RESEARCH

Alejandro-Marcel Schönhoff

Does Multi-stage Marketing Pay?

Creating Competitive Advantages Through Multi-stage Marketing

B to B

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Business-to-Business-Marketing

Das Business-to-Business-Marketing ist ein noch relativ junger Forschungszweig, der in Wissenschaft und Praxis ständig an Bedeutung gewinnt. Die Schriftenreihe möchte dieser Entwicklung Rechnung tragen und ein Forum für wissenschaftliche Beiträge aus dem Business-to-Business-Bereich schaffen. In der Reihe sollen aktuelle Forschungsergebnisse präsentiert und zur Diskussion gestellt werden.

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Foreword

Customers in business-to-business markets also operate as suppliers for their own markets. Products or services demanded by direct customers get purchased to support the creation and distribution of other products or services. As a result, demand in business-to-business markets depends on purchasing decisions made on subsequent market stages of processing and/or trade, which ultimately reaches back to the original source of the demand—namely, the end user or consumer. With this in mind, it stands to reason that companies operating in business-to-business markets would employ various marketing activities to try to influence the purchasing behavior of their customers' customers, so that the purchasing decisions of their direct customers are in turn influenced in their favor. All such activities are covered by the term "multi-stage marketing." The main objective is to trigger a demand pull that more or less "nudges" direct customers to demand the products in question. This pull in turn results in a stabilization of or increase in the quantity demanded and/or the prices of an upstream supplier's products. A well known example that extends into the sector of consumer goods is the "Intel Inside" campaign run by Intel, which manufactures computer processors.

Despite its practical significance, little attention has been paid to multi-stage marketing in academic literature so far. Very little is known about how its mechanisms work or whether it achieves its intended objectives. In this thesis, Alejandro Schönhoff focuses on the possible price effects of multi-stage marketing and examines whether, how, and in which conditions multi-stage marketing affects direct customers' willingness-to-pay and other outcome variables. To this end, he has performed an elaborate and extensive experiment, involving more than 100 purchasing managers responsible for sourcing industrial adhesives. Mr. Schönhoff's main findings show that multi-stage marketing translates into higher willingness-to-pay among a supplier's direct customers. This is especially true for collaborative multi-stage marketing, when suppliers and direct customers work together across several market levels. In addition, his findings make clear that direct customers' market power toward their own customers has significant influence on the price effects of multi-stage marketing.

Considering that the present study examines a problem that is relevant and important in both academic and practical senses, and because its findings reveal many starting points for practical implementation, I am hopeful that the work will be met with great responses, across both research and practice.

Prof. Dr. Dr. h.c. Michael Kleinaltenkamp

Acknowledgements

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ANOVA	analysis of variance
B-to-B	business-to-business
B-to-C	business-to-consumer
CLT	central limit theorem
col MSM	collaborative multi-stage marketing
df	degrees of freedom
EFA	exploratory factor analysis
e.g.	for example [abbreviation of Latin *exempli gratia*]
HCSE	heteroscedasticity-consistent standard errors
i.e.	that is [abbreviation of Latin *id est*]
KMO	Kaiser-Meyer-Olkin [criterion]
LCA	limit conjoint analysis
MSA	measure of sampling adequacy [criterion]
MSM	multi-stage marketing
MSM iws	multi-stage marketing in a wider sense
MW	Mann-Whitney-U-test
non-col MSM	non-collaborative multi-stage marketing
OEM	original equipment manufacturer
OLS	ordinary least squares
PCA	principal component analysis
TCA	traditional conjoint analysis
UNIANOVA	univariate analysis of variance
VIF	variance inflation factor
WTP	willingness-to-pay

1 Introduction

1.1 Relevance

Contemporary research supports the idea that firms must be market-oriented to be competitive. In a market-oriented culture, suppliers intend to create long-term competitive advantages that are sustainable and "continuous" rather than merely trying to encourage direct customers to demand the products they offer (Narver and Slater 1990, p. 21, referring to Levitt 1980). Market-oriented suppliers gain a deep understanding of their customers' needs which enable them to provide superior products or services. The value suppliers deliver to customers increases and, consequently, improves the suppliers' business performance (Narver and Slater 1990, pp. 20, and literature cited therein). However, as company networks and supply-chain partnerships grow in importance (e.g., Jüttner et al. 2007), some scholars propose to extend the concept of market orientation (Kohli and Jaworski 1990; Narver and Slater 1990). According to Hillebrand and Biemans (2011), this *extended market orientation* should include not only a company's direct customers but also its indirect customers.[1] This is especially important on business-to-business (B-to-B) markets with its *derived demand*. Marketing in B-to-B markets involves more than understanding and serving a company's direct customers; these markets represent an intermediate market stage whose demand is often derived from subsequent market stages (Hillebrand and Biemans 2011, p. 72, referring to Fern and Brown 1984). "All business transactions in a downstream value chain are done in order to ultimately satisfy the final consumers' needs. Because the demand of the supplier's products and services is ultimately derived from the final consumers', in the end suppliers and manufacturers are always dependent on the primary demand" (Kleinaltenkamp et al. 2009, p. 2). Thus, B-to-B marketing should include an analysis of the entire value chain, involving the customers' customers in the firm's marketing activities (Günter 1997, p. 214).

Translated into an action-oriented (*behavioral*) perspective, an extended market orientation leads to the idea of *multi-stage marketing* (MSM). In a B-to-B context, it involves the

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[1] In the present study, I use the term *direct customer* (the customer directly in touch with a supplier) synonymously with the term *immediate customer*. Both terms contrast the term *indirect customer* (the customer's customer). Although *downstream customer* could semantically also include direct customers as being *downstream* of a supplier, I use it synonymously with *indirect customer* only. Otherwise, it would be unnecessary to refer to downstream customers because all customers are logically downstream of their suppliers.

consideration of not only direct but also indirect customers, and it provides the necessary capabilities to implement such a company's market orientation. First, this is in line with the original conceptualization of market orientation: "Customer orientation requires that a seller understands a buyer's entire value chain" (Narver and Slater 1990, p. 21, based on Day and Wensley 1988; see also Kohli and Jaworski 1990). Second, it reflects extant market orientation literature, which argues that firms need concrete behaviors to implement a market-oriented culture (Narver and Slater 1990, p. 21; O'Cass and Ngo 2012, p. 125). Therefore, this study falls within the behavioral stream of market orientation research in B-to-B markets.

Ingredient branding and *vertical marketing* are among the most prominent aspects of MSM. Ingredient branding involves using key attributes of the brand of an ingredient within the marketing of another product into which the ingredient is physically incorporated (Norris 1992, pp. 19; see also Desai and Keller 2002; Erevelles et al. 2008; Ghosh and John 2009). Vertical marketing pertains to the cooperation of a manufacturer with the distributors of its products (e.g., Eggert et al. 2009; Wuyts et al. 2004). In contrast to these particular aspects there is also a growing body of literature on a more comprehensive concept of MSM. This stream of literature considers additional effects such as the value creation potential of MSM (e.g., Vedel et al. 2012), *pull strategies* aiming for a demand pull (*pull effect*) on the direct customers' market stage (e.g., Webster 1991), and the necessity of vertical coordination of push and pull marketing measures to create value on more than one market stage (e.g., Kleinaltenkamp and Rudolph 2002; Kleinaltenkamp et al. 2012; Voigt et al. 2006).

A survey Kleinaltenkamp et al. (2011a)[2] performed provides quantitative information about the relevance of MSM. In this sample, 30% of the companies analyze the effectiveness of their marketing activities. Within this group, 90% attributed at least one-tenth, and 30% attributed even more than one-third of their sales volume to MSM. Yet it remains difficult to analyze the relevance and quantitative effects of MSM (Engelhardt 1976, p. 176). For various reasons, 70% of the interviewed companies are unable or do not try to analyze the effectiveness of different marketing measures (Kleinaltenkamp et al. 2011a, p. 44). This gap leads to a research deficit and prompts the research question underlying my study, as detailed in the following section.

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[2] The survey provides insights about companies' application of and investment in MSM activities. The sample consists of 110 German decision makers in machine-building, service, automotive, and chemical companies.

1.2 Research deficit and research question

MSM can be related to several possible effects for the creation of competitive advantages. These include potential volume and price effects. Furthermore, it is possible to distinguish between effects on direct and indirect customers' market stages in the context of MSM. However, there have been few empirical tests of MSM, which has resulted in a considerable research deficit. Although there has been empirical work on the effects of specific concepts related to MSM (e.g., ingredient branding; Desai and Keller 2002; Ghosh and John 2009; McCarthy and Norris 1999), this study is the first to use empirical evidence to measure the effects of MSM as a holistic concept.

In the present study, I focus on potential price effects. The principal aim of my study is to analyze its central research question: "Does MSM pay?" More specifically, I aim at elaborating on different types of MSM and how their implementation by a B-to-B supplier influences the subjective willingness-to-pay (WTP; Anderson et al. 1993; Varian 1992) of direct customers' purchasing agents. Conceptually, I distinguish three types of MSM. *Non-collaborative MSM* includes measures that target indirect customers and that bypass direct customers. *Collaborative MSM* comprises measures that target direct and indirect customers. Finally, *MSM in a wider sense* comprises measures aimed at direct customers and that include indirect customers in the perspective. I expect the three types of MSM to display differentiated effects with regard to a direct customer's willingness-to-pay.

I introduce the importance of the suppliers' component in the end product as well as the direct customers' market power toward its own customers as two meaningful moderators of the relationship between MSM and direct customers' willingness-to-pay. To further evaluate the potential to create competitive advantages through MSM, I analyze additional effects of MSM on direct customers' satisfaction and loyalty. As in the case of willingness-to-pay, I expect the three types of MSM to display differentiated effects with regard to these outcome variables as well.

1.3 Structure of the study

I introduce and describe the cause and outcome variables relevant to the present study in **chapter 2**. The cause variables relevant to this study derive from the MSM concept. Outcome

variables include the constructs of direct customers' willingness-to-pay, satisfaction, and loyalty. In **chapter 3**, I analyze the effect mechanisms between MSM and these constructs. Potential effect mechanisms discussed in relevant literature lead to my hypothesis that MSM has differential effects on the outcome variables.
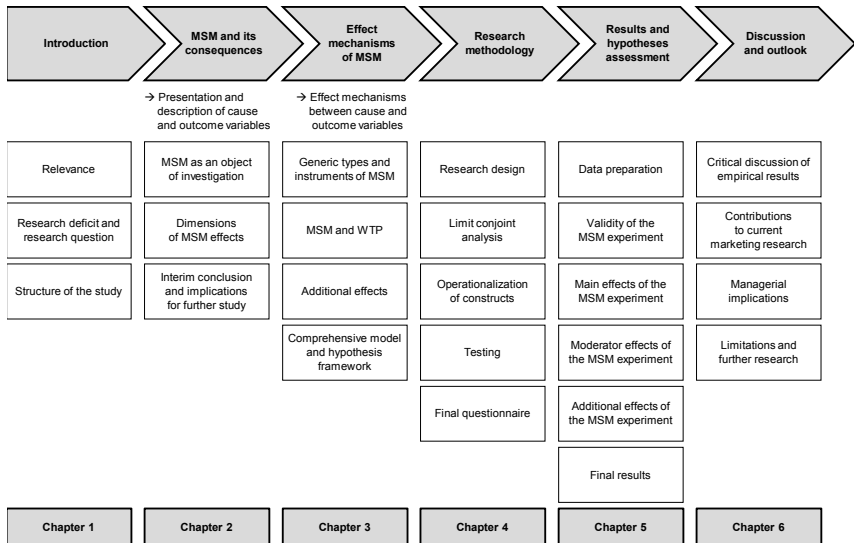
Figure 1-1:   Structure of the present study (source: Author's illustration)

I present the empirical research methodology in **chapter 4**. A scenario-based experimental study using limit conjoint analysis provides the empirical basis for hypothesis testing. Using a newly created data set from the adhesives industry, I test the hypotheses on a sample of 104 purchasing executives. In **chapter 5**, I analyze the results and test the hypotheses. I describe the relevance of MSM in creating willingness-to-pay on the direct customers' market stage as well as MSM's potential to create competitive advantages for suppliers by affecting direct customers' satisfaction and loyalty in **chapter 6**. To conclude, I discuss managerial implications and the limitations as well as further research opportunities in the area of MSM. Figure 1-1 illustrates the structure of this study.

2 MSM and its consequences

The aim of this study is to analyze the potential effects of MSM on direct customers' willingness-to-pay, satisfaction, and loyalty. First, I focus on the cause variable given by the concept of MSM (section 2.1). I begin with an extensive review and analysis of the existing literature on MSM and its effects. The review shows that MSM is not commonly defined. To achieve the level of concreteness necessary for empirical research, the concept of MSM must be defined carefully. For this study, I conceptualize MSM as the behavioral perspective of an extended market orientation. This allows me to develop a consistent definition of MSM, differentiating it from other related constructs and adopting the value creation potential of MSM. Second, I introduce and describe the outcome variables (section 2.2). A final section summarizes the findings and gives implications for further study (section 2.3).

2.1 MSM as an object of investigation

With respect to the aim of the present study, I perform an extensive review and analysis of relevant literature, concentrating on contributions characterized by the multi-stage idea and effect analyses of MSM. My review shows that marketing theory regularly covers important elements of MSM, but empirical analyses of MSM effects are scarce in extant literature. Furthermore, there is a multitude of varying terms and definitions for MSM. First, I present a review of previous marketing literature with respect to multi-stage perspectives and potential MSM effects (section 2.1.1). Second, I focus on a conceptualization and consistent definition of MSM, which is important to further analyze the effect mechanisms of MSM (section 2.1.2).

2.1.1 MSM perspectives in existing literature

The idea of MSM is not new (Kleinaltenkamp et al. 2009, p. 3). Concentrating on their potential to create competitive advantages, I present a comprehensive overview of important concepts that include multi-stage marketing characteristics (sections 2.1.1.1 through 2.1.1.5). I divide them into different literature streams and assess them with respect to their potential effects, as well as according to the multitude of existing MSM concepts and definitions (section 2.1.1.6).

2.1.1.1   Market orientation

By 1960, Levitt had introduced the concept of "marketing myopia" and had explained that some companies had stopped growing not because of market saturation but because of shortsighted management being product oriented instead of customer-oriented (Levitt 1960, p. 45; Levitt 1975, p. 26). Day and Wensley (1988) developed the concept of a market-oriented approach to overcome myopia. Finding sources for competitive advantages, their "customer-focused assessments start with detailed analyses of customer benefits within end-use segments and work backward [along the value chain] from the customer to the company" (Day and Wensley 1988, p. 1). More recently, Kuhn and Zajontz (2011, p. 10) speak about a "multi-stage problem" and explain that suppliers in B-to-B markets cannot consider direct customers and competitors only. Suppliers must analyze market processes of end customer markets also. Similarly, Homburg et al. (2009, p. 331) explain that companies should include the preferences of downstream customer tiers in planning their own marketing activities. Suppliers should especially concentrate on creating long-lasting preferences on the following market stages, for example, by using a specific communication or product policy (Homburg and Krohmer 2009, p. 1006). Narver and Slater (1990, p. 21; see also Levitt 1980, pp. 87) assert:

> A seller must understand not only the cost and revenue dynamics of its immediate target buyer firms, but also the cost and revenue dynamics facing the buyers' buyers, from whose demand the demand in the immediate market is derived. Hence, a seller must understand the economic and political constraints at all levels in the channel. Only with such a comprehensive framework can a seller understand who its potential customers are at present as well as who they may be in the future, what they want now as well as what they may want in the future, and what they perceive now as well as what they may perceive in the future as relevant satisfiers of their wants.

This statement underpins two perspectives relevant to this study. First, Narver and Slater (1990, p. 21) examine the importance of downstream customers. According to the authors, market orientation requires the consideration of the entire value chain and not only of immediate customers. Similar, Wilson (2003, p. 176) postulates that "value in value chains is driven from the ultimate end customer." The approach is in line with Day and Wensley's

(1988) concept of a "market back orientation," designed to create competitive advantages. As recognized by Hillebrand and Biemans (2011, p. 73), previous literature has repeatedly emphasized the necessity of broadening the construct of market orientation (Greenley and Foxall 1996; Hillebrand and Biemans 2011; Maignan and Ferrel 2004; Matsuno et al. 2005). But it is Hillebrand and Biemans (2011) who more concretely *extend market orientation* vertically. These authors explore the consequences of derived demand (Fern and Brown 1984), and the managerial challenges it causes, by investigating how upstream firms are oriented toward downstream customers and which problems they face in extending their market orientation. In line with the original conceptualization of the market orientation construct, which claims that firms must understand the cost and revenue dynamics of the buyer's buyers (Kohli and Jaworski 1990; Narver and Slater 1990), Hillebrand and Biemans (2011, p. 72) postulate:

> After all, even though immediate customers may be interested in a product, success frequently requires downstream customers also to acknowledge the product's value and invest in it. This is especially relevant for B-to-B suppliers of entering goods (such as components and raw materials) that become part of the customer's product. Extending one's view beyond the firm's immediate customers thus will contribute to product success and firm performance.

Second, Narver and Slater (1990) describe what currently is referred to as *anticipated* or *proactive customer orientation*[3]—a necessity for creating superior customer value. Although most research on market orientation has focused on processes for responding effectively to customers' current, expressed needs, there has been little insight into the nature or effects of proactively understanding customers' latent and future needs (Blocker et al. 2011, pp. 216, referring to Atuahene-Gima et al. 2005; Narver et al. 2004; Tsai et al. 2008). "Although being responsive to customer requests plays a critical role in satisfying customers, qualitative studies suggest that business customers also want providers to proactively understand and

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[3] As Blocker et al. (2011, p. 217) explain, Narver et al. (2004) "specify *proactive* and *responsive market orientations* as two forms of market orientation. However, the constructs they measure deal only with identifying and satisfying customers' needs and do not encompass the other traditional dimensions of a market orientation [which are competitor orientation and interfunctional coordination, see section 2.1.2.1]. Thus, in the interest of being more precise, we utilize the terms *proactive customer orientation* and *responsive customer orientation*." The present study will follow this approach and use the respective terms as proposed by Blocker et al. (2011).

address their latent and future needs as part of an ongoing, value-creating, relational process" (Blocker et al. 2011, p. 217, referring to Beverland et al. 2007; Flint et al. 2002; Tuli et al. 2007). Knowing what customers currently value is not enough, "but suppliers must also have the capability to anticipate what customers will value" (Flint et al. 2011, p. 219, also referring to Flint et al. 2002).

The concept of market orientation, including a consideration of not only immediate but also downstream customers as well as a consideration of not only current, expressed but also latent and future customer needs, strongly relates to the concept of MSM. As I will show, an extended market orientation offers one of the key aspects relevant for the conceptualization and definition of MSM (see section 2.1.2). However, there are also more specific concepts related to MSM. The probably most prominent examples are ingredient branding and vertical marketing which I describe in the following sections.

2.1.1.2 Ingredient branding

Ingredient branding is especially common for consumer goods (for ingredient branding in the context of consumer goods, see Havenstein 2004). Some popular examples of ingredient branding are DuPont's Teflon and Lycra, Shimano gears for bicycles, Gore-Tex, and G.D. Searle's NutraSweet, an artificial sweetener used in some foods and beverages (BBDO Consulting 2003, p. 3; Norris 1992, pp. 20). Yet the best-known example of ingredient branding is the 1990s Intel Inside campaign, which increased that brand's awareness from 24% to more than 90% and made Intel one of the most recognized brands of microprocessors in the world (BBDO Consulting 2003, p. 3; Hermeier and Friedrich 2007, pp. 33; Norris 1993).

In contrast, brand management remains relatively unexplored in the area of B-to-B marketing (Baumgarth 2008, p. 347; Homburg et al. 2009, p. 338, referring to Reid and Plank 2000). Based on their visibility in the final product, it is possible to divide B-to-B brands into processing brands and ingredient brands (Homburg et al. 2009, p. 339, and literature cited therein; Kleinaltenkamp 2003). A *processing brand* is not visible to end customers; it is visible only to intermediaries such as manufacturers or end producers. For example, original equipment manufacturers (OEMs) sell branded air-conditioning systems or airbags that remain "invisible" to car buyers (Homburg et al. 2009, p. 142). In contrast, end customers

normally notice *ingredient brands.* They are most relevant in the context of the marketing mix (product decisions) and in particular decisions about the vertical reach of a product brand ("brand reach") (Homburg et al. 2009, p. 142).

Another aspect of brand reach is the concept of *co-branding* (dual branding) (Homburg et al. 2009, p. 142). This refers to a supplier branding its own (already branded) products with an additional brand name or symbol (Ohlwein and Schiele 1994, p. 577). This might benefit an unknown brand by creating favorable associations. Some firms use co-branding to aim for increased competitive strength through an additional functional or emotional benefit and thus an increase of the consumer response to co-branded products or product variants. It might also enable domestic firms to enter new markets through a strategic branding effort alliance with foreign competitors (Homburg et al. 2009, p. 142; Shocker et al. 1994, p. 150). However, in its simple form, co-branding does not necessarily constitute MSM (Kleinaltenkamp and Rudolph 2002, p. 302). There are two types of co-branding. In the case of *horizontal co-branding*, two or more producers on the same market stage collaborate. In contrast, *vertical co-branding* involves collaboration between producers of different market stages (Baumgarth 2008, p. 161). This is where the multi-stage characteristic comes in. Vertical brand alliances correspond to ingredient branding (Baumgarth 2008, p. 198; Freter and Baumgarth 2005, p. 463). To be more precise, Desai and Keller (2002, p. 73) refer to a *co-branded ingredient branding strategy* (for further information on co-branding, see also Blackett and Russell 1999; Helmig et al. 2008; Ohlwein and Schiele 1994; Rao and Ruekert 1994).

