demonstrated by Holmes and Lett (1977) accordingly cannot be confirmed here. A possible reason may be the fact that when selecting medications to prescribe or use, physicians place more value on the quality of the product than the accompanying marketing actions as hypothesis 3 also confirms.

The significant path coefficient of business performance on trustful behavioral intention (0.175) is worth noting. Derived from the findings of Seiden, Norchi and Pajwani (1996), hypothesis 17 is thereby confirmed – physicians apparently prefer to actually use those medications that they assume will be available long-term (from the same manufacturer). The relationship between the business performance of pharmaceutical companies and trustful attitude toward them is insignificant, however. Commercially successful companies are not necessarily trusted (hypothesis 16). This phenomenon – perceived as a dilemma⁴⁶ by pharmaceutical corporations – can be attributed on one hand to society's reservations toward profit-seeking. On the other hand, hypothesis 16 may also have to be rejected on account of trustful attitude constituting more an amplifier than a result in this context (Schumacher 2006).

⁴⁶ See Santoro and Gorrie (2005) as well as Clare (2003) on the perceived dilemmas in the pharmaceutical industry.

Transparency also exhibits a significant effect on trustful attitude (0.14). Hypothesis 12, which postulates a positive relationship between transparency and this endogenous construct, can thus be maintained. However, the path coefficient from transparency to trustful behavioral intention is negative (-0.14), which may be due to the fact that when there is a publicly communicated problem with a drug, physicians are the persons to whom patients go with their problems and time-consuming questions. Because physicians are not financially compensated for handling this problem, transparency ultimately results in more (unpaid) work for physicians. Hypothesis 13 must therefore be rejected.

Postulating that ethical business practice has a significantly positive effect on trustful attitude (0.14), hypothesis 14 can accordingly be accepted. As can be derived from Holmann's (2003) publication, ethical business practice is not shown to have a significant influence on the trustful behavioral intention of physicians, thereby also confirming the (negatively formulated) hypothesis 15.

The effect hypotheses 4 and 5 established with regard to innovativeness as well as hypotheses 18 and 19 on employer attractiveness can also be regarded as valid on account of the significant and positive path coefficients (each just above 0.1). Even if the effect sizes (around 0.02) are minor, pharmaceutical companies should pursue active reputation management in these areas to promote trustful attitudes and trustful behavioral intentions among medical doctors.

The results on management quality are conflicting: At the 10% level, the path coefficient to trustful attitude (0.104) is significant and prevents hypothesis 8 from being rejected. In contrast, hypothesis 9 on the effect relationship between management quality and trustful behavioral intention is not significant and must be rejected – physicians apparently hold barely any loyalty (or none at all) toward pharmaceutical company management, which may be due to the fact that there is rarely any direct contact between these two groups.

Likewise, social responsibility exhibits no significant effect. It is apparently irrelevant to physicians whether or not pharmaceutical corporations are socially responsible. The two related hypotheses 10 and 11 are rejected on the basis of the results.

In summary, quality of products and services was found to be the key reputation dimension and thus *the* success factor for trustful attitude among the physician group. Including the six further relevant dimensions of innovativeness, marketing and sales effectiveness, management quality, transparency, ethical business practice and employer attractiveness, seven of the nine reputation dimensions contribute to the development of physicians' trustful attitudes toward pharmaceutical companies. Because the construct is explained 66% percent by the dimensions examined in the model – an explanatory power that can be categorized as (nearly) substantial according to Chin (1998b), it can be said that the construct is well explained. At 0.44 prognosis relevance Q^2 is also very high.

The dimension of quality of products and services is also found to be the key and most effective success factor for trustful behavioral intention among physicians. Including innovativeness, business performance and employer attractiveness at least 45% of the construct variance can be explained – an overall good explanatory contribution from the corporate reputation dimensions tested in this dissertation. The Fornell-Larcker criterion is also satisfied since the prognosis relevance of the reputation dimensions on physicians' trustful behavioral intention can be categorized as high.