Norris (1992, pp. 20) describes the differences between supplier-initiated and manufacturer-initiated ingredient branding. *Supplier-initiated ingredient branding* is the supplier's attempt to build awareness and preference for its own products on the end customers' market levels and thereby achieve a demand pull on the direct customers' market stage. Examples are DuPont's Teflon and Kevlar and 3M's Scotchgard (Norris 1992, p. 21). In contrast, *manufacturer-initiated ingredient branding* aims for a differentiation of the host brand (Desai and Keller 2002, p. 73). "The basic motivation for using ingredient branding is that it enhances the differentiation of the host brand from competition by characterizing the ingredient attribute in the host brand more specifically.… This will improve the

competitiveness of the host brand. Moreover, ingredient branding could enhance the equity of the host brand by sending a strong signal to consumers that the host product offers the combined benefits of two quality brands in one" (Desai and Keller 2002, p. 73). For example Beech-Nut baby food promotes the use of Chiquita bananas with the aim of benefitting from Chiquita's quality image (Norris 1992, p. 20). In this context, Erevelles et al. (2008) analyze the reasons for downstream manufacturers participating in relationships that strengthen a supplier's market position. The authors assert that vertical co-branding arrangements benefit both the supplier and the manufacturer. "The incumbent supplier benefits from the reduced probability of competitor entry, and the downstream manufacturer is rewarded with a lower price" (Erevelles et al. 2008, p. 940).

Hermeier and Friedrich (2007) as well as Voigt et al. (2006) focus on the application of ingredient branding in the automotive industry. Despite the significantly increasing importance of suppliers of car components (75% of a new car's components are not engineered by the OEM itself), OEM brands continue to dominate the automotive industry (Hermeier and Friedrich 2007, p. 42; Voigt et al. 2006, p. 1). Only a few automotive suppliers (e.g., Recaro, Blaupunkt, Bose, Michelin, Goodyear, Bosch, and Johnson Controls) have been able to create a brand image in consumers' minds. This is because two conditions make ingredient branding difficult in the automotive industry: The visibility of the branded ingredient and the consumer's option to "pull" for the branded ingredient through the final product (Hermeier and Friedrich 2007, pp. 46). Hermeier and Friedrich (2007, p. 63) conclude that "it is not certain that ingredient branding can be transferred to the automotive industry." They suggest that suppliers include their corporate brands in *image campaigns* so there is communication and interaction within the value chain.

Such branding strategies could be less expensive and do not require arrangements with OEMs. And even if they are not sufficient to generate a pull effect on the consumer level, they are likely to increase the company's brand awareness and to support the effort to build it (Hermeier and Friedrich 2007, pp. 63). "Companies that are brands possess a valuable property that is important even though it is immaterial. That's because a company's value consists not only of its revenues, production plants, employee potential, and patents, but also of the immaterial value of its brand (or brands). Strong brands result in bigger sales volumes

and can also demand higher prices. What's more, they are also more attractive for investors and employees" (Evonik 2007, p. 56). Evonik's 2007 commercials, Figure 2-1, are an example of a successful image campaign.

Figure 2-1:   Advertisement in Evonik's image campaign (source: Evonik 2007, p. 57)

Beside ingredient branding and the related concepts of co-branding and image campaigns, vertical marketing represents another specific aspect assignable to the overall concept of MSM. I present the idea of vertical marketing in the following section.

2.1.1.3   Vertical marketing

The idea of vertical marketing (also known as "integrative sales strategy" or "vertical sales") goes back to system management theory (Voigt et al. 2006, p. 2). As McCammon (1970, p. 43) describes, "Planned systems are professionally managed and centrally programmed networks, pre-engineered to achieve operating economies and maximum market impact. Stated alternatively, these *vertical marketing systems* are rationalized and capital-intensive networks designed to achieve technological, managerial, and promotional economies through the integration, coordination and synchronization of marketing flows from point of production to points of ultimate use." Voigt et al. (2006, pp. 2) emphasize the last part of the definition and specify that vertical marketing encompasses the integration, coordination, and synchronization of marketing activities along the entire value chain.

Extant marketing literature uses the concept of vertical marketing mainly in the context of business-to-consumer (B-to-C) markets. Triadic relationships among production companies, retailers, and end customers build the center of attention and vertical marketing systems pertain to the (administered) cooperation of a manufacturer with the distributor(s) of its products to consumers (Dawson and Shaw 1989; Etgar 1976). Therefore, vertical marketing is likely to improve the business performance of the involved companies, in particular achieving sales growth, cost savings, profit increases, risk reduction, or an improvement of the company image (Steffenhagen 1974, p. 675). But besides vertically coordinating the marketing mix, vertical marketing also presents a big conflict potential among the involved players. Possible causes for this are target conflicts, clashing roles, an unbalanced power structure, as well as a vertically declining information structure (Steffenhagen 1974, pp. 679). Not surprisingly, literature on vertical marketing often focuses on conflict management between producers and distributors (Rudolph 1989, p. 40; see also Meffert and Steffenhagen 1976; Steffenhagen 1974, pp. 679; Steffenhagen 1975) and loyalty building mechanisms among customers, manufacturers (brand loyalty), and wholesalers (Eggert et al. 2009). Wuyts et al. (2004) extend the view of consumer products and analyze vertical marketing systems for complex products, such as integrated computer networks. In particular, "the authors investigate buyers' preferences for specific patterns of relationships among buyers, intermediary vendors, and suppliers of complex products" (Wuyts et al. 2004, p. 479; for further information on vertical

marketing, see Becker 1988, pp. 484; Bucklin 1970; Dingeldey 1975; Hansen 1972; Kunkel 1977; Meffert 1975, pp. 15; Thies 1976).

Ingredient branding and vertical marketing represent rather specific aspects of MSM. Now I turn to a broader perspective of MSM. In the following section, I present the concept of pull strategies aiming to achieve a demand pull on the direct customers' market stage.

2.1.1.4 Pull strategy

The pull effect is one of the central marketing aims of MSM (Kleinaltenkamp et al. 2012, p. 148). "In the pull strategy, the manufacturer takes major responsibility for creating end-user demand through advertising and personal selling activities aimed directly at end-users" (Webster 1991, p. 221). Supplier-initiated ingredient branding is one method. In this concept, a supplier intends to advertise its own products on indirect customers' market stages. Higher product awareness and increased preferences on downstream market stages might result in a demand pull and, therefore, a successful pull strategy (Norris 1992, pp. 20). Yet ingredient branding is not always the most appropriate instrument to use on indirect market stages. Demanding and complex products might need supplementary explanations. This is often the case in B-to-B markets in which personal selling is essential. Characteristically, suppliers build on strong relationships with direct customers. However, when aiming to create a demand pull, personal relationships might be important for indirect market stages as well (Kleinaltenkamp et al. 2012, pp. 167).

Chiou et al. (2010) investigate simultaneous push and pull effects. The authors find that "both sales strategy toward channel members (push) and marketing communication programs (pull) can strengthen the loyalty of the retailer toward the brand owner" (Chiou et al. 2010, p. 432). Their study supports Frazier's (1999) and Webster's (2000) idea that "pure pull or push strategies are things of the past" (Chiou et al. 2010, p. 431). However, because distribution channels are comparatively straightforward and consumers can easily identify the products, the problems of a pull strategy for consumer goods are much fewer and less complex than for industrial goods (Rudolph 1989, pp. 14). Especially in B-to-B markets, brand owners should not initiate a pull strategy on their own but should do it in combination with a push strategy. Trying to force direct customers to follow a special behavior could cause significant

resistance. Therefore, it is important to harmonize push and pull activities to reach defined market targets. All involved parties must perceive a resulting value in their favor. Contractual bindings can help ensure appropriate sharing of generated value (Günter 2006, pp. 773; Kleinaltenkamp et al. 2012, pp. 149 and pp. 170; Voigt et al. 2006, pp. 4).

Unger-Firnhaber (1996, p. 56) underpins a pull strategy's potential to create value apart from indirect market stages: "Supplier pull strategies should go beyond demand stimulation in the user market towards offering … customers strong incentives such as channel assistance and market intelligence. Therefore, a pull strategy supports mutually beneficial seller-buyer relationships. This indicates the necessity to view supplier pull strategies as taking part in, and not outside, the channel." Building on this, Voigt et al. (2006, pp. 4; see also Unger-Firnhaber 1996, pp. 60) describes three different types of pull strategies. *Autonomic pull marketing* includes measures such as independent exhibitions, direct mailings, and print advertisements. *Cooperative pull marketing* refers to marketing measures applied in collaboration, especially with other suppliers or influencers such as consultancies. Finally, *synergetic pull marketing* refers to common marketing measures of suppliers and OEMs—for example, common advertisement, ingredient branding, and support of OEMs with special training. Although the authors had automotive markets in mind, these ideas are also applicable to other industries.

Including a multitude of applicable marketing measures as well as the potential to create value on several market stages, pull strategies relate to a broader perspective of MSM. Yet some authors explicitly refer to the concept of MSM. I present different approaches of an overall concept of MSM in the following section.

2.1.1.5 Multi-stage marketing

Engelhardt (2001, p. 1114) explains that *multi-stage marketing* approaches customers' subsequent market stages. More concretely, Rudolph (1989, p. 34) and later Kleinaltenkamp et al. (2012, p. 143)[4] define MSM as involving "all sales-related measures which are aimed at the subsequent market stages ('customers of the customer') which follow one or several primary customers in order to influence the buying behavior of these primary

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4   Rudolph (1989) focuses on MSM in the context of B-to-B markets for raw materials. Kleinaltenkamp and Rudolph (2002) and later Kleinaltenkamp et al. (2012) extend this view, analyzing MSM more broadly for B-to-B markets.

customers" (Kleinaltenkamp et al. 2012, p. 143). The aim of MSM is to achieve a pull effect on the direct customers' market stage, intending to increase sales quantities, increase profits, or improve the market position within the vertical supply chain. Stabilizing supply relationships on several market stages, MSM also supports obtaining important market information, overcoming market resistances (e.g., for product introductions), and reducing substitution risks (Engelhardt 2001, p. 1114; Rudolph 1989, pp. 70).

Some of the oldest MSM instruments are the branded goods themselves. At one time, specially prepared products offered the only opportunity for consumer goods companies to differentiate their own products and make them visible to end customers. Companies started to address communication activities to the consumers, and as the intermediate market stages became simpler, "distributors" had fewer possibilities to influence the product selection or price and communication policy (Engelhardt 1976, pp. 176). However, the situation changed when the distributors' market power increased. Large-scale enterprises as well as powerful cooperative relationships enabled the distributors to create their own sales strategies and influence the objectives of the producer companies. To avoid a threatening replacement of producers, it became more and more important for companies to strengthen their positions with the end customers. A strong communication strategy to address customers became crucial. Depending on the strength of the pull effect, producers were even able to introduce new products against distributors' wishes (Engelhardt 1976, p. 177). Because distributors were not included in and could even be attacked by such a marketing strategy, Engelhardt (1976, p. 177) refers to a *collision* or *bypassing strategy*.[5] In contrast, a *cooperation strategy* is a strong collaboration between producers and distributors. In its simplest form, the producer supports the sales goals of the distributors by addressing their own communication activities to the consumers. In its most complex form, cooperation takes on the form of *franchising*. While giving the franchisee contractually agreed rights (e.g., use of a special production process or recipe, use of a trademark, production and distribution of special products or services), the franchisor applies its own sales strategies and addresses them to the end customers (Engelhardt 1976, p. 178).

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[5]   Translated from German "Die Kollisions- bzw. Umgehungsstrategie" (Engelhardt 1976, p. 177).

Engelhardt (1976, pp. 180) sees MSM strategies also applicable to companies that supply goods or services to the *processing industry* of B-to-B markets. A company can build a sales strategy designed for the market stage previous to end users' market stages that includes all of the activities of previous and intermediate market stages. This author distinguishes between cooperative strategies and strategies that aim to exclude subsequent market stages. Therefore, a pull effect must be sufficiently strong and depends on the market power of the involved companies (Engelhardt 1976, p. 181; for the relevance of the power structure within a supply chain in the context of MSM, see also section 3.2.3.2). Furthermore, MSM strategies can also apply to products that are *unchanged ingredients* in products, product complexes, or equipment. The products need to remain identifiable, maintaining its physical properties. The main instruments that are useful within a multi-stage sales strategy are a long-term and quality-oriented product policy and a communication policy that includes general and specific guidelines (Engelhardt 1976, p. 181). Engelhardt (1976, p. 181) emphasizes that the aim is to promote end users' awareness of the functioning and operation risk and at the same time increase confidence in risk reduction of the respective product. A general improvement of the company's image can support or even substitute for these instrumental activities (for a description of image campaigns, see section 2.1.1.2).

When specifying applicable instruments in the context of MSM, Kleinaltenkamp et al. (2012, pp. 165; see also Kleinaltenkamp and Rudolph 2002, pp. 309; Rudolph 1989, pp. 43) focus on product and communication decisions as well as on contract arrangements that span different market stages. Kleinaltenkamp et al. (2012, pp. 170) conclude by emphasizing the necessity to integrate MSM activities into a *vertical coordinated marketing strategy* of a company while achieving an overall coherence and coordination of the activities. This is especially difficult given various participants with complementary or competitive relationships. To ensure that market players follow the strategy, it is important to give incentives for displaying the desired buying behavior and avoiding market resistances. Activities aimed at the next market stage happen simultaneously, synchronized with activities aimed at downstream market stages. In addition, contracts might help focus the desired pull effect (Kleinaltenkamp and Rudolph 2002, p. 314; Kleinaltenkamp et al. 2012, pp. 149 and pp. 170). "The key in multi-stage marketing is to create a joint approach by combining both effects ['push the products onto the market' and 'generating a pull effect through the value chain'] as it would

be short-sighted and with respect to losing direct customers dangerous for the manufacturers to rely on just one of these effects" (Kleinaltenkamp et al. 2009, pp. 3).

Vedel et al. (2012) have a similar perspective on MSM. Building on *service-dominant logic* for marketing (Vargo and Lusch 2004, 2008), they assert that "customers' value-in-use is often, if not always, related to the customers' customers, especially in business markets" (Vedel et al. 2012, p. 2). Vedel et al. (2012) introduce a triadic perspective (supplier, stage-one customer, stage-two customer) as the basis for analysis and focus on the value-creating potential of MSM. The central point of interest moves from value creation between suppliers and buyers toward downstream customers. Dyadic relationships between business actors have the potential to influence other dyads (interconnections), based on which Vedel et al. (2012, p. 3) conceptualize MSM "as a more complex system of interactive and interconnected dyadic business relationships." This perspective emphasizes "the richness of phenomena that occurs in multi-stage marketing contexts" (Vedel et al. 2012, p. 7).

Building on the triadic perspective, Vedel et al. (2012, pp. 7) suggest that it is important to distinguish different levels of MSM. On *Level 0* (*single-stage marketing*) "the supplier only takes an interest in and interacts with the direct customer (a stage-one customer)" (Vedel et al. 2012, p. 7). The supplier's awareness can extend to *Level 1* (*multi-stage awareness*), in which the supplier receives information about downstream (stage-two) customers. This information flow enables the supplier to provide products to direct (stage-one) customers, which provides more value by better addressing the needs of downstream market stages. Consequently, the awareness of downstream customers leads to the opportunity to realize higher prices, higher commitment, and higher sales volumes. Based on insights gained at Level 1, the supplier communicates with stage-two customers on *Level 2* (*multi-stage communication*), typically through one-way communication from the supplier toward the downstream customers. This communication can provide technical information, website support, and ingredient branding, whereas MSM can offer instruments such as advertising, trade fairs, and promotion material. Finally, communication between supplier and stage-two customers extends to direct transactions of goods and services on *Level 3* (*multi-stage exchange*) (Vedel et al. 2012, pp. 7).

Vedel et al. (2012) show that MSM exists at different levels and demonstrate how different business relationships influence each other in a MSM context. According to their findings, "multi-stage marketing is not restricted to ingredient branding, different levels of multi-stage marketing are not necessarily reached over time—rather, they can co-exist, and a supplier's relationships with stage-one and stage-two customers is not a zero-sum game in which one customer wins and the other loses" (Vedel et al. 2012, p. 16).

After having presented different perspectives of MSM in existing literature, their assessment is subject to the following section.

2.1.1.6 Assessment of MSM literature

Reviewing the extant literature exposes a multitude of constructs comprising multi-stage characteristics. Some explicitly refer to MSM or measurements addressed to downstream market stages. Others implicitly rely on the awareness of downstream customers. Table 2-1 summarizes some of the most relevant contributions and outlines their key messages.

Construct	Authors	Key messages
		Underlying concepts
Derived demand	Kleinaltenkamp et al. 2009	Upstream suppliers always depend on primary demand.
	Günter 1997	B-to-B marketing must include analysis of the entire value chain.
	Jüttner et al. 2007	The importance of company networks and supply chain partnerships is growing.
	Fern & Brown 1984	Direct customers in B-to-B represent an intermediate market stage whose demand is often derived from subsequent market stages (analysis of resulting consequences and managerial challenges).
	Vedel et al. 2012	Customers' value-in-use is often related to the customers' customers, especially in B-to-B.
Traditional market orientation	Levitt 1960, 1975, 1980	"Marketing myopia" results in a threat to performance improvement of companies.
	Day & Wensley 1988	A market-oriented approach can overcome marketing myopia.
	Kuhn & Zajontz 2011	It is necessary to also analyze market processes in end-customer markets.
	Homburg et al. 2009a	Suppliers should include preferences of downstream customer tiers in own marketing planning.
	Narver & Slater 1990	A seller must understand cost and revenue dynamics of buyers' buyers.
Extended market orientation	Hillebrand & Biemans 2011	An analysis of consequences of derived demand and challenges can extend market orientation.
Proactive customer orientation	Narver & Slater 1990	A seller must understand economic and political constraints at all levels in the channel to understand who potential customers are at present and in future.
	Blocker et al. 2011	Customers want providers to proactively understand/address their latent/future needs.
	Flint et al. 2002	Knowing what customers currently value is not enough; suppliers must also have the capability to anticipate what customers will value.

Construct	Authors	Key messages
Instruments		
Ingredient branding	Havenstein 2004; Norris 1992, 1993	Ingredient branding and its relevance; supplier-initiated ingredient branding vs. manufacturer-initiated ingredient branding
	Hermeier & Friedrich 2007; Voigt et al. 2006	Ingredient branding in the automotive industry
	Homburg et al. 2009a; Kleinaltenkamp 2003	Processing brands vs. ingredient brands
	Erevelles et al. 2008	Co-branding arrangements that benefit suppliers and downstream manufacturers; the reason manufacturers engage in relationships that strengthen the supplier's marketing position
	McCarthy & Norris 1999	Ingredient branding consistently positively affects moderate-quality host brands and occasional positively affects higher-quality host brands.
	Desai & Keller 2002	Improvement in the consumers' acceptance of initial product expansions or subsequent category extensions as a result of ingredient branding
	Ghosh & John 2009	Increased likelihood of firms to choose branded component contracts when the supplier's brand name adds significant differentiation (leveraging) and when the component supplier has made significant component customization investments (safeguarding)
Co-branding	Homburg et al. 2009a; Ohlwein & Schiele 1994	Co-branding and its relevance
	Kleinaltenkamp & Rudolph 2002	Horizontal co-branding vs. vertical co-branding
	Desai & Keller 2002	Co-branded ingredient branding
Image campaigns	Hermeier & Friedrich 2007	Uncertainty that ingredient branding can be transferred to the automotive industry—image campaigns to be considered for communication/interaction within value chain
Vertical marketing	McCammon 1970; Voigt et al. 2006	Vertical marketing encompassing the integration, coordination, and synchronization of marketing activities along the entire value chain
	Dawson & Shaw 1989	The profound influence of the changing horizontal structure of retailing on vertical relationship structures, which has changed to an administered structure to maximize horizontal competition; has resulted in vertical channel changes (e.g., more stable relationships).
	Etgar 1976	Vertical marketing systems defined as a set of establishments concerned with production and distribution of specific products or product groups; comparison of administratively coordinated and market-coordinated vertical marketing systems
	Eggert et al. 2009	Loyalty-building mechanism of customers toward manufacturers and wholesalers
	Wuyts et al. 2004	Vertical marketing systems for complex products; triadic relationships among buyers, intermediary vendors, and suppliers
Holistic approaches		
Pull strategy	Chiou et al. 2010	Retailer loyalty toward brand owners comes directly from brand owners' push efforts and indirectly from pull efforts.
	Frazier 1999; Kleinaltenkamp et al. 2012; Webster 2000	It is crucial to employ push and pull marketing measures together.
	Unger-Firnhaber 1996	Resulting from channel assistance and market intelligence, pull strategy has potential to create value on direct market stages as well.
	Unger-Firnhaber 1996; Voigt et al. 2006	Autonomic, cooperative, and synergetic pull marketing measures have unique qualities.
Multi-stage marketing	Voigt et al. 2006	MSM functions as the pull-strategy aspect of vertical marketing and excludes approaching direct market stages; yet it does not exclude effects occurring on direct market stages (pull effect).
	Engelhardt 2001; Kleinaltenkamp et al. 2012; Rudolph 1989	MSM involves all sales-related measures that are aimed at customers' customers and follows one or several primary customers to influence the buying behavior of these primary customers; the central aim of MSM is to achieve a pull effect.
	Engelhardt 1976	Collision or bypassing strategy (communication strategy addressed to the end customers) contrasts cooperation strategy (collaboration between producers and distributors).
	Kleinaltenkamp et al. 2012; Kleinaltenkamp & Rudolph 2002; Rudolph 1989	Central MSM instruments consist of product and communication decisions as well as contract arrangements; it is necessary to integrate MSM activities into a vertical coordinated marketing strategy (coordination of push and pull marketing measures).
	Vedel et al. 2012	MSM has potential to create value; distinction of 4 levels of MSM (*single-stage marketing, multi-stage awareness, multi-stage communication, multi-stage exchange*); MSM is not restricted to ingredient branding.