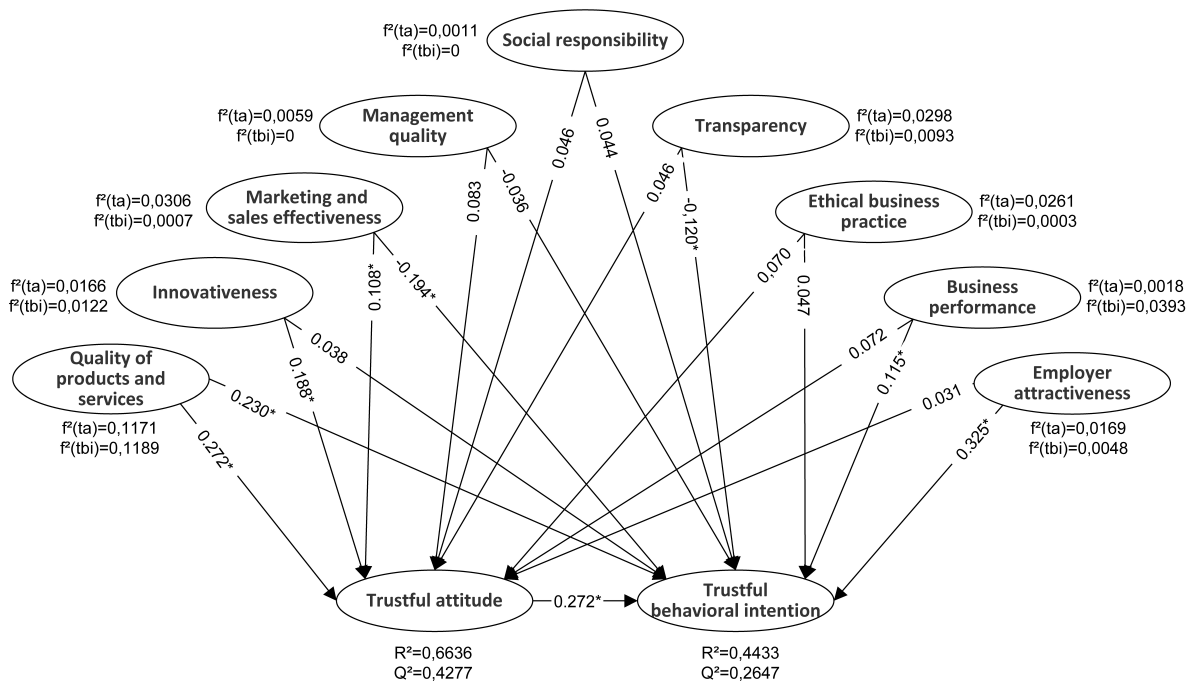
Finally, it remains established that the relationship hypothesis 1 between trustful attitude and trustful behavioral intention can be confirmed. Although the path coefficient is not considerably high at 0.1 and is significant only on the 10% level, trustful attitude is found to have a positive effect on trustful behavioral intention among physicians. With regard to medical doctors, this implies, active promotion of trust in pharmaceutical

companies yields more recommendations by physicians and should thus be pursued without any limitations by drug manufacturers.

3.2.2 Analysis of the structural model for patient organizations

This section discusses the implications from the structural model for patient organizations following the same procedure used in the preceding section on physicians. The chart presented in Figure 23 serves as the basis for the empirical analysis:

Figure 23: Structural model for patient organizations⁴⁷



Source: Own chart.

At first glance, it is clear that of the 19 postulated relationships, only nine have significant path coefficients, thereby suggesting that formation of opinion is selective in patient organizations.

⁴⁷ Legend: $f^2(vE/vH)$: Effect size on trustful attitude / trustful behavioral intention; * denotes a statistically significant path coefficient ($p \leq 0.1$).

Quality of products and services is also the central reputation dimension in this context as well, exerting a positive influence on the trustful attitude and trustful behavioral intention of patient organizations. With a highly significant path coefficient having a loading of 0.272, quality of products and services constitutes the key success factor for trustful attitude in this model. At 0.230, the effect on trustful behavioral intention is so strong that pharmaceutical corporations must make their top priority focusing on permanently distributing and providing high quality pharmaceuticals and services. Hypotheses 2 and 3 are thus confirmed.

However, pharmaceutical company employer attractiveness constitutes an even stronger success factor (0.325) for the trustful behavioral intention of patient organizations, even if the effect size is clearly lower. This confirms the corresponding hypothesis 19, yet with the caveat that other factors have clearly stronger effects. Hypothesis 18 on the relationship between employer attractiveness and trustful attitude is rejected due to the absence of significant path coefficient. Satisfied employees of pharmaceutical companies are apparently not sufficient impetus for trustful attitude among patient organizations toward pharmaceutical corporations.

The business performance of pharmaceutical companies (0.115) is a success factor for trustful behavioral intention among patient organizations, thereby confirming hypothesis 17. Patient organizations apparently regard successful pharmaceutical companies as reliable suppliers of good medications that they take in the event of their own illness and even recommend to third parties (e.g. patients seeking advice). In contrast, the results of business performance have no effect on trustful attitude – as is the case with physicians as well. Hypothesis 16 must therefore be rejected.

Innovativeness has a significantly positive influence (0.188) on the trustful intention of patient organizations, yet no significant path coefficients to trustful behavioral intention, thus confirming hypothesis 4 and negat-

ing hypothesis 5. Critics accuse pharmaceutical companies of releasing “pseudo-innovations”⁴⁸ to the market to obtain new patent protection and thereby counteract the competition with generics, for example (see also swissinfo 2003). This course of action would not be in the interests of patient organizations, which could explain the absent effect relationship identified in this context.

The effect of marketing and sales effectiveness in the model is extremely interesting. While this dimension has a positive (0.108) effect on trustful attitudes among patient organizations, thereby confirming hypothesis 6, it has a significantly negative influence (-0.194) on their trustful behavioral intentions. Sales employees, who want to or have to market their products as widely as possible, appear to have a counterproductive effect on the behavioral intentions of patient organizations. Hypothesis 7 must therefore be rejected. Pharmaceutical companies should accordingly manage contact between sales force and patient organizations precisely and with extreme caution.

Transparency exhibits a significant negative influence (-0.120) at the 10% level on the trustful behavioral intentions of patient organizations in the model. This can sometimes be attributed to information overflow. “All too” transparent pharmaceutical companies possibly publish an overabundance of information, which smaller patient organizations are ill equipped to filter and evaluate. Because transparency also does not have a significant effect on the trustful attitude of patient organizations, hypotheses 12 and 13 must be rejected based on the available results.

The dimensions of management quality, social responsibility and ethical business practice show no significant influence on the two endogenous constructs. With regard to management quality, it can be assumed that

⁴⁸ Medications that, according to critics, have no or barely any added therapeutic benefits over already existing pharmaceuticals; also coined “me-too drugs”.

patient organizations in principle view the actions of pharmaceutical managers critically, which is part of their job, and accordingly do generally not pursue personal relationships with management personnel. As a result, trustful attitude does not develop and hypothesis 8 can therefore be rejected. Analogously, patient organizations likewise do not make their behavioral intention with regard to taking and recommending medications dependent on pharmaceutical managers. Hypothesis 9 can therefore also be rejected.

At first glance, there is paradoxically the apparent indifference of patient organizations toward companies' ethical behavior and social responsibility. Hypothesis 15 on the negative relationship between ethical behavior and trustful behavioral intention exhibits no significant positive path coefficients. Even if the postulated negative relationship does not significantly occur, these results are covered by Homann's theory (see C 3.7) and can thus be confirmed.

With regard to the insignificance of the path relationship between ethical behavior and trustful attitude, it can be assumed that patient organizations regard this behavior as a given and, as such, it does not promote trust. Hypothesis 14 must therefore be rejected. With regard to social responsibility, the insignificant path coefficients for trustful attitude and trustful behavioral intention show that patient organizations focus on their clients, namely patients and those close to them. If patient organization were to also advise other external CSR-relevant clients it would weaken the relevance of the actual core target group: patients. The rejection of the corresponding hypotheses 10 and 11 could also be justified by the fact that patient organizations focus or must strongly focus on their primary client group.

With regard to trustful attitudes of patient organizations toward pharmaceutical companies, three reputation dimensions are shown to be success factors: quality of products and services, innovativeness as well as marketing and sales effectiveness. Patient organizations exhibit trustful

attitudes toward pharmaceutical companies especially if the companies produce good, innovative medications and have them distributed by a highly qualified and professional marketing and sales network. The explanatory power of 0.66 suggests that the three dimensions are well suited as an explanatory model. At 0.43, prognosis relevance Q^2 can be rated as very high.

Of the five influencing factors for trustful behavioral intentions of patient organizations, three have a positive effect: quality of products and services, business performance and employer attractiveness. These dimensions are thus key success factors for the behavior of patient organizations desired by pharmaceutical corporations. The two negative factors – marketing and sales effectiveness as well as transparency – have more of counterproductive influence on the intention of patient organizations to take a pharmaceutical company's medications in the event of their own illness or recommend them to others seeking advice. Because prognosis relevance ($Q^2=0.26$) and the explanatory power of the construct ($R^2=0.44$) are very high, pharmaceutical companies are faced with the difficult decision of increasing trustful attitudes or promoting trustful behavioral intentions particularly as it relates to marketing and sales effectiveness.