Table 2-1:   Multi-stage perspectives in extant literature (source: Author's illustration)

To get a better view it is reasonable to divide the different contributions into groups. There are three streams of MSM literature. The first includes articles dealing with the *underlying concepts* of MSM, in particular the concepts of derived demand and market orientation. These constructs support the concept of MSM and provide a basis for its conceptualization and definition (see section 2.1.2). The second stream focuses on selected *instruments*. These fall within the overall concept of MSM, and section 3.1.4 includes an analysis of them. Extant literature clearly supports the relevance of branding instruments for multi-stage markets. "Ingredient branding, a prominent topic in multi-stage marketing, focuses on one key aspect of multi-stage marketing—branding and communication efforts aimed at customers further down the supply chain …" (Vedel et al. 2012, p. 2). Accordingly, many studies give branding instruments undivided attention. Authors in this stream analyze this aspect in detail and describe their utilization, possible effects, as well as application requirements. In contrast, other instruments are not necessarily designed specifically for multi-stage markets. Rather, they represent classical marketing instruments that are adapted for downstream market stages as well. Consequently, authors mention them in the context of the overall concept of MSM only (e.g., Kleinaltenkamp et al. 2012, pp. 165). The third research stream reflects this, including contributions that examine MSM as a *holistic approach*. The authors handle several different aspects of MSM and give an overview of application requirements and possible effects.

The following sections assess the existing literature with respect to the analysis of MSM effects (section 2.1.1.6.1) as well as with respect to the multitude of existing MSM concepts and definitions (section 2.1.1.6.2).

2.1.1.6.1 Assessment of MSM effects

My literature review shows that MSM has multiple potential effects. For example, in the context of market orientation, it can help overcome myopia, create superior customer value, reveal sources for competitive advantages, and contribute to product success and firm performance. Applying ingredient branding can help increase a brand's awareness, customer preference, and vertical reach. This might help achieve a demand pull on the direct customers' market stage. Vertical marketing will likely improve business performance of the involved companies. Pull strategies might not only create a demand pull on the direct customers'

market stage but might also create value on the direct customers' market stage, leading to loyalty of the retailer toward the brand owner or beneficial seller-buyer relationships. Finally, the holistic concept of MSM might influence the buying behavior of primary customers, improving sales quantities, profits, or market position. It might also stabilize supply relationships on several market stages or support obtaining market information, overcoming market resistances, or reducing substitution risks (see sections 2.1.1.1 through 2.1.1.5, and literature cited therein).

Companies' objectives for applying MSM reflect these benefits, as Kleinaltenkamp et al. (2011a, p. 44) describe. In their study (for a description, see section 1.1), the authors reveal that the main reason for a MSM strategy is to strengthen customers' ties to the company, followed by the objective to stabilize or increase sales volume. Protecting their own market position in times of increased pricing pressure is another one of companies' central reasons for applying MSM. All of these potential effects support the relevance of MSM. However, Kleinaltenkamp et al. (2011a) neither specify effect mechanisms of MSM nor quantify the effects resulting from MSM. Therefore, this evidence does not provide a conclusive answer to the research question at hand—that is, whether MSM pays.

More generally, empirical analysis of MSM effects is scarce in extant literature. Ingredient branding and pull strategies provide an exception. McCarthy and Norris (1999) find that ingredient branding consistently and positively affects moderate-quality host brands and occasionally and positively affects higher-quality host brands. In a laboratory experiment, Desai and Keller (2002) show that ingredient branding can improve consumers' acceptance of an initial product expansion (e.g., cough relief liquid added to Life Savers candy) or subsequent category extensions (e.g., new scents for laundry detergents). "The impact of ingredient branding, however, will depend on the inherent importance of the ingredient itself" (Desai and Keller 2002, p. 73). Similarly, Ghosh and John (2009, p. 597) find "that firms are more likely to choose branded component contracts when the supplier's brand name adds significant differentiation (leveraging) and when the component supplier has made significant component customization investments (safeguarding)." For example, by taking a co-branding approach, a supplier of a truck engine component can create switching costs that protect its customization investments from being appropriated (Ghosh and John 2009, p. 609). In the

context of pull strategies, Chiou et al. (2010) perform a quantitative survey among retailers of consumer durables (IT products) and reveal that an "adequate execution of pull efforts on the end consumer side by the brand owner can improve significantly the perceived value of selling the brand owner's product by the retailer" (p. 437).

However, the described effect mechanisms and findings relate to specific concepts only (i.e., ingredient branding, pull strategies). Although they support the relevance of MSM, they do not provide further insights about the relevance of the overall (holistic) concept of MSM. Here, the focus in extant literature is on conceptual research and, if at all, on general effect mechanisms and effects. This marks the research deficit in this area and supports the relevance of the present study. It is evident that this study is the first one to use empirical evidence to measure the effects of MSM as a holistic concept.

2.1.1.6.2 Assessment of MSM concepts

The literature review also shows that the concept of MSM is made up of a multitude of varying terms and definitions. For example, Voigt et al. (2006, p. 3) describe MSM as a part of *vertical marketing*. They assert that vertical marketing consists of the simultaneous approach of several market stages, whereas MSM definitely excludes the market stage of direct customers. Voigt et al. 2006 rely on the definition of Rudolph (1989, p. 34), who specifies that MSM approaches customers' subsequent market stages (see also Engelhardt 2001, p. 1114; Kleinaltenkamp et al. 2012, p. 143). Accordingly, Rudolph (1989, pp. 38) also sees vertical marketing as including activities addressed to the direct customers, whereas MSM does not. However, other authors do not see MSM as being part of vertical marketing. According to Kleinaltenkamp and Rudolph (2002, p. 287), MSM is synonymous with *multi-stage sales strategy* (Engelhardt 1976), *vertical sales*, or *vertical marketing* (Steffenhagen 1974). Defining MSM becomes even less clear when focusing on the vertical coordination of marketing activities or cooperation along the value chain. Seeing this as one of the central aspects of MSM (Kleinaltenkamp et al. 2009, p. 3) and relying furthermore on the perspective that vertical marketing connects the manufacturer with the distributors of its products (Eggert et al. 2009; Wuyts et al. 2004), one could even consider vertical marketing to be part of MSM rather than the other way around. Somewhat contrary to previous definitions,

Rudolph (1989, pp. 38) asserts that, contrary to vertical marketing, MSM considers cooperation with other market stages only one of several options for marketing policies.

There is similar ambiguity in differentiating MSM from *pull strategy*. If MSM aims at indirect market stages only, it corresponds to the central idea of the pull strategy (Webster 1991, p. 221). In both cases the pull effect represents the central objective, and supplier-initiated communication strategies or personal selling become the most relevant marketing instruments (Kleinaltenkamp et al. 2012, pp. 167; Norris 1992, pp. 20). Accordingly, Kleinaltenkamp and Rudolph (2002, pp. 291) define the pull effect as the most relevant one to result from MSM. Rudolph (1989, p. 38) refers to Backhaus (1982, pp. 331), who uses the terms *multi-stage marketing* and *pull strategy* interchangeably. However, MSM literature claims that there are more objectives when considering downstream market stages. Stabilized relationships and reduced market resistances along the value chain contribute to the idea that the pull effect is not MSM's only objective (Kleinaltenkamp et al. 2012, pp. 146). The definition of *cooperation strategies* reflects this, in contrast with collision or bypassing strategies (Engelhardt 1976, p. 177). It is difficult to reconcile a cooperation strategy with the original definition of MSM, which excludes subsequent market stages from its perspective (Rudolph 1989, p. 34). Yet the intent of literature on pull strategy is to cover collaborative aspects and describe the differentiations of autonomic, cooperative, and synergetic pull strategies (Unger-Firnhaber 1996, pp. 60). The differentiation of pull strategies is an example of another overlap within MSM theory, which claims that vertically coordinated marketing strategies include both push and pull marketing measures (Kleinaltenkamp et al. 2012, pp. 149).

Overall, the contributions I have described encircle the permanent intention to include value creation into the perspective. For example, Unger-Firnhaber (1996, p. 56) examines the potential of a pull strategy to create value not only on downstream market stages but also on subsequent market stages. Similarly, the existence of manufacturer-initiated ingredient branding shows that ingredient branding can create value not only on the suppliers' market stages but also on manufacturers' intermediate market stages (Norris 1992, p. 20). However, extant literature on MSM considers value creation only rudimentary and thereby "blends" the definition and classification of different constructs. Yet "value creation in business

relationships has become a major theme in marketing over the past two decades" (Vedel et al. 2012, p. 2, and literature cited therein). Accordingly, MSM must systematically include value creation into its perspective. In this context, Vedel et al. (2012) provide a significant contribution. First, they particularly describe value creation as a central merit of MSM. Second, they distinguish multi-stage activities from multi-stage awareness. This supports the assumption that MSM does not necessarily imply addressing marketing activities to downstream market stages (i.e., the market stages of indirect customers) (Kleinaltenkamp et al. 2012, pp. 148). For example, Vedel et al.'s (2012, p. 7) *Level 1* definition of MSM refers to measures approaching stage-one customers only and is not compatible with the traditional definition of MSM. Consequently, Vedel et al. (2012, p. 8) define single-stage activities as concerning one relationship only, independent of whether the relationship exists between a supplier and a stage-one customer or a supplier and a stage-two customer. Multi-stage awareness is what is relevant.

2.1.2   MSM understanding of this study

For the purpose of this study, value creation and resulting competitive advantages for suppliers should be systematically included into the perspective of MSM. It is necessary to align existing understandings of MSM with this new perspective to resolve contradictions and conceptualize and consistently define MSM as a holistic concept. I focus on conceptualizing MSM in section 2.1.2.1. Building on this, I develop a consistent definition of MSM in section 2.1.2.2.

2.1.2.1   Conceptualization of MSM

As I have shown, marketing literature emphasizes the relevance of derived demand and describes the resulting need to consider direct as well as indirect customers (Vedel et al. 2012, p. 2). "But they fail to go beyond these general observations…. Popular conceptualizations of the market orientation construct only include immediate customers and neglect downstream customers" (Hillebrand and Biemans 2011, p. 72). The formal definition of market orientation offered by Kohli and Jaworski (1990, p. 6; see also Kohli et al. 1993) also reflects this lack:

> Market orientation is the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it.

Although referring to market intelligence, the focus is on (direct) customers' needs but does not mention indirect customers. Hillebrand and Biemans (2011, pp. 76) extend this view and offer "the first study which expands the concept of market orientation to downstream customers…." These authors explicitly assert the importance of including not only immediate customers but also of integrating downstream customers into the perspective of market orientation. In line with Kohli and Jaworski's (1990) and Kohli et al.'s (1993) definition of market orientation, Hillebrand and Biemans (2011, p. 73) define an extended market orientation toward downstream customers as

> the generation, organization-wide dissemination and responsiveness to intelligence about downstream customers.

As a result of a *derived demand* in B-to-B relationships, an *extended market orientation* extends beyond a company's direct customers and involves indirect customers in its perspective as well (Hillebrand and Biemans 2011, p. 72). Yet this definition can also delineate the central idea of MSM. Referring to downstream customers only, Hillebrand and Biemans (2011) portray a *shifted* market orientation. An *extended* market orientation, in contrast, should consider both direct and downstream customers. Figure 2-2 (see p. 28) reflects this idea, illustrating the classification of MSM in modern market orientation research. The downstream consideration on the y-axis does not distinguish two categories— consideration of direct customers versus consideration of indirect customers. Rather, it shows a continuous growing consideration of downstream customers, assuming that a consideration of direct customers constantly prevails. Consequently, I have adapted the definition of an extended market orientation offered by Hillebrand and Biemans (2011, p. 73) to the present study, as follows:

> Extended market orientation is the generation, organization-wide dissemination, and responsiveness to intelligence about direct and downstream customers.

Hillebrand and Biemans (2011) provide information on the extent of B-to-B suppliers' orientation toward downstream customers as well possible strategies for implementing such an orientation and potential problems. Their results suggest that firms are fairly well-oriented toward downstream customers in terms of recognition (i.e., they "know that downstream customers influence the success of their new products, and thus their long-term survival" [Hillebrand and Biemans 2011, p. 76]) but are not well-oriented in terms of actual behavior (i.e., they "fail to act" [Hillebrand and Biemans 2011, p. 76]). "… Simply being market-oriented is not enough to create value…. To do this [the firms] need value creating capabilities" (O'Cass and Ngo 2012, p. 125). "This reflects the market orientation literature, which conceptualizes market orientation from both behavioral and cognitive perspectives (Homburg and Pflesser 2000) and which notes that several barriers may prevent a market-oriented culture from resulting in market-oriented behavior (Matsuno et al. 2005)" (Hillebrand and Biemans 2011, p. 77).

The cultural perspective of market orientation is related to more fundamental characteristics of the organization, as Narver and Slater have defined (1990, p. 21, and literature cited therein): "Market orientation is the organization culture … that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers and, thus, continuous superior performance for the business." Narver and Slater (1998, p. 235; see also Deshpandé and Webster 1989) emphasize the importance of the cultural perspective in implementing market orientation: "If a market orientation were simply a set of activities completely disassociated from the underlying belief system of an organization, then whatever an organization's culture, a market orientation could easily be implanted by the organization at any time. But such is not what one observes."

In contrast, the behavioral perspective is related to specific behaviors of market orientation. Narver and Slater (1990, p. 21) suggest that market orientation consists of three behavioral components (customer orientation, competitor orientation, and interfunctional coordination)[6];

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[6] Along with two decision criteria (*long-term focus* and *profitability*), all three behavioral components of market orientation include the activities of market analysis and the coordinated creation of customer value. However, customer orientation appears to be the central and most relevant component of market orientation. Consequently, researchers sometimes use the terms *customer orientation* and *market orientation* synonymously (Homburg and Krohmer 2009, p. 1218, referring to Deshpandé et al. 1993). Following this

relying on these behaviors reflects an underlying organizational culture of market orientation (Narver and Slater 1998, p. 235). Slater and Narver (2000, p. 73) state, "A significant research objective is to identify the organizational processes that take full advantage of a market-oriented culture." Based on Day (1994, p. 41), the authors further suggest "that successfully implementing a market orientation requires developing, superior market-sensing, customer-linking, and channel-bonding capabilities" (Slater and Narver 2000, p. 73). According to Slater and Narver (1995, p. 63), market orientation represents one component of a learning organization, whereas later (2000, p. 73) they conclude that there is "strong support for the existence of a positive relationship between market orientation and performance. Further research should focus on the processes for developing and reinforcing a market-oriented culture and for implementing it through organizational structure, systems, capabilities, and strategies." Building on this basic assumption, this study falls into the behavioral stream of market orientation research.[7]

Summarizing, two central aspects of modern market orientation research are included in the concept of MSM. First, MSM reflects the behavioral component of a market-oriented culture and provides means for its conceptualization. Second, MSM encompasses the concept of an extended market orientation, which makes it necessary to include direct as well as downstream customers into this perspective, specifically considering the entire chain for value creation. MSM represents the behavioral perspective of an extended market orientation. Figure 2-2 illustrates the conceptualization of MSM and its relationship to downstream customers as well as its classification within market orientation perspectives.

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approach, I use the terms *market orientation* and *customer orientation* synonymously in the present study. A differentiation of behavioral components is not relevant to this study.

[7] Consequently, it is not relevant to further focus on the cultural perspective of market orientation and to distinguish between different layers of culture (for further information on organizational culture and different layers of organizational culture, see Homburg and Pflesser 2000; Schein 1992; Trice and Beyer 1984, 1993).
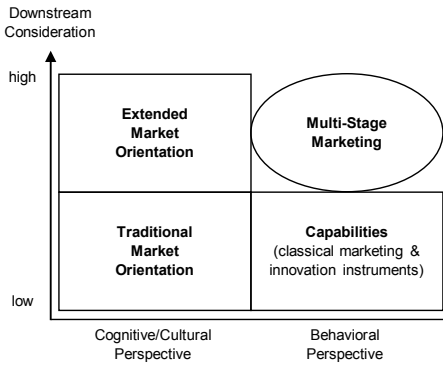
Figure 2-2:   Conceptualization of MSM (source: Author's illustration)

2.1.2.2   Definition of MSM

When defining MSM from a behavioral perspective, it is reasonable to build on a differentiation between a push and pull marketing strategy. A simplified MSM system can help illustrate this process (see Figure 2-3).
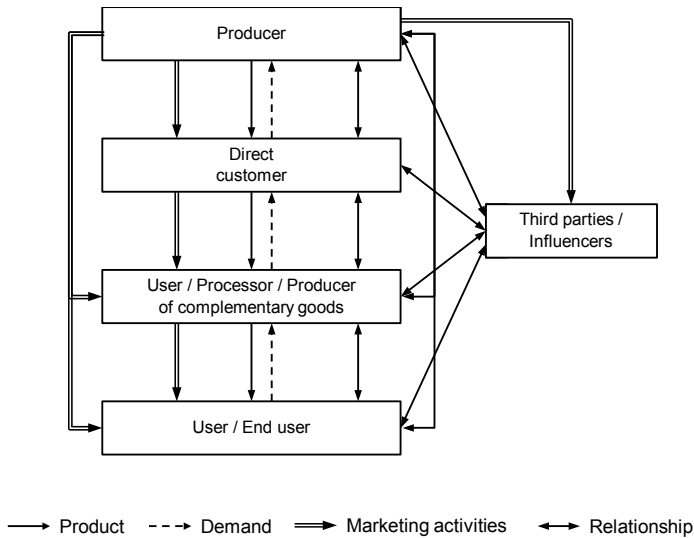
Figure 2-3:   Simplified MSM system (source: Based on Kleinaltenkamp et al. 2012, p. 150)

Classical marketing measures focus on the respective next market stage. One of their aims is to *push* a product into the market. The measures of such a *push strategy* or *push-through system* rely on the direct relationship between one market stage and the immediately previous or following market stage. However, direct relationships between one market stage and (at least) the second-next or second-previous market stage allow "indirect" marketing measures—that is, market-stage *overleaping* activities. A producer might not target his direct customers only but also establish relationships with subsequent or end users and approach them through marketing measures carried out on their respective market stages. A central objective is to create a demand pull (*pull effect*) that forces the direct customers to demand the products being offered (Kleinaltenkamp et al. 2012, pp. 148; for further information on pull strategies in the context of B-to-B marketing, see Kleinaltenkamp 2006, pp. 357; Kleinaltenkamp et al. 2009, pp. 3).

But MSM does not necessarily aim to create a pull effect (Kleinaltenkamp et al. 2012, pp. 146). In the sense of an extended market orientation, considering direct as well as indirect market stages gives name to the concept of *multi-stage marketing*. It implies that a supplier

includes direct customers, downstream customers, as well as third parties in its marketing perspective and provides the necessary (behavioral) measures for such an extended (cognitive) market orientation. A MSM plan should incorporate all relevant market stages into one universal marketing strategy (Kleinaltenkamp et al. 2012, pp. 146 and pp. 170). Yet it must distinguish the market stages on which to apply marketing and sales-related measures and aim to create value there. Merely trying to increase value on indirect market stages supports the pull strategy I have described (Kleinaltenkamp et al. 2012, p. 148). But MSM can also exclusively incorporate push activities. In this regard, an extended market orientation improves a supplier's capability to fulfill its direct customers' demands and needs and to create superior value for them (Hillebrand and Biemans 2011, p. 72, and literature cited therein; Vedel et al. 2012, p. 7). Finally, it is possible to apply both push and pull measures simultaneously (Kleinaltenkamp et al. 2012, pp. 149). Consequently, the intention should be to turn adversary market relationships into more cooperative ones. The aim of MSM is to provide competitive advantages for firms at every stage of a vertical supply chain (Kleinaltenkamp et al. 2012, p. 146). Considering these three options, my definition of MSM is the following:

> Multi-stage marketing builds on an extended market orientation and considers the entire value chain. It involves all marketing and sales-related measures aiming at direct customers or subsequent market stages ("customers of the customers") as well as the coordination of direct and overleaping marketing and sales-related activities to create value for one or several market stages of a supply chain.

Therefore, the potential to create value is the cornerstone of MSM and allows a supplier to create competitive advantages through MSM. I assume that MSM can affect direct customers' willingness-to-pay, satisfaction, and loyalty; these are the relevant outcome variables of this study which I present in the following section.

2.2   Dimensions of MSM effects

Direct customers' willingness-to-pay determines the main effects of MSM relevant to this study. Willingness-to-pay levels pose a tradeoff between the customer's valuation for a product or service, and the customer's sacrifice for obtaining the product, which in most

settings is the price to pay (Anderson et al. 1993, p. 5; Jedidi and Zhang 2002, p. 1352). Willingness-to-pay can therefore be regarded a cognition variable (Lam et al. 2004, p. 297). I present the concept of willingness-to-pay in section 2.2.1. However, the application of MSM can also affect other constructs. The determination of further relevant outcome variables relies on the contribution to relationship marketing of Morgan and Hunt (1994). The authors build on a supplier's ability to provide superior value to its customers' firms and relate the level of benefits received from the relationship to customers' satisfaction and relationship commitment (Morgan and Hunt 1994, pp. 24 and p. 32). Similar, a multitude of studies in the B-to-C context analyze or build on prevailing linkages between cognitive, affective, and behavioral constructs (for an overview, see Cronin et al. 2000, pp. 195, and literature cited therein). Analogically—to further evaluate the potential to create competitive advantages through MSM—it is therefore appropriate to consider affective and behavioral variables as well. In this study, I analyze additional effects of MSM on direct customers' satisfaction and loyalty. Customer satisfaction represents the affective variable relevant to this study (Lam et al. 2004, p. 295, and literature cited therein), whereas customer loyalty is a behavioral construct (Lam et al. 2004, p. 297). I present the concepts of customer satisfaction and loyalty in section 2.2.2. Analyzing possible effects on cognitive, affective, and behavioral constructs allows me to derive a comprehensive picture about the potential of MSM for the creation of competitive advantages by a supplier.

2.2.1   Willingness-to-pay

I relate MSM to customer's willingness-to-pay through customers' value perceptions. Willingness-to-pay corresponds to the concept of reservation price. In the fields of B-to-C and B-to-B marketing, as well as in other fields such as micro-economics, it is seen as a key influencing factor for customer purchase decisions (Bowman and Ambrosini 2000, pp. 3; Jedidi and Jagpal 2009, pp. 39; Palmatier et al. 2007, p. 187). Willingness-to-pay expresses the value of a good or service in monetary terms (e.g., Jedidi and Zhang 2002). Accordingly, Anderson et al. (1993, p. 5) define value in business markets "as the perceived worth in monetary units of the set of economic, technical, service, and social benefits received by a customer firm in exchange for the price paid for a product offering, taking into consideration the available alternative suppliers' offerings and prices" (for further information on the construct of value, see Anderson et al. 1993; Geiger et al. 2012; Lapierre 2000; McDonald

and Mouncey 2009; Parasuraman 1997; Ulaga and Eggert 2006b; Zeithaml 1988, and literature cited therein).

Refining and extending its conception, "recent research has conceptualized consumers' willingness to pay … as a range rather than as a single point" (Dost and Wilken 2012, p. 148; see also Ariely et al. 2003). Referring to Wang et al. (2007), Jedidi and Jagpal (2009, pp. 39) suggest to distinguish three different reservation prices. The "floor reservation price [determines] the maximum price at or below which a consumer will definitely buy one unit of the product (i.e. 100 percent purchase probability)" (Jedidi and Jagpal 2009, p. 40). In contrast, the "ceiling reservation price [determines] the minimum price at or above which a consumer will definitely not buy the product (i.e. 0 percent purchase probability)" (Jedidi and Jagpal 2009, p. 40). In between these two prices is the "indifference reservation price [which determines] the maximum price at which a consumer is indifferent between buying and not buying (i.e. 50 percent purchase probability)" (Jedidi and Jagpal 2009, p. 40). Thereby, the indifference reservation price corresponds to the traditional single point willingness-to-pay and can be assumed to represent "the average of the floor and ceiling reservation prices for any symmetric WTP distribution" (Dost and Wilken 2012, p. 151).

Willingness-to-pay conceived of as a range is relevant for the analysis of customer purchase decisions and pricing effects (Dost and Wilken 2012, p. 160). In the present study, however, I focus on the analysis of MSM and I expect three different types of MSM (see section 3.1) to display differentiated effects with regard to a direct customer's value perception. In order to compare a customer's valuation of different offers (i.e., to perform a comparative analysis), it is sufficient to conceive willingness-to-pay as a single point value. I assume that the customer's perceived value of an offer translates into a specific willingness-to-pay for this offer. Consequently, I employ indifference reservation prices and define willingness-to-pay according to Jedidi and Zhang (2002, p. 1352; see also Brandenburger and Stuart Jr. 1996; Jedidi and Jagpal 2009, p. 38; Niederauer 2009, p. 90) as follows:

> A consumer's reservation price for a specific product is simply the price at which the consumer is indifferent between buying and not buying the product, given the consumption alternatives available to the consumer.

The definition relates to the constructs of customers' perceived value and price. The higher the perceived value of a good, the more the customer should be willing to pay. In contrast, the higher the price at a given value, the less the customer will demand the good (Simon 1994, p. 723). "The perceived value determines the customer's willingness-to-pay and thus the price a company can charge for its products" (Homburg et al. 2009, p. 184; see also Simon and Fassnacht 2009, p. 84; Smith and Nagle 2002, p. 22). Under this view, "the difference between the customer's valuation of the product and the price paid is 'consumer surplus'" (Bowman and Ambrosini 2000, p. 3; see also Anderson et al. 1993, p. 5, referring to Christopher 1982; Forbis and Mehta 1981). The bigger the distance between a customer's willingness-to-pay and the supplier's price for the offering, the better it is for the customer. Consequently, customers choose the exchange partner's offering which provides the highest customer surplus. In the rare case of a monopoly supplier, the price the customer actually pays would equal the price the customer is prepared to pay. Yet, outside a monopoly, suppliers aim at setting prices just below a customer's willingness-to-pay (Bowman and Ambrosini 2000, pp. 3). Thereby, an increased perceived value of an offering leads to a higher willingness-to-pay of the customer and enables a supplier to increase prices without reducing the customer's surplus (Anderson and Wynstra 2010, pp. 30; Bowman and Ambrosini 2000, pp. 3). Accordingly, Palmatier et al. (2007) postulate that perceived value has "a direct impact on selling-firm financial outcomes, especially in B-to-B interactions in which value is often the cornerstone of purchase decisions" (p. 187, referring to Anderson and Narus 2004; for the role of customer value as a strategic driver for differentiation, see also Anderson and Narus 1998; Anderson et al. 2000; Cronin et al. 1997; Holbrook 1994; McDougall and Levesque 2000; Patterson and Spreng 1997; Varki and Colgate 2001; Woodruff 1997).

The association between the concept of willingness-to-pay and the construct of value[8] plays a key role for further analysis of the main effects of MSM. Although purchase and partnering decisions in B-to-B contexts are commonly viewed as mostly rational, various authors have highlighted the importance of decision makers' and influencers' perceptions of a transaction

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[8] Some studies distinguish between the terms of *construct* and *concept*, referring to *constructs* as *more abstract concepts* (Kuss and Eisend 2010, pp. 19, and literature cited therein). Consequently, customers' willingness-to-pay could be considered a *concept* whereas customer value—being more abstract than customers' willingness-to-pay—could be considered a *construct*. Yet, according to Kuss and Eisend (2010, p. 20) as well as the purpose of the present study, I refrain from distinguishing both terms. I use the term *construct* synonymously with the term *concept*.

or relationship with regard to their value or cost (e.g., Corsaro and Snehota 2010; Lefaix-Durand and Kozak 2010).

In its original conception, willingness-to-pay is related to the customer's perceived *use value* of a good. A customer determines its willingness-to-pay by focusing on the perceived use value of a given offering (Bowman and Ambrosini 2000, pp. 2; see also Reuter 1986; Wind 1990). "Use value refers to the specific qualities of the product perceived by customers in relation to their needs.… So judgements about use value are subjective, they pertain to the individual consumer" (Bowman and Ambrosini 2000, p. 2). The consumer's perceived use value results from a trade-off between benefit dimensions such as the quality or durability of a product, and cost dimensions such as lower cost of ownership (Wouters et al. 2005; Zeithaml 1988). Similar cognitive processes and eventual biases (Bazerman 2002) can be assumed for purchasing agents in a B-to-B context. They can be expected to also apply valuation trade-offs in order to make sourcing decisions and to evaluate the use value of important components for their own companies' products (Dwyer and Tanner 2009, pp. 74). Hence, also researchers apply trade-off methods such as conjoint analysis or incentive-aligned lottery methods in order to elicit customers' willingness-to-pay for a given offering (for an overview, see Miller et al. 2011). I will follow this approach and use a limit conjoint analysis to measure willingness-to-pay in my later empirical study (see section 4.2).

Yet classical customer value research can be regarded transaction-specific and neglects the importance of relational dimensions. Later literature streams on value fill this void (e.g., Ravald and Grönroos 1996; Ulaga and Eggert 2006a, 2006b). They define additional sources for value creation and extend the concept of customer (use) value with a more complete proposition of *relationship value*.

> Many suppliers … face a growing trend towards commoditization of products (Rangan and Bowman, 1992) and search for new ways of differentiating themselves through improved customer interactions (Vandenbosch and Dawar, 2002). As a consequence, suppliers also need to understand how they can create and deliver value in business-to-business relationships beyond merely selling products. (Ulaga and Eggert 2006a, p. 312, and literature cited therein)

Based on Bhide (1986), Day and Wensley (1988, pp. 1) report that they recognize that "where new services are easily imitated, cost of funds is the same, and entry is easy … the emphasis is on the quality of customer relationships." Ulaga and Eggert (2006b) describe "avenues" for differentiation and refer to relationship value instead of merely (customer) value as does prevalent marketing literature. "[The] value of a business relationship is a multidimensional concept that reaches beyond the price versus quality trade-off that is prevalent in consumer research (Gassenheimer et al. 1998)" (Ulaga and Eggert 2006b, p. 120, and literature cited therein).

Customer-perceived value of a relationship can be defined as

> the trade-off between the benefits and the costs perceived in the supplier's core offering, in the sourcing process, and at the level of a customer's operations, taking into consideration the available alternative supplier relationships. (Ulaga and Eggert 2006b, p. 128)

As can be seen from the definition and supporting empirical work (e.g., Cannon and Homburg 2001), relationship value consists of various benefit and sacrifice dimensions (see section 3.2.1.2), which add up to an overall value judgment by the evaluator. In this context, Anderson and Wynstra (2010, p. 32, referring to Anderson et al. 2009) point out that "price is not a part of value." In case a firm is interested in its customers' willingness-to-pay under various circumstances, the sacrifice component "price" is taken out of the customers' overall relationship value perception. One would expect that this "value-without-price perception" is highly predictive for what a customer is prepared to pay (Anderson and Wynstra 2010, pp. 31, and literature cited therein).

Centering on its conceptualization and definition (see section 2.1.2), it is obvious that MSM aims to create a non-accidental sequence of transactions and therefore stable customer relationships rather than a single transaction (Kleinaltenkamp and Ehret 2006). Accordingly, I explicitly focus on relationship value instead of merely perceived customer or use value in the present study. Building on its defined value creation potential (see definition of MSM in section 2.1.2.2), I assume that MSM affects direct customers' willingness-to-pay by affecting relationship value. In general, one can expect that the perceived value of an offering

positively influences the corresponding willingness-to-pay (e.g., Bowman and Ambrosini 2000, pp. 2). Moreover, extant results from pricing research in both B-to-C and B-to-B have shown that customers' value and price perceptions as well as their willingness-to-pay are dependent on their environment and context (e.g., Homburg et al. 2005; Hutton 1997; Kalra and Goodstein 1998). It is therefore reasonable to assume, that they are capable of being influenced by marketing and sales-related activities of a supplier. Such activities can include various pricing schemes as well as a large variety of communication and advertising efforts (e.g., Kalra and Goodstein 1998; Rao and Syam 2001). As I will show, I expect three different types of MSM to display differentiated effects on the direct customers' willingness-to-pay by affecting direct customers' perceived relationship value in a differentiated manner. My analysis of the effect mechanisms between MSM and direct customers' willingness-to-pay (through relationship value) is the subject of section 3.2.

2.2.2 Additional effects

I suppose that MSM not only affects the cognitive construct of direct customers' willingness-to-pay. Two additional constructs are relevant to this study as potential effects of MSM. In the following two sections I present the affective construct of customer satisfaction (section 2.2.2.1) and the behavioral construct of customer loyalty (section 2.2.2.2).

2.2.2.1 Customer satisfaction

Customer satisfaction is a post-decision experience construct (Caruana et al. 2000, p. 1342, referring to LaTour and Peat 1979), which—building on its emotional component—can be regarded an affective variable (Lam et al. 2004, p. 295, and literature cited therein). Yet it contains cognitive as well as affective elements (Homburg et al. 2005, p. 85, referring to Oliver 1997). As manifested in the underlying expectancy/disconfirmation paradigm (Oliver 1980), customers' satisfaction or dissatisfaction results directly from expectations and perceptions of a product or service performance. In addition, these cognitive processes contribute to a positive or negative affect, which in turn results in customer satisfaction or dissatisfaction (Homburg et al. 2005, p. 85, and literature cited therein). Accordingly, Bolton and Drew (1991, pp. 375, and literature cited therein) suggest that customers' satisfaction or dissatisfaction results directly from expectations and perceptions of performance as "a function of the disconfirmation arising from discrepancy between prior expectations and

actual performance" (Bolton and Drew 1991, p. 375). Hence, "it is the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer's prior feelings about the consumption experience" (Oliver 1981, p. 27). Translated into a B-to-B context and including relational aspects, customer satisfaction can be be defined as

> a positive affective state resulting from the appraisal of all aspects of a firm's working relationship with another firm. (Lam et al. 2004, p. 295, referring to Geyskens et al. 1999)

Thereby, including dynamic aspects, customer satisfaction can be considered at a transaction or encounter level as well as on a cumulative level of a customer's overall satisfaction with a product or service provider (Caruana et al. 2000, p. 1342, referring to Bitner and Hubbert 1994; see also Homburg et al. 2005, p. 85; Lam et al. 2004, p. 295, and literature cited therein).

In line with Homburg et al. (2005), I concentrate "on satisfaction with "performance," which is a postconsumption evaluation of perceived quality relative to prepurchase performance expectations about quality" (Homburg et al. 2005, p. 85, and literature cited therein). This indicates the strong relationship between product or service quality and customer satisfaction (Caruana et al. 2000, p. 1343, and literature cited therein), which is ambiguous and controversially discussed in extant literature. "Some researchers have suggested that perceived service quality is an antecedent of customer satisfaction (Anderson and Sullivan 1993; Ravald and Grönroos 1996; de Ruyter et al. 1997). Others have adhered to the view that customer satisfaction precedes perceived service quality (Parasuraman et al. 1988; Bolton and Drew 1991; Patterson and Johnson 1993)" (Tam 2004, p. 900). According to Teas (1993), the different causal assumptions can be explained by the definition and operationalization of the quality construct. Teas (1993, p. 30) suggests to differ between transaction-specific quality and relationship quality. Whereas transaction-specific quality can be seen as the performance component and antecedent of transaction-specific satisfaction, latter could be argued to be a predictor of long-term relationship quality (see also Tam 2004, p. 900, referring to Oliver 1993; Parasuraman et al. 1994). Focussing on a transaction-specific perspective of customer

satisfaction, I assume perceived service quality to precede customer satisfaction. Several studies provide empirical evidence for this link (Caruana et al. 2000, p. 1343, referring to Bitner and Hubbert 1994; Cronin and Taylor 1992, 1994; de Ruyter et al. 1997; Oliver 1993; Spreng and Mackoy 1996), which becomes important for my analysis of the effect mechansims between MSM and customer satisfaction (see section 3.3.1).

2.2.2.2   Customer loyalty

According to Oliver (1999, p. 34, referring to Oliver 1997, p. 392), loyalty can be defined as "a deeply held commitment to rebuy or repatronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior." A loyal customer base contributes to a firm's profit situation, and the relative costs of customer retention appear to be substantially less than those of customer acquisition (Oliver 1999, p. 33, referring to Fornell and Wernerfelt 1987; Reichheld and Teal 1996; Reichheld and Sasser 1990). Customer loyalty leads to increased sales and customer share, lower costs, and higher prices—all in all an improved financial performance for the firm (Palmatier et al. 2007, p. 185, and literature cited therein; see also Lam et al. 2004, p. 293).

A commitment to stay in a relationship can result from two reasons: Either because people *want to* stay in a relationship or because people *have to* stay in a relationship (Kleinaltenkamp et al. 2011c, p. 61, referring to Johnson 1982; Söllner 1993, p. 101). This differentiation can be applied to business relationships as well (Kleinaltenkamp et al. 2011c, p. 61). It determines customer loyalty as a "behavior [want to *or* have to] or a disposition to behave [want to] positively toward a service provider" (Lam et al. 2004, p. 297). The actual behavior of a customer does not necessarily correspond to its intention. For example, a customer may have the intention to change its supplier, but might—due to other factors (e.g., switching costs, demands of its own customers)—be forced to be loyal and continue to buy from the same supplier (Kleinaltenkamp et al. 2011c, pp. 61; Lam et al. 2004, p. 297).

The differentiation between actual behavior and behavioral intention is crucial for my analysis of the effect mechanisms between MSM and customer loyalty (see section 3.3.2). Relevant

for my study is direct customers' loyalty regarded as a favorable behavioral intention. Consequently, building on Lam et al. (2004, p. 297), I define customer loyalty as follows:

> Customer loyalty, in its most general sense, refers to the disposition to behave [want to] positively toward a service provider.

Accordingly, I refer to loyalty understood as *repurchase intention*. It relies on the customers' perceived value of a relationship (Kleinaltenkamp et al. 2011c, pp. 59) and I expect the three types of MSM to display differentiated effects on the direct customers' repurchase intention. Yet I do not analyze the direct customers' actual behavior which might differ from their behavioral intentions to be loyal toward their suppliers (for limitations of this study, see section 6.4).

In the following section, I summarize the findings of this chapter and describe the implications for further study of the effect mechanisms between MSM and the relevant outcome variables.

2.3   Interim conclusion and implications for further study

The potential effects of MSM on direct customers' willingness-to-pay, as well as on their satisfaction and loyalty, constitute the focus of this study. I introduced the relevant outcome variables that represent the possible effect dimensions of MSM.

Earlier in this chapter, I have presented the concept of MSM, the cause variable I use in this study, and an evaluation of the existing empirical evidence and the concepts and definitions used in existing literature. My review shows, that MSM has multiple potential effects including potential volume or price effects. However, the effects are mainly described in general terms only. I have found empirical analysis of MSM effects only for specific concepts of MSM (i.e., ingredient branding, pull strategies). Similar contributions are missing for a holistic concept of MSM. This lack highlights the research deficit and supports the relevance of the present study.

In addition to demonstrating a lack of empirical evidence for MSM effects, my review also describes the many terms for and definitions of MSM. For the purpose of this study, I have

conceptualized MSM as the behavioral perspective of an extended market orientation. Building on this conceptualization, it is possible to infer a consistent definition of MSM by adopting its value creation potential along the value chain. Building on a differentiation among MSM types, the definition allows me to discuss the relevant effect mechanisms between MSM and the relevant outcome variables in the following chapter.

3 Effect mechanisms of MSM

Building on the conceptualization and definition for MSM, I can now focus on describing its effect mechanisms. A supplier's consideration of several market stages does not imply that he has the ambition to create value on each of those stages. Consequently, the possible effects of MSM do not generally apply. According to their value creation potential on different market stages, it is possible to distinguish different generic types of MSM. In section 3.1, I identify three types of MSM activities—namely *non-collaborative MSM* (measures that bypass direct customers aiming to create superior relationship value only on indirect customers' market stages), *collaborative MSM* (measures that include direct and indirect customers in the perspective aiming to create superior relationship value on all customers' market stages), and *MSM in a wider sense* (measures that include indirect customers in the perspective aiming to create superior relationship value on the direct customers' market stage). Furthermore, I present possible instruments for MSM. My consideration of potential effect mechanisms described in the relevant literature lead to my hypothesis that different types of activities have differential effects on the outcome variables. I describe the effects on direct customers' willingness-to-pay in section 3.2 and postulate corresponding hypotheses. In section 3.3, I focus on additional effects of MSM on direct customers' satisfaction and loyalty. I summarize the comprehensive model along with all of the determined causal relationships and the entire hypothesis framework relevant to the empirical analysis in section 3.4.