This question cannot be answered undifferentiated, because the positive effect of marketing and sales effectiveness on trustful attitudes in turn has a positive effect on trustful behavioral intentions. The path coefficient significant on the 5% level with strong loading of 0.272 shows that trust in pharmaceutical corporations significantly affects the trustful behavioral intentions of patient organizations. While this confirms hypothesis 1, the double effect requires a more precise examination of the effect of marketing and sales effectiveness on trustful behavioral intention.

For this purpose, PLS provides computation of the total effect of a construct on another, directly or indirectly connected construct. At -0.164, however, it is so far in the negative range, that pharmaceutical companies must be advised to keep their marketing and distribution activities

as far away from patient organizations as possible. Instead, the reputation dimensions of quality of products and services, innovativeness, business performance and employer attractiveness should be promoted toward patient organizations, to build trust among their members and positively shaping their drug use and recommendation behavior. These four stated reputation dimensions were thus identified as success factors in relation to the interaction of pharmaceutical companies with patient organizations.

3.3 Comparison of structural models and synopsis

For comparative review of the two stakeholder groups – physicians and patient organizations – the results of the hypotheses testing in the two preceding sections (E 3.2.1 and E 3.2.2) are summarized in Table 37. Check marks (✓) denote that the hypothesis can be confirmed, since the empirical results confirm the postulate of the hypothesis. Cross marks (✗) signify that the empirical results contradict the hypothesis, which must therefore be rejected. If the cell is left blank, it means that there are no significant path coefficients and the hypothesis must likewise be rejected. Effect hypotheses related to trustful behavioral intention have a gray background.

Table 37: Overview of the results of the study hypotheses

No.	Hypotheses	Results physicians	Results PO
1	The stronger the stakeholders' trustful attitude toward a pharmaceutical company, the stronger is their trustful intention to act in the interests of the particular company.	✓	✓
2	The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful attitude toward this company.	✓	✓
3	The more positive the stakeholders' assessment of a pharmaceutical company's quality of products and services, the stronger their trustful behavioral intention in the interests of this company.	✓	✓

D: Empirical study

No.	Hypotheses	Results physicians	Results PO
4	The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful attitude toward this company.	✓	✓
5	The more positive the stakeholders' assessment of a pharmaceutical company's innovativeness, the stronger their trustful behavioral intention in the interests of this company.	✓	
6	The more positive the stakeholders' assessment of a pharmaceutical company's marketing and sales effectiveness, the stronger their trustful attitude toward this company.	✓	✓
7	The more positive the stakeholders' assessment of a pharmaceutical company's marketing and sales effectiveness, the stronger their trustful behavioral intention in the interests of this company.		x
8	The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful attitude toward this company.	✓	
9	The more positive the stakeholders' assessment of a pharmaceutical company's management quality, the stronger their trustful behavioral intention in the interests of this company.		
10	The more positive the stakeholders' assessment of a pharmaceutical company's social responsibility, the stronger their trustful attitude toward this company.		
11	The more positive the stakeholders' assessment of a pharmaceutical company's assumption of social responsibility, the stronger their trustful behavioral intention in the interests of this company.		
12	The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful attitude toward this company.	✓	
13	The more positive the stakeholders' assessment of a pharmaceutical company's transparency, the stronger their trustful behavioral intention in the interests of this company.	x	x
14	The more positive the stakeholders' assessment of a pharmaceutical company's ethical business practice, the stronger their trustful attitude toward this company.	✓	
15	The stakeholders' assessment of a pharmaceutical company's ethical business practice has no influence on their trustful behavioral intention in the interests of the company.	✓	✓

D: Empirical study

No.	Hypotheses	Results physicians	Results PO
16	The more positive the stakeholders' assessment of a pharmaceutical company's business performance, the stronger their trustful attitude toward this company.		
17	The more positive the stakeholders' assessment of a pharmaceutical company's business performance, the stronger their trustful behavioral intention in the interests of this company.	✓	✓
18	The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the greater their trustful attitude toward this company.	✓	
19	The more positive the stakeholders' assessment of a pharmaceutical company's employer attractiveness, the stronger their trustful behavioral intention in the interests of this company.	✓	✓

Looking at Table 37, it once again becomes clear that the dimension of quality of products and services is an especially important generator of reputation, having a significantly positive effect on the two endogenous constructs in both groups. This can be seen as a clear sign that this dimension must be classified as the key success factor of pharmaceutical company reputation management. Also possessing similarly strong significance is the innovativeness of pharmaceutical companies, which – with the exception of trustful behavioral intention of patient organizations – has significantly positive path coefficients. Employer attractiveness also constitutes a success factor of reputation, which does not however significantly contribute to the trustful attitudes of patient organizations toward pharmaceutical companies.