3.1 Generic types and instruments of MSM

MSM reflects the behavioral component of an extended market orientation. To further concretize MSM, I describe corresponding behaviors from strategic and instrumental marketing perspectives. Under the first notion, different types of MSM can be distinguished. In order to simplify the following conceptual analysis of my study, I consider a horizontal market supply chain which I restrict to three actors including a supplier, a customer, and a subsequent market stage (i.e., customer's customers).[9] A supplier can intend to create relationship value on one or all of these market stages. According to the market stage on which a supplier intends to create relationship value I can distinguish three generic types of

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[9] Further analysis in this study relies on such a simplified supply chain including three market stages, i.e., a supplier's market stage, the market stage of direct customers, and the market stage of indirect customers. Additional subsequent market stages as well as third parties will not further be considered.

MSM. The simplified supply chain and the three different types of MSM are illustrated in Figure 3-1. As I will later explain, I expect the three MSM types to display differentiated effects on the direct customers' reactions (e.g., in terms of willingness-to-pay).
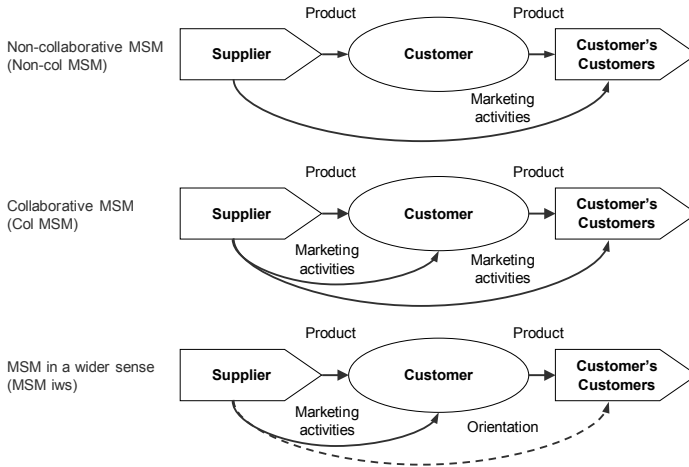
Figure 3-1:   Generic types of MSM (source: Author's illustration)

The supplier delivers its products to the direct customer. On this market stage the supplier's products are processed into the direct customer's own products and delivered to the customer's customers. The product flow is illustrated by the straight arrows and passes from one market stage to the respective next market stage. In contrast, the supplier can address its marketing activities to direct customers as well as to the customer's customers, bypassing the direct customer. The marketing activities of the supplier are illustrated by the arcuated arrows. They pose marketing and sales-related measures (see section 3.1.4) which reflect the general marketing objective of creating additional benefits for customers in order to make an—compared to competition—advantageous offer (Kleinaltenkamp et al. 2011b, p. 18). According to its definition, MSM aims to create benefits on one or several market stages (see section 2.1.2.2). Centering on the proposition of relationship value, benefits for customers can be created on three levels including the core offering, the sourcing process, and the customer

firm's internal operations (Ulaga and Eggert 2006b, p. 128; see also section 2.2.1). Depending on the market stage on which a firm aims to create superior relationship value, I analyze three strategic alternatives in sections 3.1.1 to 3.1.3. I describe the marketing and sales-related measures relevant to an instrumental perspective of MSM in section 3.1.4.

3.1.1   Non-collaborative MSM

A *non-collaborative MSM strategy* encompasses measures directed at indirect customers, bypassing direct customers. Companies that use this strategy neither involve nor consider direct customers when deploying MSM activities. Such activities aim to create superior relationship value only for subsequent market stages. Thus, I define non-collaborative MSM as follows:

> **Non-collaborative multi-stage marketing** targets direct customers' subsequent market stages to create superior relationship value—without considering the direct customers and their needs. The aim is to adapt marketing and sales-related activities to customers' customers only.

The aim of non-collaborative MSM is to create a pull effect. The demand on the direct customers' market stage is derived from subsequent market stages and intended to be increased by influencing indirect customers—more specifically, that a supplier induces its indirect customers to request or force the direct customers to use components of the supplier instead of a competitor (e.g., Webster 1991, p. 221; for further information on pull strategies, see section 2.1.1.4; for a differentiation between MSM and pull strategies, see section 2.1.1.6.2).

An example for non-collaborative MSM can be given for the industry of drive and control technologies for industrial machinery equipment. A supplier of automation technology (e.g., Bosch-Rexroth) might deliver its components to a factory equipment supplier (e.g., Krones), which in turn delivers its machines (including the automation components) to a bottling company (e.g., SAB Miller). In case of non-collaborative MSM, Bosch-Rexroth may approach SAB Miller (in the present example the indirect customer of Bosch-Rexroth) and suggest requesting Krones (in the present example the direct customer of Bosch-Rexroth) to

only use the automation technology of Bosch-Rexroth, which is faster but also more expensive than comparable components of other automation technology suppliers. SAB Miller could even intend to force Krones by threaten not to buy the factory equipment from Krones in case that Krones does not use control units provided by Bosch-Rexroth. For Krones this can have negative consequences including extra costs or ending relationships with automation suppliers other than Bosch-Rexroth. Yet the non-collaborative MSM measures' success depends on the attitudes and the power structure within the supply chain: This approach is likely to succeed only if the intermediate market stage (Krones in the given example) does not have a powerful market position (Rudolph 1989, pp. 196; for the relevance of the power structure within a supply chain in the context of MSM, see also section 3.2.3.2).

3.1.2   Collaborative MSM

MSM that focuses on direct and indirect customers is *collaborative MSM*. The ultimate goal is to create superior relationship value for indirect customers but the strategy also includes direct customers in its perspective. Companies inform direct customers about all activities at each market stage and, therefore, enable them to influence or take part in these activities as they see fit. I define collaborative MSM as follows:

> **Collaborative multi-stage marketing** targets indirect customers' market stages to create superior relationship value, yet firms still consider direct customers and their needs. The aim is to adapt marketing and sales-related activities to the wishes of the customers while creating superior relationship value at all market stages of the value chain.

Consequently, the intention is to create superior relationship value and competitive advantages for firms at every market stage (Kleinaltenkamp et al. 2012, p. 146). Marketing and sales-related activities addressed to indirect customers may create a pull effect and also lead to superior relationship value for direct customers. Direct customers' attitudes toward MSM activities in this approach should be positive.

An example for collaborative MSM can be given for the aviation industry. A supplier of aircraft seats (e.g., Recaro) might deliver its seats to an OEM (e.g., Airbus), which in turn

delivers its airplanes (including the seats) to an airline (e.g., Lufthansa). In case of collaborative MSM, Recaro may approach both Airbus (in the present example the direct customer of Recaro) and Lufthansa (in the present example the indirect customer of Recaro) and suggest using a newly developed series of airplane seats which are slimmer and lighter but also more expensive than older seat versions. For Lufthansa, slimmer airplane seats imply the possibility to fit additional passenger rows in a cabin without reducing passengers' leg room and consequently the comfort offered to the end users. Additionally, ligther airplane seats imply the possibility to reduce fuel consumption. For Airbus, the modern series of aircraft seats imply the possibility to offer more attractive as well as economically and ecologically friendly planes to customer airlines.

3.1.3   MSM in a wider sense

A *MSM strategy in a wider sense* aims at creating superior relationship value on the direct customers' market stage. According to the customer-focused approach of Day and Wensley (1988), it focuses on "detailed analyses of customer benefits within end-use segments and work backward [along the value chain] from the customer to the company" (p. 1). This is in line with the previously demonstrated requirement that "a seller must understand not only the cost and revenue dynamics of its immediate target buyer firms, but also the cost and revenue dynamics facing the buyers' buyers, from whose demand the demand in the immediate market is derived. Hence, a seller must understand the economic and political constraints at all levels in the channel" (Narver and Slater 1990, p. 21; see also section 2.1.1.1) in order to be market-oriented. MSM in a wider sense involves customers' customers in a firm's marketing perspective (Günter 1997, p. 214). The increased market orientation of the company leads to a superior relationship value for the direct customers (Hillebrand and Biemans 2011, p. 72). Whereas a firm's measures are directed only toward direct customers, the firm considers indirect customers as well. MSM in a wider sense corresponds to Vedel et al.'s (2012, p. 7) "Level 1" of MSM, namely "multi-stage awareness" (see sections 2.1.1.5 and 2.1.1.6.2). I define MSM in a wider sense as follows:

> **Multi-stage marketing in a wider sense** targets the direct customers' market stage to create superior relationship value but also considers the customers' customers and their needs. The aim is to adapt the marketing and sales-related activities to the wishes

of the customers while creating superior relationship value with an increased market orientation.

Most of the marketing activities of the classical marketing mix (4 Ps) are relevant for MSM in a wider sense. These measures address direct customers. The difference between MSM in a wider sense and traditional marketing is that activities rely on an overall MSM strategy that includes all subsequent market stages in its perspective (Kleinaltenkamp et al. 2012, p. 146 and p. 170).

An example for MSM in a wider sense can be given for the chemical and pharmaceutical industry. A supplier of high technology glass containers such as syringes, phials, and test tubes (e.g., Schott) might deliver its glass products to a chemical company (e.g., Henkel), which in turn delivers its chemical consumer goods such as cosmetics and detergents to retailers or end users. Thereby, Henkel faces highest quality and security standards from customers as well as regulatory authorities. In case of MSM in a wider sense, Schott may anticipate the needs of Henkel (in the present example the direct customer of Schott) and provide additional value by establishing a rigorous quality management function and integrating it into its key account management.

The following section turns the topic from a strategic to an instrumental perspective of MSM, including concrete measures.

3.1.4 MSM instruments

Within the scope of an instrumental perspective, the focus of this section is on concrete marketing and sales-related measures relevant to MSM. As I mentioned in section 2.1.2.1, an extended market orientation is *the generation, organizationwide dissemination, and responsiveness to intelligence about direct and downstream customers* (definition based on Hillebrand and Biemans 2011, p. 73). It is reasonable to distinguish possible MSM measures according to this definition. The generation of intelligence about downstream customers and its dissemination is part of marketing research (Kuss and Kleinaltenkamp 2011, pp. 14). As Kuss and Kleinaltenkamp (2011, p. 14; see also Burns and Bush 2006, p. 8) explain, a market orientation requires an extensive and powerful system of collection and preparation of market

information to guide marketing decisions. Marketing research has a central role in companies' adaptation to as well as its influence on market conditions. As such, marketing research provides all necessary measures to collect, prepare, analyze, and interpret information about markets (i.e., customers and competitors) (Homburg 2012, p. 242, referring to Böhler 1995, 2004).

In contrast, responsiveness to intelligence about downstream customers refers to the implementation of marketing decisions (Kuss and Kleinaltenkamp 2011, p. 15). A *MSM mix* reflects the corresponding measures. Engelhardt (2001, p. 1114) points out that the main instruments within a MSM concept include an individualized product policy, branding for the purpose of improved identification (e.g., ingredient branding), accessory services, and a communication policy. Within the scope of necessary planning steps of a MSM strategy, Kleinaltenkamp et al. (2012) provide structured information on how to design a MSM mix. The most relevant instruments are product and communication policies. In the context of *product decisions*, Kleinaltenkamp et al. (2012, pp. 166) emphasize the following aspects:

▪ A product design targeting multi-stage markets must be developed with all necessary market stages in mind. Cooperations with downstream market stages to develop new products or improve existing products according to the requirements of several market stages are common.

▪ Offering additional services is often the only way to differentiate among homogeneous goods. These services have an important role in MSM. The following are examples of such additional services (Kleinaltenkamp et al. 2012, p. 166, referring to van Leer 1976):

  - Assistance with sales
  - Technical application service
  - Consulting on product design
  - Consulting on new technical developments
  - Development of processing procedures
  - Warranty services
  - Assistance with advertising measures

- Providing information on primary and derived products, demand developments, and other items
- Making contact with potential customers
- Cost and profitability analyses
- Staff training
- Technical services for customers

▪ The more complex a primary product (e.g., owing to special properties, processing regulations, possibilities for use), the more necessary it is to offer consulting services at various processing stages.
▪ When primary products change the buyer's way of operating, additional services become particularly important to support and reinforce product use. Consequently, it is relevant to select the right service partners for the relevant market stages (e.g., firms with a large market share, innovative firms).
▪ A brand-name policy can be relevant to ensure the identifiability of entering goods (e.g., components, raw materials) on downstream market stages.

Regarding *communication decisions*, Kleinaltenkamp et al. (2012, pp. 167) emphasize the following aspects:

▪ Advertising in the context of MSM might "leapfrog" immediate customers.[10] If so, this is *springboard advertising* (Becker 1988, p. 506; Engelhardt and Günter 1981, p. 220; Kreutzer 2010, pp. 326; see also section 2.1.2). The aim is to "pre-sell" primary products on downstream market stages and consequently exerting some influence on intermediate market stages while supporting (pushing) sales efforts. Therefore, it is important to find messages that are relevant for different market stages (Kleinaltenkamp and Rudolph 2002, p. 311). A significant difficulty in designing the advertisement is that entering goods in later processing stages may be invisible. Accountability, in either success or failure, is critical in a MSM advertising campaign as well.
▪ As in B-to-B markets, *personal selling* is also important for MSM (e.g., for new product introductions). Orders placed by downstream customers and solicited through primary

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[10] As I show, advertising can address direct customers only and still be part of a MSM strategy. Springboard advertisement (leapfrogging direct customers) is only one of several possible marketing activities.

product suppliers can have a "door-opening" function on the direct customers' market stage.

▪ Promotional measures (e.g., fairs and exhibitions, sales training, advertising support) can be an important part of a MSM plan. Firms can direct them at immediate, indirect, or both market stages simultaneously.

The study Kleinaltenkamp et al. (2011a) performed (for a description, see section 1.1) provides various insights about the instruments companies use when applying MSM. First, the prominent ingredient branding has less relevance for companies in B-to-B markets than in consumer markets. According to the study, the most important instruments in MSM strategies are personal selling (63%) and strong customer service (49%). Other important instruments include classical advertising, brochures, and exhibitions (Kleinaltenkamp et al. 2011a, p. 44). Second, in addition to product and communication decisions, *contract arrangements* among several market stages provide an important source of MSM measures. Such contracts can relate to any of the previously mentioned marketing instruments, and they can include additional services that help shape the branding policy along the value chain (Kleinaltenkamp et al. 2012, p. 168). In contrast, price and place decisions have a minor role in MSM. The selection of distribution channels (direct or indirect distribution) determines the relevance of MSM and provides the basis for its application. Indirect distribution converts downstream customers into immediate customers, making MSM unnecessary. Also multi-stage pricing policies can be difficult to apply. There might be too many processing steps involved and it is important to consider the legal aspects of resale price maintenance (Kleinaltenkamp et al. 2012, p. 165).

Another relevant stage of defining a MSM strategy and corresponding instruments is deciding whether to carry out the activities individually or in cooperation—vertically, horizontally, or a combination of these. One of the main reasons for choosing cooperation involves satisfying the requirements of MSM—for example, gathering the necessary marketing know-how or covering the costs of pursuing MSM. Another reason for cooperation is to avoid a failure of the pull effect or—even more urgent—to avoid benefitting the competition. In this case, cooperation with other suppliers on the same market stage can be sensible from the beginning (Kleinaltenkamp et al. 2012, p. 164; see also section 2.1.1.5).

From this perspective, one can consider vertical marketing to be part of MSM, rather than the other way around (see an examination of different perspectives in section 2.1.1.6.2). Vertical marketing is the cooperation between a manufacturer and distributors of its products to coordinate a marketing mix (e.g., Eggert et al. 2009; Wuyts et al. 2004; see also section 2.1.1.3). Yet it represents only one of various possible forms of cooperation in the context of an instrumental perspective of MSM. It is also possible to conduct MSM without any cooperation (Kleinaltenkamp et al. 2012, p. 164). Consequently, I understand that vertical marketing can be a useful instrument in the context of MSM. A detailed discussion of the effects resulting from different types of MSM is the subject of the following section.

3.2   MSM and WTP

In this section, I analyze the potential effects of MSM on direct customers' willingness-to-pay. These effects represent the *main effects* relevant to this study. As I have shown (see section 2.2.1), the perception of relationship value can be regarded as highly predictive for what a customer is prepared to pay (e.g., Anderson and Wynstra 2010, pp. 31). Furthermore, customers' value and price perceptions as well as their willingness-to-pay are dependent on their environment and context and therefore capable of being influenced by marketing and sales-related activities of a supplier (Homburg et al. 2005; Hutton 1997; Kalra and Goodstein 1998; Rao and Syam 2001, and literature cited therein). Consequently—building on its defined value creation potential—MSM should affect direct customers' willingness-to-pay by affecting relationship value. First, I focus on the definitional association between MSM and the concept of value (section 3.2.1). These findings allow me to draw implications about the relevance of MSM for direct customers' willingness-to-pay. I specify the effect mechanisms between different types of MSM and direct customers' willingness-to-pay through their potential to create superior relationship value on different market stages (section 3.2.2). Other constructs might influence the relationship between MSM and direct customers' willingness-to-pay. This supports my analysis of *moderating effects*. I introduce potential moderator variables and include them in the effect model and hypothesis framework (section 3.2.3).

3.2.1   Effects of MSM on WTP through the concept of value

Before focusing on the relationship between MSM and direct customers' willingness-to-pay, it is necessary to concretize the definitional association between MSM and the concept of value. I defined MSM to create value on one or several market stages of a supply chain (see section 2.1.2.2). The definition is supported by the fact that constructs similar to MSM create value as well. Previous literature extensively emphasizes the relevance of market orientation (e.g., Hillebrand and Biemans 2011) as well as the application of concrete measures (e.g., O'Cass and Ngo 2012) in order to create value. Consequently, one can assume that MSM—conceptualized as the behavioral component of an extended market orientation—has potential for value creation as well. First, I review extant literature to determine the general relevance of market orientation and concrete measures for creating value (section 3.2.1.1). Extending the view to the newer concept of relationship value, I analyze the potential of MSM to create relationship value on different levels and dimensions of value creation (section 3.2.1.2). This forms the basis of my analysis of the relationship between different MSM types and direct customers' willingness-to-pay (section 3.2.2).

3.2.1.1   MSM related constructs creating value

Literature on market orientation pays close attention to its relevance for the creation of superior value. Several studies suggest that market orientation is a strong driver of value (e.g., Jaworski and Kohli 1993; Narver and Slater 1990; Slater and Narver 1994; see also section 2.1.1.1). In an empirical study, Flint et al. (2011) examine the importance of market orientation to focus on changing customer needs (see also Jaworski and Kohli 1993; Matsuno and Mentzer 2000; Siguaw et al. 1998). "Yet merely knowing what customers currently value is clearly not enough because what they value changes" (Flint et al. 2011, p. 219, referring to Flint et al. 2002). Based on recent extensions of market orientation—namely proactive market orientation (Narver et al. 2004)—Flint et al. (2011) propose incorporating the customer value anticipation construct. Flint et al. (2011, p. 219) explain,

> customer value anticipation refers to a supplier's ability to look ahead at what specific customers will value from supplier relationships including their product and service offerings and the benefits they create given the monetary and non-monetary sacrifices that must be made to obtain those offering benefits. From the supplier's perspective, it

involves both the processes for anticipating as well as the outcome predictions of product and service offerings that would most likely facilitate value creation by customers.

This implies that a proactive market orientation is important for creating superior value. Based on a qualitative inquiry, Blocker et al. (2011, p. 220) indicate "that both proactive and responsive customer orientation positively affect customer value perceptions [in a global B-to-B context]." A cross-national quantitative analysis performed by Blocker et al. (2011, p. 225) confirms this assumption; the obtained results show an increased explanatory power applying not merely responsive but also proactive customer orientation. "Both capabilities are critical factors and … proactive customer orientation offers a significant and differential contribution to value creation" (Blocker et al. 2011, p. 226). Furthermore, responsive and proactive customer orientation work in tandem; their interaction (proactive × responsive customer orientation) shows a positive effect on customers' perception of value creation (Blocker et al. 2011, p. 226).

Yet to realize its value creation potential, it is important to specify market orientation through concrete measures (O'Cass and Ngo 2012, p. 125). O'Cass and Ngo (2012) clearly describe how firms' capabilities must align with market orientation for firms to create superior value. "Given that a market-oriented firm places its emphasis on understanding the needs of its customers (Jaworski and Kohli 1993, Slater and Narver 1999), it needs to also possess capabilities to fulfill identified needs" (O'Cass and Ngo 2012, p. 127). O'Cass and Ngo identify "marketing" and "product innovation" as the main capabilities to create value in terms of superior product performance, relationship value, or co-creation value (through working to co-create the product) (O'Cass and Ngo 2012, p. 126, and literature cited therein; for a classification of value dimensions relevant to this study, see sections 2.2.1 and 3.2.1.2). According to O'Cass and Ngo (2012), designing a value offering according to customers' expectations provides suppliers with potential positional advantages. "Firms need to understand customer expectations and transform these expectations into a bundle of value deliverables in the form of product advantage (product performance value) and relational advantage (relationship and co-creation value)" (O'Cass and Ngo 2012, p. 126).