The effect of business performance on the behavioral intention of stakeholders is also consistently positive. However, this success has no influence on the trustful attitude of both groups and therefore cannot be classified as a “true” success factor of corporate reputation in the strict sense of the concept as defined in this dissertation, because it likewise has no direct effect on trustful attitudes, which in turn constitutes a central target parameter of corporate reputation. This finding is of interest above all

with regard to the commercial and financial market-oriented reputation rankings (C 2.2), the concept of which thus appears to be questionable.

Marketing and sales effectiveness, in contrast, engenders trustful attitudes, yet has no (physicians) or even negative (patient organizations) effects on the intention of stakeholders to act in the interests of pharmaceutical companies. If a company strives to achieve a good reputation only as a means to increase sales, it can greatly forgo special marketing and sales measures to this effect. Because trustful intentions resulting from reputation however have a significant effect on the intention of both stakeholder groups to recommend and use the product, this renunciation of special marketing and sales measures should be considered. In no case, however, can deficient marketing and sales effectiveness be allowed to damage the reputation of the company.

In addition, management quality is shown to have a slightly positive effect on the trustful attitudes of physicians, but no influence on the trustful behavioral intentions of the two stakeholder groups. A good pharmaceutical corporation management team is indispensable – for commercial and administrative reasons alone. As a factor influencing corporate reputation, management quality must, however, be ascribed a subordinate role – at least in relation to physicians and patient organizations.

Even if ethical behavior is shown to have no relevant influence on the trustful behavioral intentions of physicians and patient organizations or on the trustful attitudes of patient organizations, pharmaceutical companies must not renounce ethical behavior under any circumstances, since the stakeholders automatically expect ethical behavior and with regard to the impending consequences following the violation of legal requirements.

Transparency is a reputation dimension that should be treated cautiously, since its positive effect on physicians' trustful attitudes exists concurrently with negative impacts on the trustful behavioral intentions of both stakeholder groups. As demonstrated above, this phenomenon can be

counteracted by targeted communication tailored to the needs and options of the stakeholders (see Seidel 2007 for further information).

Pharmaceutical companies assuming social responsibility is consistently shown to have no significance as a factor for cultivating trustful attitudes and trustful behavioral intentions. Although academic literature holds that CSR is a “classic” driver of reputation, this study does not confirm its role as such at least for the two examined stakeholder groups in the present context. Further research could aid in explaining the relationship or its apparent absence.

In summary, there is a clearly differentiated influence pattern on the trustful attitudes of physicians than on those of patient organizations, wherein for the latter group it is exclusively quality of products and services, innovativeness and marketing and sales effectiveness that have a significantly positive influence on the construct. For physicians, in contrast, management quality, transparency, ethical business practice and employer attractiveness also provide explanatory contributions. With an R^2 of 0.66, the explanatory power of the first three dimensions specified is, however, on a similarly high level as that of the physicians. Patient organizations apparently base their trustful attitudes on a narrower, specific context, while physicians attach significance to additional aspects.

With regard to the influencing factors for trustful behavioral intention, there is a relatively homogenous picture for physicians and patient organizations. Both stakeholder groups are positively influenced by quality of products and services, business performance and employer attractiveness to act in the interests of the pharmaceutical company. Physicians are additionally influenced by innovativeness. Because the explanatory powers ($R^2 = 0.45$) would have to be described as nearly identical and average, the first three specified dimensions can be classified as success factors encompassing both stakeholders.

In this context, it must be emphasized that only the dimension quality of products and services has direct and positive influence on the trustful attitudes and trustful behavioral intentions of both stakeholder groups. This dimension thus constitutes the most important success factor of reputation management in the sense of the conceptualization in this dissertation. However, it must be noted that each factor promoting trustful attitudes also indirectly affects trustful behavioral intentions through the mediating functionality within the research model (see Fig. 18) described above and can thus be relevant if a pharmaceutical company intends to increase the willingness of physicians and patient organizations to use and recommend its products through reputation management.