MSM embodies the relevance of market orientation as well as concrete measures that create value. MSM measures are applicable on direct as well as indirect market stages (see sections 2.1.2 and 3.1). This allows me to draw early conclusions about the value creation potential of MSM as underpinned by traditional market orientation research. Narver and Slater (1990, p. 21, and literature cited therein) state that "market orientation is the organization culture … that most effectively and efficiently creates the necessary behaviors for the creation of superior value for buyers.…" Furthermore, Slater and Narver (1994, p. 22) state, "The heart of a market orientation is its customer focus. To create superior value for buyers continuously requires that a seller understand a buyer's entire value chain, not only as it is today but also as it evolves over time."

Slater and Narver (1994, p. 22) stress the importance of considering direct as well as downstream customers to create value. They also mention the importance of considering current as well as future customer needs. Narver and Slater (1990, p. 21) bring both aspects together and emphasize that an extended market orientation toward downstream customers is essential to understand what customers may want in the future. Consequently, the concept of MSM supports the concept of value anticipation. MSM provides necessary measures for an extended market orientation, including downstream customers, to ensure responsiveness to the generated market intelligence about direct and downstream customers. Hence, MSM provides the capability for a proactive market orientation also. Including indirect customers in the market orientation is an important antecedent of an efficient and effective proactive market orientation that—based on Flint et al. (2011, p. 219; see also Blocker et al. 2011)—represents a necessary approach to creating value for direct customers. Figure 3-2 illustrates the relationship between different concepts of market orientation and MSM, as well as its relevance in creating value.
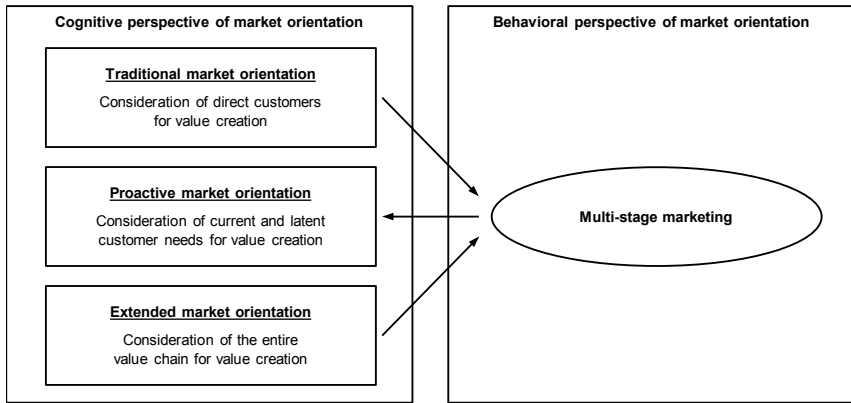
Figure 3-2:   MSM and different concepts of market orientation (source: Author's illustration)

The well-established links between the concepts of market orientation and value as well as corresponding measures underpin the definition of MSM including its value creation potential on various market stages of a supply chain. However, later propositions on relationship value extended the value construct (e.g., Ulaga and Eggert 2006a, 2006b). To further analyze the relevance of MSM, it is thus reasonable to extend the analysis and include the current perspective of relationship value. This is the subject of the following section.

3.2.1.2   MSM creating relationship value

Building on the description and definition of relationship value (see section 2.2.1) it is now possible to concretize the definitional association between MSM and the concept of value and to anlyze how MSM creates relationship value. It is reasonable to base this analysis on the differentiation among various levels of value creation. Ulaga and Eggert (2006b) suggest nine key differentiators on two fundamental value-creating dimensions (benefits and costs) and among the levels of suppliers' core offerings, sourcing processes, and customer operations. The authors have developed items for each of the differentiators to define an overall index of relationship value. Table 3-1 summarizes all of the potential benefits and cost drivers as well as their corresponding levels of value creation.

Dimension of value creation	Level of value creation		
	Core offering	**Sourcing process**	**Customer operation**
Benefits	**Product quality** - Performance - Reliability - Consistency over time	**Service support** - Responsiveness - Information management - Outsourcing of activities	**Specific know-how** - Vendor's deep knowledge of the supply market - Prior experience with customer operations and products - Early involvement in new product development
	Delivery performance - On time delivery - Delivery flexibility - Accuracy of delivery	**Personal interaction** - Knowing the supplier's key contact personnel - Getting along well with the vendor's representatives - Involving a supplier's top management	**Time to market** - Accelerating design work - Developing prototypes faster - Speeding up testing and validation process
Costs	**Product costs** - Average market price - Fair market price - Reasonable market price	**Acquisition costs** - Inventory costs - Order handling costs - Incoming product inspection costs	**Operation costs** - Product costs - Manufacturing process costs - Tooling and warranty costs

Table 3-1:   Three levels and two dimensions of value creation (source: Based on Ulaga and Eggert 2006b)

Ulaga and Eggert (2006b) provide empirical measurements and managerial guidelines regarding each value driver's potential to create relationship value. All of the value drivers they describe help create relationship value, with some variation among the various value drivers. Relationship benefits have a four-times stronger potential to demonstrate differentiation than do cost considerations (Ulaga and Eggert 2006b, p. 131). In the following sections, I analyze the potential of MSM to create relationship value on different levels and dimensions of value creation.

3.2.1.2.1 Core offering

Ulaga and Eggert's (2006b, p. 133) discoveries "suggest that the core product and its price become less important differentiators in customer–supplier relationships." On the level of individual value drivers (Ulaga and Eggert 2006b, pp. 131), core offer benefits and direct product costs display only a small potential for differentiation, explaining only 8% and 3% of the observed variance. Because it is important to consider that the results may vary in the case of repetitively used items and capital goods (Ulaga and Eggert 2006b, p. 133, referring to Noordewier et al. 1990), it is still reasonable to determine the potential influence of MSM on a supplier's core offering. As I describe in detail in section 3.3.1.2, MSM should have a

significant influence on customers' perceived quality of a supplier's core offering (i.e., goods or services)[11]. Centering on product decisions of a MSM mix and—more specifically—on the product design (for further information on MSM instruments and the design of a MSM mix, see section 3.1.4), MSM enables suppliers to consider and respond to the requirements of the entire value chain and not merely to those of direct customers. Accordingly, a product or service design might fulfill higher requirements in terms of product quality (e.g., performance, reliability, or consistency over time) or product costs (e.g., lower market price) and consequently deliver higher value to customers (Ulaga and Eggert 2006b, pp. 123).

A supplier might also be able to improve its delivery performance when applying MSM. Market intelligence about downstream customers enables suppliers to define processes that better meet the requirements not only of indirect but also of immediate customers. For example, a company that understands its direct customers' needs to supply its own customers just in time, will consistently try to improve its processes according to this knowledge. This can include improvements to delivery time, flexibility, and accuracy, which are relevant aspects of delivery performance (Ulaga and Eggert 2006b, p. 123).

3.2.1.2.2   Sourcing process

According to Ulaga and Eggert's (2006b) study, the benefit components of the sourcing process have the highest differentiating potential and influence on relationship value. They identify service support and personal interaction as core differentiators that represent 52% of the observed variance. In contrast, corresponding acquisition costs represent only 7% of the observed variance (Ulaga and Eggert 2006b, pp. 131). MSM should have a significant influence on service support and personal interaction. Again, focusing on product decisions of a MSM mix, several MSM instruments aim precisely at these value drivers (see section 3.1.4). Building on an extended market orientation, additional services improve a company's service support in terms of responsiveness, information management, and outsourcing of activities. Improving product or service designs or further services can help reduce acquisition costs. In

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[11]   In accordance with Blocker et al. (2011, p. 221), the present study uses *core offering* to refer to a company's main products or services. It also uses the term *products and services* synonymously with the term *goods and services*. Furthermore, the present study uses the term *products* standing alone synonymously with *core offering*.

contrast, special services enable extended personal interaction, which in turn becomes enriched because of higher supplier market intelligence (Ulaga and Eggert 2006b, pp. 124).

3.2.1.2.3 Customer operation

Ulaga and Eggert's (2006b) study reveals that a supplier's specific know-how and ability to improve customers' time to market follow core differentiators (i.e., service support and personal interaction; see previous paragraph), making up 21% of the observed variance. Operation costs explain the 10% variance (Ulaga and Eggert 2006b, pp. 131). Because it has a similar approach, MSM also has a strong influence on the level of individual value drivers related to customer operations. One of MSM's central ideas is to extend a supplier's market orientation and consequently its market intelligence. This corresponds to increased specific know-how reflected in a vendor's deep knowledge of the supply market, a supplier's experience with customer operations and products, as well as an early involvement in new product developments. Increased know-how or market intelligence further enables a supplier to reduce customers' time to market as the supplier considers the requirements of the entire value chain to create a design for products and innovations. By following a MSM approach, the supplier can accelerate design work while possibly reducing corresponding operation costs (Ulaga and Eggert 2006b, pp. 126).

Finally, "offering value through personal interaction and service, access to know-how, and increased time to market has become important in securing a key supplier position potential" (Ulaga and Eggert 2006b, p. 133). In this context MSM has an important role that should be relevant for several individual value drivers. Yet depending on the type, MSM can operate on and affect different market stages.

I concretized the definitional association between MSM and the concept of value and described how MSM creates relationship value on various levels and dimensions. Building on these findings, the focus turns to MSM's potential to increase willingness-to-pay on the direct customers' market stage. I analyze the relationship between different types of MSM and direct customers' willingness-to-pay in the following section.

3.2.2   MSM types creating WTP

Relationship value can be regarded as highly predictive of what a customer is prepared to pay (e.g., Anderson and Wynstra 2010, pp. 31). It can therefore be considered to mediate the relationship between MSM and willingness-to-pay with a positive relationship between a customers' perception of relationship value and its willingness-to-pay (see section 2.2.1). Assuming that MSM impacts direct customers' perception of relationship value, MSM should translate into changes of direct customers' willingness-to-pay levels.

Extant results confirm this assumption, as MSM related constructs impact willingness-to-pay levels as well: Satisfaction with the good or service (Homburg et al. 2005), the reduction of uncertainty (Okada 2010), and additional communication and advertising efforts (Kalra and Goodstein 1998) all positively influence willingness-to-pay levels. MSM addresses these constructs, both on the direct customer level as well as on the final end-consumer level.

Thereby, it is quite likely, that the three different types of MSM display differentiated effects on the direct customers' perception of relationship value. *Non-collaborative MSM* aims to create superior relationship value on indirect customers' market stages. In this case, the supplier leapfrogs its direct customers and approaches the indirect customers with additional marketing and sales-related measures. The supplier's intention is to induce indirect customers to demand the direct customers to use components of the supplier instead of a competitor (pull effect; e.g., Webster 1991, p. 221). Such an influence attempt might be successful. However, from the direct customer's point of view, the influence attempt might be against the direct customer's own will. Creating a demand pull of the indirect customers forces the direct customer into a relationship with the supplier. For the direct customer this can have negative consequences including a decreased flexibility of his sourcing process and operations, purchase price disadvantages, extra costs, and ending relationships with other suppliers (Kleinaltenkamp et al. 2012, pp. 148; Kleinaltenkamp 2006, pp. 357). Non-collaborative MSM ignores or even reduces the perceived relationship value of the direct customers. Hence, it decreases the direct customers' willingness-to-pay.

The assumed effects and effect directions find support from behavioral research on willingness-to-pay antecedents, of which some can be considered MSM related constructs:

Non-collaborative MSM would likely create a sense of mistrust and foreign control at the direct customers' market stage, thus increasing uncertainty and decreasing satisfaction, and ultimately decreasing willingness-to-pay levels of the direct customers (Homburg et al. 2005; Okada 2010). Thus, I postulate the following:

H_{1a}:   *Applying non-collaborative multi-stage marketing decreases direct customers'*
             willingness-to-pay.

Collaborative MSM, in contrast, aims to create superior relationship value on both direct and indirect customers' market stages. In this case, the supplier approaches the buyer's entire value chain with additional marketing and sales-related measures. The supplier's intention is to create competitive advantages for firms on every market stage (Kleinaltenkamp et al. 2012, p. 146).

Several effects are likely to result from collaborative MSM. The marketing and sales-related activities address indirect customers and can create a pull effect on the direct customers' market stage. However, under collaborative MSM firms would adapt these bypassing activities to the wishes and needs of the direct customers and coordinate vertically with activities addressed directly to them. This results in superior relationship value on the direct customers' market stage. Suppliers can improve the attitudes of direct customers toward their activities, resulting in reduced market resistance on intermediate market stages and, consequently, in a stronger pull effect (Kleinaltenkamp et al. 2012, pp. 146 and pp. 160). This relationship contributes to the assumption that it is usually not reasonable for suppliers to apply exclusively multi-stage or pull activities and to exclude direct customers from their marketing perspective (Rudolph 1989, p. 38).

According to the three sources of value creation identified by Ulaga and Eggert (2006b), collaborative MSM actively aims at realizing synergies among all of the involved supply chain partners along the core offering, the sourcing process, and the different supply chain members' operations. "This is particularly so given the growing emphasis on customers creating value *with* the firms, as opposed to the firm creating value *for* customers" (O'Cass and Ngo 2012, p. 127). In a collaborative approach, all companies involved do so voluntarily because they receive some kind of benefit from the arrangement. By definition, every member

of the supply chain must perceive some supplementary relationship value; otherwise collaborative MSM will not work (Kleinaltenkamp et al. 2012, pp. 146). Consequently, from the direct customer's point of view (as well as from the perspective of indirect customers, but this perspective is not of principal interest here), collaborative MSM may result in an objectively superior relationship value or in a subjectively higher perception of relationship value (i.e., a better visibility of existing benefits). Hence, it increases the direct customers' willingness-to-pay.

For MSM related constructs, collaborative MSM by the supplier realizes potential synergies among the entire value chain, which should in turn increase the direct customer's satisfaction and decrease uncertainty with the offer, both important behavioral willingness-to-pay antecedents (Homburg et al. 2005; Okada 2010). In line with Green et al.'s (2012) empirical study—who found that the performance of supply chain members can be improved by a coordinated marketing strategy in the supply chain—collaborative MSM should lead to a higher perceived relationship value and ultimately increasing willingness-to-pay levels of the direct customers. Therefore, my second central hypothesis is the following:

> H_{1b}:   *Applying collaborative multi-stage marketing increases direct customers'*
> *willingness-to-pay.*

I make a similar argument for *MSM in a wider sense*. In this case, the supplier approaches direct customers with additional marketing and sales-related measures yet does not collaborate with the indirect customers. MSM in a wider sense aims to create superior relationship value on the direct customers' market stage, which results from a supplier's increased market orientation (Hillebrand and Biemans 2011, p. 72). Although the manufacturer addresses its activities at the direct customers only, it incorporates benefits for indirect customers when designing the value offerings for direct customers. This may include considerations regarding operations and logistics as well as considerations regarding the core products and their use (Ulaga and Eggert 2006b). Corresponding to their concept of multi-stage awareness (see sections 2.1.1.5 and 2.1.1.6.2), Vedel et al. (2012, p. 7) postulate:

> As a result …, products can be supplied (through the stage-one customer) that are
> better suited to the needs of the stage-two customer. Those products, therefore,

provide the stage-two customer with more value. This, in turn, provides the supplier and the stage-one customer with an opportunity to appropriate more value through such aspects as higher prices, higher commitment, and higher sales volumes.

A superior relationship value resulting from a supplier's MSM in a wider sense and extended market orientation may or may not be noticed by the direct customers. Yet, for MSM related constructs, it is possible to assume a positive effect on the direct customers' willingness-to-pay through increasing satisfaction and decreasing uncertainty (Homburg et al. 2005; Okada 2010). However, the effect should be considered rather small. Thus, my third central hypothesis is the following:

H_{1c}:   *Applying multi-stage marketing in a wider sense increases direct customers' willingness-to-pay.*
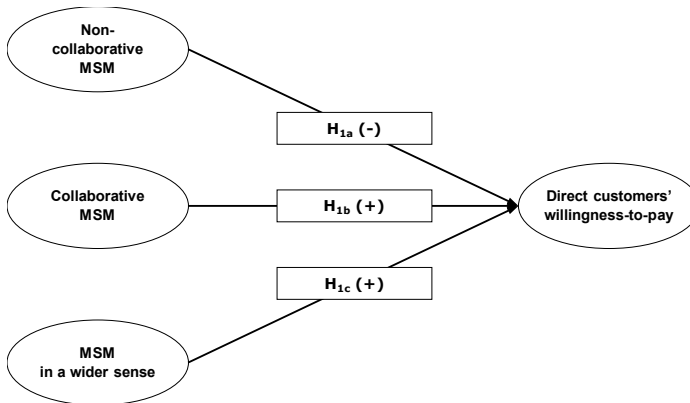
Figure 3-3:   Main effects relevant to the present study (source: Author's illustration)

Figure 3-3 illustrates the main effects and corresponding hypotheses relevant to the present study. However, the relationships among the different types of MSM and their creation of willingness-to-pay might depend on further criteria, which is the subject of the following section.

3.2.3   Influencing factors moderating the described relationships

The following sections examine the influence of two moderating factors on the relationship between MSM and direct customers' willingness-to-pay. "In general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable" (Baron and Kenny 1986, p. 1174). One potential moderator influencing the relationship between MSM and direct customers' willingness-to-pay is the importance of a manufacturer's component in the end product. The power structure within a supply chain might be a second influence on the significance of MSM. I analyze each of these aspects in the following two sections.

3.2.3.1   Component importance in the end product

In previous sections I examined the relationship between MSM and direct customers' willingness-to-pay. Other criteria might also influence this relationship. Based on practical considerations, it is useful to consider the importance of the component in the end product and its influence on the relationship between MSM and the outcome variable. Ghosh and John (2009) argue in support of this assumption. The authors ask, "When should original equipment manufacturers use branded component contracts with suppliers?" (Ghosh and John 2009, p. 597). They describe the importance of components as potential criteria for decisions about branded component contracts between suppliers and OEMs. Ghosh and John (2009, p. 604) postulate that a higher component importance might lead OEMs to consider relatively costly branded contract forms. Their empirical results do not reveal the assumed influence of component importance on contract choices. They believe a possible explanation is that the sample consists of components that are all more important (Ghosh and John 2009, p. 606). However, component importance should still be considered as relevant to customers' evaluation of the importance of marketing and sales-related measures of a supplier (i.e., MSM measures)—at least given sufficient variance (i.e., higher or lower component importance).

"Component importance analysis plays an important role in system reliability theory" (Zhang et al. 2007, p. 1). Using quantitative criteria, engineers analyze the importance of system components in order to decide where to allocate further resources in order to improve the reliability of the entire system (Xie and Shen 1990, p. 228; Zhang et al. 2007, p. 1).

"Which of the components should be judged as important, and hence to be improved at the first hand, depends on the component structural position in the system, the improvement potential of the component and also the improvement action to be taken" (Xie and Shen 1990, p. 228; see also Cepin 2011, p. 79; Liang 1998). Ghosh and John (2005) have a similar interpretation of the concept of component importance. The authors refer to the significance and criticality of a component for the functionality and overall performance of the end product (Ghosh and John 2005, p. 15 and p. 23). In the present study, I follow this approach and understand component importance as "the impact of … [a] component on the overall performance of the end product" (Ghosh and John 2005, p. 23). However, I extend the concept of component importance considering economic criteria (i.e., which economic relevance has a component for the end product and the producing company). These criteria include the costs of the component and its proportion of the total costs of the end product, the availability of the component or alternative technologies, and the availability of component suppliers as well as the producing company's dependency on these suppliers. Based on this conceptualization, I define component importance as

> the relevance of a component for the overall performance and costs of an end product as well as its relevance for the production and sourcing process of the producing company. (Definition based on Ghosh and John 2005, p. 23)

As Ulaga and Eggert (2006b, pp. 131) have shown, the benefit dimensions of the sourcing process have the highest differentiating potential and influence on relationship value. According to these authors, such value drivers include service support and personal interaction as core differentiators (see also section 3.2.1.2). It is therefore reasonable to assume, that—regarding a MSM mix (see section 3.1.4)—additional (not core offer-related) marketing and sales-related measures (e.g., additional services) represent MSM instruments with a very high relevance for the creation of relationship value. Consequently, in order to analyze the potential influence of component importance on the association between MSM and direct customers' willingness-to-pay, I center on additional MSM measures of a supplier. A supplier addresses them at direct or indirect customers' market stages in order to extend its core offering and to create further relationship value and, consequently, a stronger differentiation from competition (see section 3.2.1.2.2).

Whereas—according to Ghosh and John (2009, p. 604)—higher component importance supports the relevance of joint contracts, I assume that additional marketing and sales-related measures of a supplier become less relevant in the case of a higher component importance. High component importance for the final product may increase the relevance of a supplier's core offering. There might be stronger emphasis on functional characteristics of the component because they are more substantial for the performance of the end product. In contrast, differentiation activities such as additional services turn out to be less relevant— because the component's features ensure differentiation from competitors. Therefore, I can assume that high component importance for the final product may lead to lower relevance of MSM measures for customers than will low component importance.

It might be relevant that different types of MSM approach different market stages (see section 3.1). *Non-collaborative MSM* approaches indirect market stages to create superior relationship value for them. On one hand, this might lead to a reduced willingness-to-pay from direct customers' points of view. On the other hand, this might also lead to a pull effect of downstream customers, creating demand on the direct customers' market stage (see section 3.2.2). Both effects will likely decrease if the importance of the component increases. Because the core offering becomes relatively more important than other value drivers that are influenced by MSM, downstream customers will have a lower regard for non-collaborative MSM activities if the component has high relevance for the end product. Accordingly, this might weaken the pull effect. Similarly, immediate customers will pay less attention to suppliers' additional "leapfrogging" activities if the component has a higher importance. Direct customers' negative perceptions of a supplier's non-collaborative measures will become less negative. Therefore, focusing on direct customers' perspectives, I postulate the following:

> H_{2a}:   *The higher the component importance for the final product, the lower the*
> *potential   (negative)   impact   of   manufacturers'   non-collaborative*
> *multi-stage marketing on direct customers' willingness-to-pay.*

Consequently, from direct customers' points of view, non-collaborative MSM will lead to lower willingness-to-pay in the case of higher component importance but not as low as in the

case of lower component importance. Perceived relationship value remains influenced more by a supplier's core offer than by its additional marketing or sales-related measures in the case of higher component importance. On indirect market stages, a higher component importance will weaken a pull effect resulting from non-collaborative MSM. A weaker pull effect also is likely in the case of collaborative MSM, in which suppliers target indirect customers as well. However, *collaborative MSM* and *MSM in a wider sense* directly approach immediate customers. I assume that both MSM types improve direct customers' perception of relationship value and consequently their willingness-to-pay. A higher importance of the component will yet lead to a lower relevance of respective MSM measures, allowing the following two hypotheses:

H_{2b}:   *The higher the component importance for the final product, the lower the potential (positive) impact of manufacturers' collaborative multi-stage marketing on direct customers' willingness-to-pay.*

H_{2c}:   *The higher the component importance for the final product, the lower the potential (positive) impact of manufacturers' multi-stage marketing in a wider sense on direct customers' willingness-to-pay.*

A higher willingness-to-pay, from direct customers' points of view, might reflect a certain relevance of both types of MSM; in the case of higher component importance, this willingness-to-pay, however, would not be as high as in the case of low component importance. The following section contains an analysis of the power structure within a supply chain as another influencing criterion of the relevance of MSM measures.

3.2.3.2   Power structure within a supply chain

Practical considerations have also revealed that the power structure within a supply chain can influence the relationship between MSM and direct customers' willingness-to-pay. There is evidence for this assumption in extant literature. As asserted by Wills et al. (1990), the power structure within a supply chain (i.e., market power) builds one criteria for the selection of distribution channels. Large and powerful firms access expertise and the ability to reward or coerce other channel members. In this respect, they have greater flexibility with regard to

channel choices. "The relative power of channel members, with the implications this has for channel membership and control, is enormously important …" (Wills et al. 1990, p. 74). The authors further explain that channel power distribution can help manage conflicts among members of all channels. Such conflicts can be about holding inventory or splitting available margins. Another possible conflict has to do with marketing strategies or promotional plans. "Can intermediaries lower down the channel be relied upon to follow through desired marketing strategy and promotional plans?" (Wills et al. 1990, p. 75). Wills et al. (1990, p. 93) explain, "Instead of perfectly competitive market structures, one usually encounters vertical marketing systems, where varying degrees of control and integration are administered by the more powerful members of the channel" (see also section 2.1.1.3). This statement suggests that further consideration of this issue is necessary.

The market power of different market actors or market stages determines the power structure within a supply chain (e.g., Lusch and Brown 1982, p. 312, and literature cited therein). More specifically, the concept of power can be determined by the level of competition (i.e., the number of competitors a company is facing and its market share), by a company's potential for differentiation, as well as by the switching costs which customers face in case of changing between the company's and competitors' products. This conception of power is in line with Hunt and Nevin's (1974, p. 186; see also Brown et al. 1995, referring to El-Ansary and Stern 1972) definition of power:

> Power, in its most general sense, refers to the ability of one individual or group to control or influence the behavior of another.

I build my analysis on this definition of power; MSM can be considered a B-to-B supplier's influence attempt on subsequent market stages. Yet "power is a property of the social relation; it is not an attribute of the actor" (Emerson 1962, p. 32). B-to-B marketing and channel research shows that the power-dependence relationship between a supplier and its customers determines whether influence attempts are successful or not (e.g., Brown et al. 1983; Brown et al. 1995; Emerson 1962; Lusch and Brown 1982). Influence attempts undertaken by a more powerful party can be assumed to be more successful than influence attempts undertaken by a less powerful party (Emerson 1962, pp. 32). Accordingly, I assume that the

market power of customers influences the relevance of a supplier's marketing and sales-related measures. Generally, in a dyadic relation, a stronger power position of customers might reduce the potential impact of manufacturers' marketing and sales-related activities. A customer with superior market power will be less influenced by the marketing and sales-related measures of suppliers with a minor market power. In contrast, a less powerful customer is more dependent on a supplier with a relatively high power position and will be influenced stronger by its marketing and sales-related activities.

Extant channel and power research usually focuses on dyadic relationships between suppliers and (direct) customers. Yet MSM considers at least three market stages and consequently a minimum of three dyadic relationships including the interactions between suppliers and direct customers, suppliers and indirect customers, as well as between direct and indirect customers. Thereby, collaborative MSM as well as non-collaborative MSM intend to influence the behavior of direct customers through an influence attempt on the indirect customers' market stages. Consequently, I assume that the power-dependence relationship between the direct and the indirect customers has a high relevance for the direct customers' behavioral intention or actual behavior. For example, a direct customer might face a high level of competition, a low potential for differentiation, as well as low switching costs of indirect customers in case of changing between the direct customer's and its competitors' products—all in all a weak power position toward its own customers. In such a case, a supplier's intention to influence the direct customer's behavior through an influence attempt on the indirect customers' market stages may be greeted with more success than in case of a direct customer having a strong power position toward its own customers. Such a powerful direct customer can be expected to better resist influence attempts of a supplier undertaken through MSM activities toward indirect customers (Emerson 1962, pp. 32; Rudolph 1989, pp. 196).

To further analyze the effect mechanisms between MSM, direct customers' willingness-to-pay, and the power structure within the supply chain, it is possible to distinguish three different types of effects: Pull effects, market resistance effects, and effects on the perception of value. Figure 3-4 schematically summarizes the interaction of these three effect types, different types of MSM, and different power structures within the supply chain (i.e., the market power of direct customers in relationship to the market power of indirect

customers). All effects are illustrated according to their effectiveness on the direct customers' market stage.
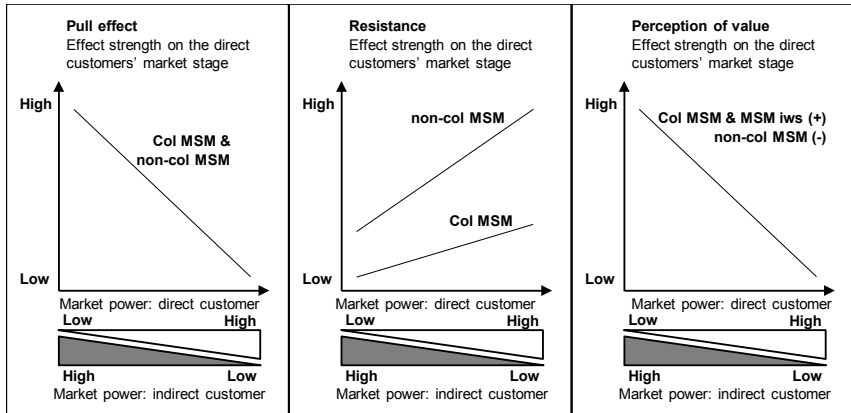
Figure 3-4:   MSM effects depending on market power (source: Author's illustration)

Non-collaborative MSM approaches indirect customers to create relationship value, aiming to achieve a **pull effect** that in turn leads to an increased demand of the direct customers' market stage. The intention of a supplier is to influence the behavior of direct customers through an influence attempt on the indirect customers' market stages (see section 3.2.2). Building on Emerson (1962, pp. 32), a relatively high market power of indirect customers (compared with direct customers) implies that their influence attempt on the direct customers' market stage may be greeted with more success. Upstream suppliers' marketing and sales-related measures toward indirect customers will be more influential and creating a pull effect in favor of an upstream supplier will be easier. In contrast, if indirect customers possess relatively low market power (compared with direct customers), it is likely that the indirect customers' influence attempts on the direct customers' market stage will be more difficult. Upstream suppliers' marketing and sales-related measures toward indirect customers will be less influential and non-collaborative MSM leads to a weaker pull effect.

Concerning pull effects, it is possible to make similar assumptions about collaborative MSM. Collaborative MSM also approaches downstream customers aiming to achieve a pull effect (see section 3.2.2). Lower relative market power of indirect customers implies that their influence attempt on the direct customers' market stage is more difficult (Emerson 1962, pp. 32). Upstream suppliers' marketing and sales-related measures toward indirect customers will be less influential and collaborative MSM leads to a weaker pull effect than in case of a high market power of indirect customers. The decreasing line for collaborative and non-collaborative MSM in Figure 3-4 illustrates the decreasing pull effect strength of both MSM types in case of increasing market power of direct customers compared with indirect customers.

Once an upstream supplier's marketing and sales-related activities create a pull effect on indirect customers' market stages, direct customers with low market power will be less likely to raise objections and show **resistance** to the pull effect (Rudolph 1989, pp. 196). Direct customers with low market power are under higher pressure to comply with their customers' expectations in favor of a pull effect, leading to increased demand from direct customers. In contrast, a higher market power of direct customers will allow the immediate market stage to better resist potential pull effects, thus leading to a lower demand resulting from pull effects as a consequence of collaborative and non-collaborative MSM. The resulting pull effect of collaborative and non-collaborative MSM depends on the power structure and the attitude within a supply chain (Rudolph 1989, p. 199). Figure 3-5 illustrates Kleinaltenkamp et al.'s (2012, pp. 160) reasons for market resistance toward suppliers.
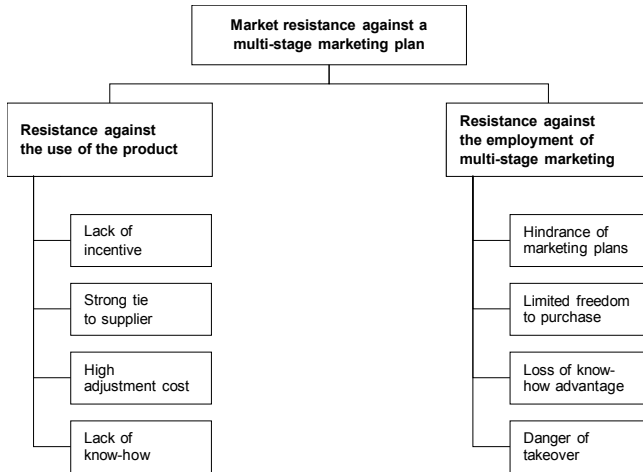
Figure 3-5:   Reasons for market resistance toward non-collaborative MSM (source: Kleinaltenkamp et al. 2012, p. 161)

It is important to put the different interests into the context of the involved companies' vertical market power to determine whether a market stage is able to avoid a pull effect (Rudolph 1989, pp. 199). The attitude of direct customers might depend on whether the MSM strategy in play is collaborative or non-collaborative. In the case of non-collaborative MSM, suppliers' marketing and sales-related activities "leapfrog" direct customers. In line with previous arguments, this leads to a lower perceived relationship value from direct customers (see section 3.2.2). Consequently, higher resistance to pull effects is likely. In contrast, collaborative MSM approaches both indirect customers and direct customers. Upstream suppliers collaborate with direct customers to align their indirect marketing and sales-related activities according to the direct customers' expectations. An influence attempt on indirect market stages will likely encounter lower resistance on the direct customers' market stage and consequently lead to a higher pull effect (Kleinaltenkamp et al. 2012, pp. 146 and pp. 160). The increasing market resistance to MSM in case of increasing market power of direct customers compared with indirect customers is illustrated by the increasing lines for collaborative and non-collaborative MSM in Figure 3-4. The better attitude and consequently lower market resistance in case of collaborative MSM is reflected in that the line of collaborative MSM underlies the line of non-collaborative MSM.

According to its definition, collaborative MSM increases the **perception of value** on the direct customers' market stage. Building on Emerson (1962, pp. 32), this is also dependent on the direct customers' market power. A higher market power leads to a lower influence of a supplier's collaborative MSM measures. Consequently, a higher market power leads to lower direct customers' perceived relationship value as a result of collaborative MSM than does a low market power. Similar, in case of non-collaborative MSM, direct customers with higher market power will be less influenced by the marketing and sales-related activities of a supplier. This reduces the negative influence of non-collaborative MSM measures on the perception of direct customers' relationship value.

It is possible to draw same assumptions for MSM in a wider sense. The aim of this type of MSM is, from the outset, to create relationship value on the direct customers' market stage. In addition, indirect customers are considered extending suppliers' ability to sense the market, which results in the ability to create superior value. For direct customers, MSM in a wider sense results in higher perceived relationship value (see section 3.2.2). Thereby, lower market power of direct customers leads to a higher influence of a supplier's MSM in a wider sense (Emerson 1962, pp. 32). Especially when the direct customers are in a low power position, the MSM meaures in a wider sense and the extended market orientation of a supplier can be expected to be notably beneficial for them in their dealings with the indirect customers. The decreasing perception of relationship value in case of increasing market power of direct customers compared with indirect customers is illustrated by the decreasing line for all three types of MSM in Figure 3-4.

Building on these findings, I postulate the following hypotheses regarding the relevance of market power to the association between MSM and direct customers' willingness-to-pay:

> H_{3a}:   *The stronger the power position of direct customers toward their indirect customers, the lower the potential (negative) impact of manufacturers' non-collaborative multi-stage marketing   on   direct   customers' willingness-to-pay.*

H_{3b}:   *The stronger the power position of direct customers toward their indirect*
             customers, the lower the potential (positive) impact of manufacturers'
             collaborative multi-stage marketing on direct customers' willingness-to-pay.

H_{3c}:   *The stronger the power position of direct customers toward their indirect*
             customers, the lower the potential (positive) impact of manufacturers'
             multi-stage marketing in a wider sense on direct customers' willingness-to-pay.

In summary, I take two moderator effects into account in this study: The importance of a
manufacturer's component in the end product and the power structure within a supply chain.
Figure 3-6 illustrates the relationships and moderator effects as well as the hypotheses
relevant to the present study.
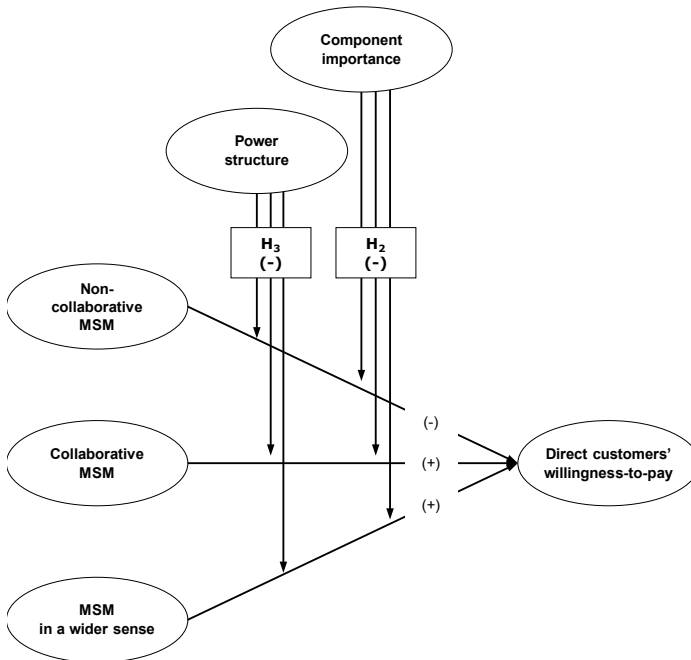
Figure 3-6:   Moderator effects relevant to the present study (source: Author's illustration)

However, direct customers' willingness-to-pay is not the only relevant factor in creating competitive advantages for suppliers. Competitive advantages can manifest in various concepts. The following section contains analysis of the relevance of MSM for further constructs.

3.3   Additional effects

Willingness-to-pay reflects a rational tradeoff between a customer's valuation of a product or service, and the price for obtaining the product (e.g., Anderson et al. 1993, p. 5; Jedidi and Zhang 2002, p. 1352; see also section 2.2.1). Consequently, it can be regarded a cognition variable which is embedded in a well-investigated framework in attitudinal literature: Cognition–affect–behavioral intent or behavior (Ajzen and Fishbein 1980; Cronin et al. 2000, p. 195, referring to Bagozzi's [1992] appraisal–emotional response–coping framework; see also Lam et al. 2004, p. 297; Lancaster 1971). It allows me to extend my analysis and derive further implications about the relevance of MSM not only for the creation of willingness-to-pay (cognition) but also for the creation of customer satisfaction (affect) and customer loyalty (behavior).

Attitudinal literature investigates cognitive–affective bases of intent or behavior thoroughly and numerous studies have endeavored to analyze the interrelationships prevailing between the variables of quality, value, satisfaction, and purchase behavior. Cronin et al. (2000) provide an overview of these studies. "Of specific interest was the specification of the 'antecedent, mediating, and consequent' relationships among these … variables" (Cronin et al. 2000, pp. 195, and literature cited therein, including numerous studies focusing on these linkages; for an overview of studies in the context of customer loyalty research, see also Davis-Sramek et al. 2009, p. 442).

Customer satisfaction represents an affective variable (Lam et al. 2004, p. 295, and literature cited therein). According to the expectancy/disconfirmation paradigm, customer satisfaction is influenced by perceived service quality and also by perceived customer value (e.g., Homburg et al. 2005, p. 85; Lam et al. 2004, p. 295; Oliver 1980; see also section 2.2.2.1). In contrast, *customer loyalty* is a behavioral construct which concerns the behavioral intention or the actual behavior of a customer toward a supplier (Lam et al. 2004, p. 297; see also

Chiou et al. 2010, p. 433, referring to the "cognitive–affective–conative loyalty framework" of Oliver 1999). According to Bagozzi's (1992) appraisal–emotional response–coping framework, "… the initial service evaluation (i.e., appraisal) leads to an emotional reaction that, in turn, drives behavior" (Cronin et al. 2000, p. 195). However, there is also some evidence, that cognition about a product may affect purchase behavior directly for some product categories (Lam et al. 2004, p. 297, referring to Vakratsas and Ambler 1999). Accordingly, Cronin et al. (2000, p. 198) suggest that all three variables, namely perceived quality, customer value, and customer satisfaction, by themselves are supposed to have a direct positive impact on customer loyalty.

To analyze the potential relevance of MSM on the different constructs, it is appropriate to use theoretical foundations of all relevant constructs and to process available empirical evidence on their prevailing linkages. My analysis explicitly focuses on the effect mechanisms between the MSM approaches and direct customers' satisfaction (section 3.3.1) and loyalty (section 3.3.2). The latter section closes with a figure that summarizes all of the linkages and hypotheses of additional MSM effects.

3.3.1 MSM and customer satisfaction

Although not as common as for creating value, several studies emphasize the relevance of market orientation for creating customer satisfaction. I review important connections between market orientation and customer satisfaction in section 3.3.1.1, showing that MSM is relevant for creating customer satisfaction. Yet it is necessary to use concrete measures to support the ambition of market orientation (O'Cass and Ngo 2012; see also section 2.1.2.1). Because perceived quality is a strong antecedent to customer satisfaction (e.g., Caruana et al. 2000, p. 1343; see also section 2.2.2.1), an analysis of the relevance of MSM to customer satisfaction should not rely only on postulated links between market orientation and customer satisfaction. Rather, it should incorporate customers' perceived quality into the perspective as well and link all three constructs—namely MSM, perceived quality, and customer satisfaction—to derive meaningful hypotheses about the association between MSM and customer satisfaction. Along these lines, I describe possible links between MSM and perceived quality in section 3.3.1.2. Then, in section 3.3.1.3, I present concrete hypotheses about the possible (mediated) relevance of MSM to the creation of customer satisfaction.

3.3.1.1   Market orientation and customer satisfaction

Already in its original conceptualization of the market orientation construct, Kohli and Jaworski (1990) examine the relevance of market orientation for the creation of customer satisfaction: "The … set of consequences of a market orientation identified by the respondents involves customer attitudes and behavior. The thrust of the comments is that a market orientation leads to satisfied customers who spread the good word to other potential customers and keep coming back to the organization" (Kohli and Jaworski 1990, p. 13). Referring to Kotler's (1988) assertion, the authors propose "that a market orientation is likely to lead to greater customer satisfaction and repeat business" (Kohli and Jaworski 1990, p. 13). Whereas behavioral intentions (repeat business) are the subject of the following section 3.3.2, the described relevance of market orientation in creating customer satisfaction is of paramount importance in the association between MSM and customer satisfaction. The approach resembles the analysis of effect mechanisms between MSM and willingness-to-pay. Because I have conceptualized MSM as the behavioral perspective of an extended market orientation, the relationship between market orientation and customer satisfaction allows me to derive similar assumptions about the association between MSM and customer satisfaction.