E Concluding discussion

1 Summary of study results

The starting point of the study was the premise that corporate reputation is especially relevant in building stakeholders' trust toward pharmaceutical companies. At the same time, it has been discovered that there is dissent between the theoretically postulated significance of the reputation of pharmaceutical companies and the active management thereof. First, the degree of implementation of reputation management can be described as expandable. Secondly, a deficient theoretical and content-based foundation of the reputation concept has been identified for the pharmaceutical industry.

To address this academic void, the trustful attitude of the central stakeholder groups of pharmaceutical companies – physicians and members of patient organizations – as well as their trustful behavioral intention in the sense of the willingness to take the company's medication in the event of their own illness or recommend these products to others, is established as the explanandum of the study, while corporate reputation of pharmaceutical companies constitutes explanans. To link these two factors, theoretical deduction was used. Amid the backdrop of this problem, three research questions were formulated that served to guide this study:

- The first question focused on the stakeholders' objects of cognition on which they formed an opinion relevant to reputation: Which factors contribute to building a positive reputation for pharmaceutical companies?
- Derived from the first question, the second research question examines the effects of corporate reputation, i.e. trust: How can stakeholders' trust toward pharmaceutical companies be measured?

E: Concluding discussion

- The third research question finally concerned which concrete interdependencies exist between the individually identified factors, i.e. what influence corporate reputation has on pharmaceutical company stakeholders' trustful attitudes and their trustful behavioral intentions.

To clarify the context and rationale of this dissertation, the necessity of trust in the corporation-stakeholder relationship examined here was presented with a scientific examination of the theories of perceived risk (B 1). B 2 then analyzed literature on the subject of trust, defined the concept of trust and operationalized the empirical examination thereof. To establish the concept in concrete terms and facilitate better measurability, the construct of trust was divided into two dimensions of trust: the stakeholders' trustful attitude and their trustful behavioral intention. The second research question concerning how stakeholder trust toward pharmaceutical companies can be measured was answered in this manner.

While B 3 argued to what extent corporate reputation functions as a determinant of trust, Chapter C focused primarily on developing a comprehensive concept of corporate reputation in the pharmaceutical context. After terminology had been defined, the aspects of corporate reputation that are relevant for this study were identified through an analysis of the current state of research (C 2). Through the literature analysis as well as a separate qualitative and quantitative preliminary test with experts and a reflection on theoretical research, nine factors were specified (Figure 14) – quality of products and services, innovativeness, marketing and sales effectiveness, management quality, social responsibility, transparency, ethical business practice, business performance and employer attractiveness –, which answer the first research question concerning the different dimensions of pharmaceutical company reputation.

By incorporating the findings from Chapter B concerning trustful attitude and trustful behavioral intention, the relationships between the dimensions of corporate reputation and stakeholder trust was finally (C 4)

transferred into a framework of hypotheses containing a total of 19 effect hypotheses to clarify the third research question concerning the effect of corporate reputation on the stakeholders' behavioral intentions.

In the next step (Chapter D), the theoretical examination model was subjected to empirical testing. The questionnaire-based investigation was conducted on an international level and surveyed a total of 605 persons (404 physicians and 201 members of patient organizations). For empirical testing of the study model, a structural equation model was used with the aid of a variance-based analytical method. In this process, the reliability and validity of various measurement models were tested and the weightings of the formative indicators of the success factors of corporate reputation compared to the two stakeholder groups were discussed.

The analysis of the structural model revealed that the nine dimensions of corporate reputation for the most part have a considerable and statistically significant effect on trustful attitudes of both stakeholder groups and, in many cases, on their trustful behavioral intentions as well. In the process of testing hypotheses, thirteen of the nineteen total study hypotheses were supported by empirical data for the physician group, while eight were supported for the patient organization group as summarized in Table 37 (D 3.3).

2 Implications for science

In the context of reputation research, this study constitutes a confirmatory research contribution and focuses particularly on ascertaining the dimensions of corporate reputation and the effects thereof. From both a theoretical and empirical viewpoint, the findings gained in this research can be used as a basis and starting point for further research projects. The following section discusses the implications of the results of this dissertation for research.

E: Concluding discussion

This dissertation addresses a subject matter of examination that, while frequently discussed in consumer psychology research, had not been adequately conceptualized or sufficiently operationalized. Its contribution is therefore a better understanding of the development of reputation among companies' key stakeholders.

In addition to the conceptualization and industry-specific operationalization of the reputation constructs, the study, which, with 605 participants was large for the sensitive pharmaceutical industry, also contributed substantially to research. The empirically valid and reliable measurement of the study model facilitated a key advancement in identifying and explaining aspects of corporate reputation relevant to success.

Although this study examined the conceptualization, operationalization and effect of corporate reputation on a stringent theoretical and methodically demanding basis, the results are subject to various limitations: Following a literature review, possible influencing variables were selected. Future research could thus identify additional influencing factors and determinants on the basis of alternative theories and approaches and integrate them into the model to thereby contribute to achieving a comprehensive understanding of corporate reputation.

The study is additionally limited by the selection of the sample individuals – physicians and patient organizations from Germany, Italy, France and Spain. It would therefore be of interest to see whether the reputation model developed in this dissertation can be transferred to regions and countries outside Europe, particularly those with different healthcare systems such as in the United States or Japan.

Furthermore, the generalizability of the presented results are limited by the restriction to a period of observation. Time-delayed longitudinal study designs and testing the transferability of the results to other industry branches, i.e. the validity of the conceptualization of corporate reputation developed here in non-pharmaceutical industries, would be of interest. Additionally, further insight could be gained from a deeper analysis of the

question whether the effect of corporate reputation on success remains constant over time or if it is subject to fluctuations and, if so, which fluctuations.

Finally, a full replication of the study would be regarded as desirable. In principle, a cross validation with the aid of an additional data set would be useful in definitively excluding chance results, even though the two-group analysis performed here already supports the validity and reliability of the results. A replication study could confirm the generalizability of the findings gathered.

In addition to the limitations, there would be a series of potential connection points for further research, particularly with regard to the rejected hypotheses. It could be examined, for example, what relationship exists between corporate reputation and social responsibility (CSR). The linking of the two concepts appearing abundantly in literature could not be confirmed for the two stakeholder groups examined here, thus necessitating new research questions.

The illustrated negative effect of transparency on the behavioral intentions of physicians and patient organizations is worthy of discussion. In this case it is necessary, on the one hand, to clarify why this relationship is negative, while on the other hand an examination across multiple industries would be of interest in establishing whether there are differences among them.

The absence of a significant positive connection between marketing and sales effectiveness and the behavioral intention of the two stakeholder groups examined here also constitutes a connection point for more in-depth, continuing studies. Finally, it is the central task of marketing to promote stakeholders' willingness to buy or, in this case, the willingness of physicians and members of patient organizations to recommend a company's medications to patients. However, it was precisely this causal relationship that could not be confirmed in this dissertation.

Finally, the management quality of pharmaceutical companies is shown to have a minor influence on stakeholder trust. In this regard as well an interesting research field – in business psychology for one – could emerge around the central question concerning the characteristics, perception and effect of “good” management.

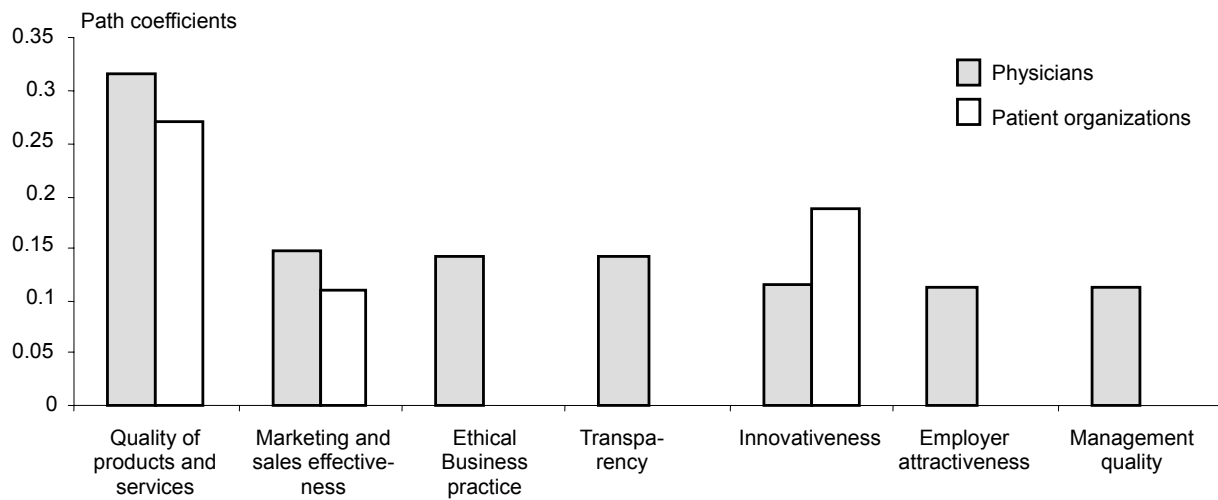
3 Implications for applied reputation management

This study shows that quality of products and services, innovativeness, marketing and sales effectiveness, management quality, social responsibility, transparency, ethical business practice, business performance and employer attractiveness have at least some positive effects on stakeholders’ trustful attitudes and/or trustful behavioral intentions. The study model used here can aid management in making decisions, by guiding its attention to the proper target variables of reputation.

As a reference point for directing administrative focus, the elements should be weighted according to their influence and the particular object of corporate strategy. Prioritization can be dictated by the relative strengths of the path coefficients, i.e. factors with strong influence should in general receive greater attention than those with less impact.

However, these factors vary according to goals. If the trustful attitude of physicians and patient organizations needs to be fostered, then quality of products and services, marketing and sales effectiveness as well as innovativeness are the decisive success factors regardless of group. Figure 24 provides a summary of the study results in graph form:

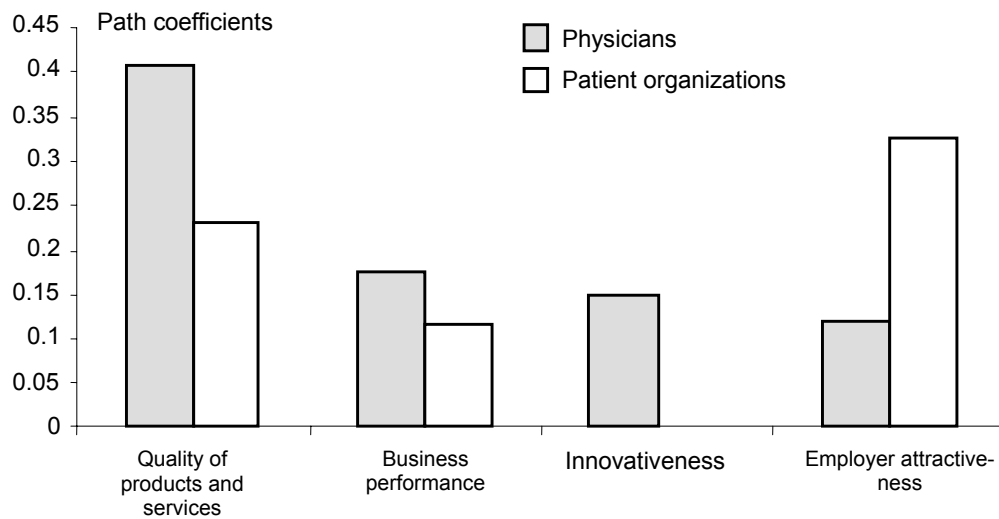
Figure 24: Success factors for trustful attitudes of physicians and patient organizations



Source: Own chart.

If the trustful behavioral intentions of physicians and patient organizations to act in the interests of pharmaceutical companies are to be influenced, then quality of products and services, business performance, innovativeness as well as employer attractiveness must be addressed or managed as the decisive success factors, as Figure 25 illustrates:

Figure 25: Success factors of trustful behavioral intentions of physicians and patient organizations



Source: Own chart

Equipped with this developed measurement tool, companies can make a well-founded assessment of their own corporate reputation and identify specific options for implementing their reputation management on an operations level. The formative operationalization of the indicators of the success factors of corporate reputation facilitate the identification of interdependencies and the relative weighting thereof. However, this will differ from one application context to the other. While the present results are applicable for pharmaceutical companies, different priorities may prevail in other industries.

In this context, stakeholder specificity must be emphasized. The 404 physicians and 201 members of patient organizations surveyed show clearly different focuses in relation to individual reputation factors. The measurement model should therefore be reviewed with regard to the needs and expectations of each industry's key stakeholder groups and adapted if necessary.

E: Concluding discussion

With these necessary adaptations, the developed measurement tool can be used for all industries. The results of this study manage to show which factors of corporate reputation have positive effects on significant corporate target variables, particularly stakeholders' intentions to act in the interests of pharmaceutical companies.

In conclusion, as central finding of this study for applied reputation management of pharmaceutical corporations, it can be established that systematic and sustained cultivation of the indicated success factors of corporate reputation is critical for succeeding in an environment of fierce global competition.

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