I have described that it is important to specify market orientation through concrete measures to create value (O'Cass and Ngo 2012; see also section 3.2.1.1). More specifically, O'Cass and Ngo (2012, p. 126) emphasize the relevance of marketing and product innovation in designing a valuable offering according to customers' expectations. Accordingly, I assume that to create customer satisfaction, it is important to specify the market orientation concept through concrete measures. This is one of MSM's major characteristics. Another major characteristic is its extended market orientation. Flint et al. (2011) provide some evidence for a strong tie between MSM and customer satisfaction. The authors state, "… customers are more satisfied with and loyal to suppliers who are able to anticipate their desires well" (Flint et al. 2011, p. 219). This requires that organizations focus on the changing customer needs and have a proactive customer orientation (Flint et al. 2011, p. 219; see also Blocker et al. 2011; Flint et al. 2002). Furthermore, Narver and Slater (1990, p. 21) examine the relevance of an extended market orientation to understand what customers may want in the future. Consequently, I expect MSM to directly influence customers' satisfaction (for the

association between MSM and a proactive market orientation, see Figure 3-2 in section 3.2.1.1).

As I have shown, customer satisfaction represents an affective variable (Lam et al. 2004, p. 295), and "the expectancy/disconfirmation paradigm provides the theoretical basis for the link between quality and satisfaction" (Caruana et al. 2000, p. 1343, and literature cited therein; see also section 2.2.2.1). Consequently, analysis of the relevance of MSM for creating customer satisfaction should rely on customers' perceptions of service quality as well, as I describe in the following section.

3.3.1.2 Effects of MSM on customer satisfaction through the concept of quality

Literature on market orientation provides evidence of the importance of a market-oriented culture continuously improving a company's product or service quality (e.g., Chang and Chen 1998; Levitt 1980; O'Cass and Ngo 2012; Ostrom et al. 2010; Tsai et al. 2008). Because this relationship is well established, it is possible to draw conclusions about the potential impact of MSM on service quality. MSM can be expected to influence customers' perceived quality of a company's core offering or a core offering's benefit and cost tradeoff (see section 3.2.1.2.1). Building on Hillebrand and Biemans (2011, p. 73), MSM provides measures for generating, disseminating, and responding to intelligence about direct and downstream customers (see section 3.1.4). A company might learn not only from immediate customers but also from downstream customers. This also enables an efficient and effective proactive market orientation for which an extended market orientation is an important pre-condition (see section 3.2.1.1). Consequently, MSM leads to an overall improved market intelligence. This allows the assumption that MSM improves the positive influence of market orientation on the performance perception of a company's core offer. Kleinaltenkamp et al. (2012, p. 166) make this point: "A product design that is to be consistent and targeted at a multi-stage market cannot be solely focused on the requirements of direct buyers or the final customer. It must, as far as possible, be developed with all the market stages involved in mind."

Yet increased market intelligence resulting from focusing on indirect customers might not necessarily lead to improved perceptions of quality on every market stage of a value chain.

Companies can address and use increased market intelligence about direct and downstream customers on one or more market stages. This is reflected in the different types of MSM. This study focuses on the impact of MSM on the direct customers' market stage. The following section describes possible relationships among different types of MSM and customer satisfaction from direct customers' perspectives.

3.3.1.3 MSM types creating customer satisfaction

With respect to a company's core offering, relevant MSM measures include all activities related to the design or modification of a product or service (see section 3.1.4). Based on extended market intelligence gained through corresponding MSM measures (i.e., MSM research), the goal is to design core products or services according to the requirements and expectations of one or several market stages, independent of the chosen distribution channel.

Non-collaborative MSM focuses on indirect customers and bypasses immediate customers. In terms of the core offering, the goal is to design products or services according to the (expressed or latent) expectations of indirect customers. This will likely result in one of two effects. First, a product or service design adapted to the expectations of customers on a subsequent market stage might result in a pull effect. In response to a perceived superior product or service, the targeted, indirect customers might actively demand the products on the intermediate market stages and "pull" them out of the distribution channel (e.g., Webster 1991, p. 221). Second, a product or service design that focuses solely on the needs of indirect customers might also result in strong effects on the direct customers' market stage—though the effects might be negative. The direct customers might perceive the quality of products or services to be lower because the company has ignored their expectations and requirements and has considered only the needs of indirect customers. Furthermore, by influencing indirect customers, direct customers may be forced to use the manufacturer's component instead of a competitor's component. The direct customers' sourcing process and their operations may be adversely affected (e.g., by decreasing its flexibility or purchase price disadvantages with other competing manufacturers) (Kleinaltenkamp et al. 2012, pp. 148; Kleinaltenkamp 2006, pp. 357). Accordingly, I postulate:

H*4a*:   *Applying non-collaborative multi-stage marketing decreases direct customers'*
         satisfaction.

Collaborative MSM, in contrast, focuses on indirect customers but involves direct customers as well. The aim is to create competitive advantages for firms on every market stage (Kleinaltenkamp et al. 2012, p. 146). Related to a company's core product, MSM measures aim to help design products or services that fulfill the (expressed and latent) expectations and requirements of different market stages or even the entire value chain. Again, a pull effect is likely to result because downstream customers might perceive increased product or service quality. It is, furthermore, reasonable to assume that the resulting pull effect will be stronger for collaborative MSM than for non-collaborative MSM. Being involved in the marketing and sales-related measures of a supplier might help customers on intermediate market stages be less defensive or reluctant to accept these measures. As a consequence of reduced market resistance, the pull effect will probably become stronger (Kleinaltenkamp et al. 2012, pp. 146 and pp. 160). Again (see section 3.2.2), this assumption contributes to extant literature postulating that it is not reasonable to apply exclusively non-collaborative MSM and therefore exclude direct customers from the supplier's perspective (Rudolph 1989, p. 38).

There might also be some immediate positive effects on the direct customers' market stage. The direct customer is involved during the supplier's design process of products and services. Throughout this process, the supplier attempts to understand not only customers' needs but also the customers' customers' needs. Consequently, the direct customer might perceive the supplier's products to be higher performing and more saleable (Hillebrand and Biemans 2011, pp. 72; Vedel et al. 2012, p. 7). This allows following assumption:

H*4b*:   *Applying collaborative multi-stage marketing increases direct customers'*
         satisfaction.

A similar argument applies to *MSM in a wider sense*. MSM in a wider sense aims to create competitive advantages on the direct customers' market stage. Yet it also involves customers' customers in the firm's marketing and sales-related activities, and the value for direct customers results from the extended market orientation of the company (Günter 1997, p. 214, Vedel et al. 2012, p. 7). Similar to the collaborative version, MSM in a wider sense might

result in the superior performance of a company's core offering as perceived by direct customers. In addition, the firm designs its products or services with the entire value chain in mind, especially focusing on the requirements and needs of the immediate customers (Hillebrand and Biemans 2011, pp. 72; Vedel et al. 2012, p. 7). Products might become more saleable, allowing the following hypothesis:

> H_{4c}:   *Applying multi-stage marketing in a wider sense increases direct customers' satisfaction.*

Embedding the suggested associations between MSM and perceived quality, customer satisfaction, and willingness-to-pay into the cognition–affect–behavior frameworks, it is logical to expect that MSM will also influence customer loyalty—either directly or indirectly (mediated). My analysis of the relevance of MSM for creating customer loyalty is the subject of the following section.

3.3.2   MSM and customer loyalty

As Kohli and Jaworski (1990, p. 13) assert, market orientation is relevant not only for creating customer satisfaction but also for encouraging certain behavioral intentions—more specifically, customers' willingness to recommend the respective organization to other customers as well as customers' willingness to come back to the organization. Similarly, Flint et al. (2011) provide evidence for a strong tie between customer value anticipation and customer satisfaction. Although loyalty is most often measured as a direct consequence of customer satisfaction (Flint et al. 2011, p. 222, referring to Heskett et al. 1997), the authors also analyze the direct relationship between customer value anticipation and customer loyalty. The relevance of analyzing direct linkages is based on their assumption that customer satisfaction is not necessarily a sufficient antecedent to customer loyalty. In other words, "satisfying customers may not be sufficient to create loyal customers" (Flint et al. 2011, p. 222, referring to Fornell 1992). Other criteria might influence loyalty or the role of satisfaction in creating loyalty. Such conditions can include customers' time constraints, financial situations, effort or risk perceptions, and personal characteristics (Flint et al. 2011, p. 222, referring to Lam et al. 2004; Mittal and Kamakura 2001). Several studies also "report direct, positive links between customer value and loyalty, though several indicate it might be

better described through the mediating factor of satisfaction" (Flint et al. 2011, p. 223, referring to Lam et al. 2004). Flint et al. (2011, p. 223) suggest that despite the relevance of several constructs representing strong antecedents of customer loyalty, an investigation of the direct relationship between customer value anticipation and customer loyalty (independent of satisfaction) is crucial.

The present study follows this approach. The construct of customer value anticipation is by definition related to the concept of MSM (see section 3.2.1.1). Flint et al. (2011) explain that a company's ability to look ahead at what specific customers will value is critical for a supplier to create precisely that: Superior value. According to Flint et al. (2011, p. 219), this capability involves the processes of anticipating as well as offering products and services that customers will most likely value. This calls for a proactive market orientation, with MSM providing the necessary behavioral components for realizing an extended and consequently proactive market awareness. In line with Flint et al.'s (2011, p. 223) argument (i.e., that customer value anticipation is a direct antecedent of customer loyalty), it is reasonable to assume a direct relationship between MSM and customer loyalty as well.

Similarly, O'Cass and Ngo (2012, p. 127) suggest that a market-oriented firm is able to create superior value, yet it must have capabilities or a mechanism (i.e., product innovation and marketing) that ensures that identified needs can be fulfilled. Along these lines, the concept of relationship value relates to the concepts of relationship commitment and customer loyalty (Lam et al. 2004, p. 294). As I have shown, MSM provides the necessary measures to fulfill the requirements of a market-oriented firm, as O'Cass and Ngo (2012; see section 3.2.1.1) describe. Accordingly, O'Cass and Ngo (2012) argue in support of the idea that there is a direct link between MSM and customer loyalty. Building on these findings and the definitional association between MSM and value (see section 2.1.2.2), it is possible to determine the potential influence of different types of MSM on customer loyalty.

At this stage, it becomes relevant to distinguish between customer loyalty as a favorable behavioral intention and an actual behavior (see section 2.2.2.2). Whereas the actual behavior of a customer can be influenced by other criteria (i.e., a customer has to stay in a relationship), a customer's behavioral intention relies on its perceived value of a relationship and reflects

the customer's wish to stay in a relationship (Kleinaltenkamp et al. 2011c, pp. 61; Lam et al. 2004, p. 297). As I have suggested, *non-collaborative MSM* decreases direct customers' perceived relationship value. This leads to the assumption that non-collaborative MSM has a negative impact on customer loyalty regarded as a behavioral intention. Therefore, I postulate the following:

H_{5a}:   *Applying non-collaborative multi-stage marketing decreases direct customers' loyalty regarded as a favorable behavioral intention.*

As I have shown (see section 2.2.2.2), in the present study, I do not analyze the direct customers' actual behavior. Applying non-collaborative MSM aims at creating a demand pull on the direct customers' market stage and the direct customers' actual behavior might differ from the direct customers' repurchase intention; otherwise the application of non-collaborative MSM would not make sense. Consequently, only by focusing on direct customers' repurchase intention, the postulation of hypothesis H_{5a} can be considered reasonable (see also limitations of this study in section 6.4). Furthermore, it is important to emphasize that hypothesis H_{5a} implies a direct relationship between MSM and customer loyalty. The relevance of MSM might be mediated by customer satisfaction because this construct represents a central antecedent of customer loyalty (e.g., Cronin et al. 2000, p. 198; see also the introduction to section 3.3). Yet, following the approach of Flint et al. (2011), it is reasonable to assume a direct link between MSM and customer loyalty as well.

Similarly, I assume there is direct (not mediated) relevance for *collaborative MSM* and *MSM in a wider sense* in creating customer loyalty. Because collaborative MSM and MSM in a wider sense create relationship value on both direct and indirect customers' market stages, I assume the same is true for creating customer loyalty. Considering the perspective of direct customers only, this leads to the following two hypotheses:

H_{5b}:   *Applying collaborative multi-stage marketing increases direct customers' loyalty regarded as a favorable behavioral intention.*

H_{5c}:   *Applying multi-stage marketing in a wider sense increases direct customers' loyalty regarded as a favorable behavioral intention.*
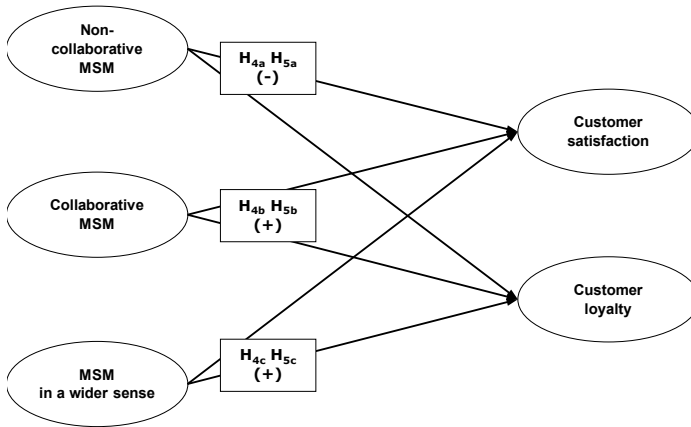
Figure 3-7:   Additional effects relevant to the present study (source: Author's illustration)

Figure 3-7 summarizes the postulated effects of MSM on direct customers' satisfaction and direct customers' loyalty, as well as the corresponding hypotheses. I present the entire effect model, including all of the causal relationships relevant to the present study, in the following section. Together with the corresponding hypothesis framework, it builds the basis for the subsequent empirical analysis.

3.4   Comprehensive model and hypothesis framework

So far, it has been possible to conceptualize and define MSM and analyze its potential effects on different constructs. Representing the *main effects* relevant to the present study, I have derived hypotheses about the relationships between different types of MSM and direct customers' willingness-to-pay. I have included *moderator effects* resulting from influencing factors in this effect model. Furthermore, representing *additional effects*, I have translated corresponding relationships between MSM types and the constructs of direct customers' satisfaction and loyalty into additional hypotheses. Figure 3-8 illustrates the entire effect model, including all causal relationships relevant to the present study. Following the figure, I list all of my hypotheses.
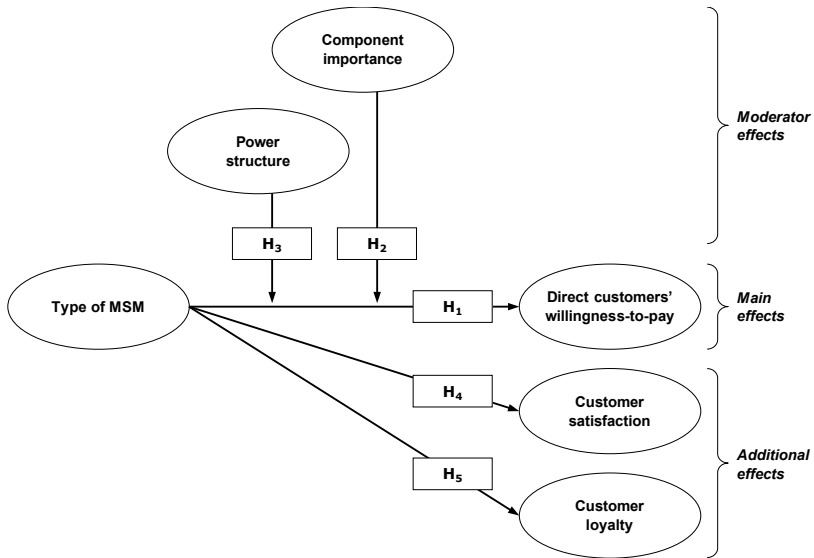
Figure 3-8:   Final effect model relevant to the present study (source: Author's illustration)

Main effects

H_{1a}:   *Applying non-collaborative multi-stage marketing decreases direct customers' willingness-to-pay.*

H_{1b}:   *Applying collaborative multi-stage marketing increases direct customers' willingness-to-pay.*

H_{1c}:   *Applying multi-stage marketing in a wider sense increases direct customers' willingness-to-pay.*

Moderator effects

H_{2a}:   *The higher the component importance for the final product, the lower the potential (negative) impact of manufacturers' non-collaborative multi-stage marketing on direct customers' willingness-to-pay.*

H₂ᵦ: *The higher the component importance for the final product, the lower the potential (positive) impact of manufacturers' collaborative multi-stage marketing on direct customers' willingness-to-pay.*

H₂ᵪ: *The higher the component importance for the final product, the lower the potential (positive) impact of manufacturers' multi-stage marketing in a wider sense on direct customers' willingness-to-pay.*

H₃ₐ: *The stronger the power position of direct customers toward their indirect customers, the lower the potential (negative) impact of manufacturers' non-collaborative multi-stage marketing on direct customers' willingness-to-pay.*

H₃ᵦ: *The stronger the power position of direct customers toward their indirect customers, the lower the potential (positive) impact of manufacturers' collaborative multi-stage marketing on direct customers' willingness-to-pay.*

H₃ᵪ: *The stronger the power position of direct customers toward their indirect customers, the lower the potential (positive) impact of manufacturers' multi-stage marketing in a wider sense on direct customers' willingness-to-pay.*

Additional effects

H₄ₐ: *Applying non-collaborative multi-stage marketing decreases direct customers' satisfaction.*

H₄ᵦ: *Applying collaborative multi-stage marketing increases direct customers' satisfaction.*

H₄ᵪ: *Applying multi-stage marketing in a wider sense increases direct customers' satisfaction.*

H₅ₐ: *Applying non-collaborative multi-stage marketing decreases direct customers' loyalty regarded as a favorable behavioral intention.*

H$_{5b}$:   *Applying collaborative multi-stage marketing increases direct customers' loyalty regarded as a favorable behavioral intention.*

H$_{5c}$:   *Applying multi-stage marketing in a wider sense increases direct customers' loyalty regarded as a favorable behavioral intention.*

I performed an empirical study to test all theoretical-deductive inferred hypotheses (regarding the process of theory testing, see de Vaus 1986, pp. 17; Kuss and Eisend 2010, pp. 21, and literature cited therein). The hypothesized cause-and-effect relationships imply the application of a causal analysis (Backhaus et al. 2011a, p. 13; Kuss and Eisend 2010, p. 15 and pp. 37; see also section 4.1.3). The principal aim of corresponding multivariate methods of statistical analysis is the verification of a priori (ex ante) and theory-based predictions about the existing relationships between different variables (Backhaus et al. 2011a, p. 14). This is subject of the following chapters 4 and 5.

4 Research methodology

This chapter focuses on the research methodology relevant to this study (for a stepwise description of an empirical research process, see Kuss and Eisend 2010, pp. 12). In section 4.1, I describe the research design, including my reflections on the linkage between the research design and its theory, the collection of data, an experiment as the appropriate type of research design, as well as its exogenous variables. The following two sections focus on the instruments relevant for the measurement of endogenous variables. I have determined a limit conjoint analysis (LCA; e.g., Backhaus et al. 1998; Sichtmann and Stingel, 2007) to be the appropriate instrument with which to measure customers' willingness-to-pay. Corresponding to this, I define all parameters relevant to the conjoint analysis in section 4.2. In section 4.3, I operationalize all other constructs in the hypothesis framework. In section 4.4, I describe a pre-test and its results. I present the entire and final research design, illustrated by the full questionnaire, in section 4.5. This leads to the data analysis relevant to chapter 5. I present the general results of the empirical testing and the hypotheses assessment there.

4.1 Research design

The research design of the empirical analysis is the subject of this section. Analyzing the linkage between the research design and the discussed theory, I evaluate the application of reduced form models against structural models for the data analysis of my study in section 4.1.1. Section 4.1.2 starts with a consideration of primary or secondary data sources for generating the necessary information as well as a description of applied methods for the process of data gathering. For the collection of primary data I argue that an experiment is the appropriate type of research design. I refer to the present study's experiment as *MSM experiment* in the following sections. I define the experimental design of the MSM experiment in section 4.1.3. Different generic types of MSM exogenously manipulate the MSM environment. Section 4.1.4 concretizes the experimental manipulation.

4.1.1 Empirical approach for the data analysis

Theoretical-deductive inferred hypotheses rely on existing theory to deduce hypotheses. They refer to theory testing in form of causal analysis. In contrast, theory induction refers to a generalization of in reality observed regularities (Kuss and Eisend 2010, pp. 21, and literature cited therein). The difference closely relates to a differentiation between reduced-form models

and structural models and "the extent to which the experimental design and analysis is linked to economic theory" (Card et al. 2011, p. 39). Keane (2010, p. 3) postulates that "all econometric work relies heavily on a priori assumptions. The main difference between structural and experimental (or "atheoretic") approaches is not in the number of assumptions but the extent to which they are made explicit."

Structural models are fully specified models that "… rely on economic and/or marketing theories of consumer or firm behavior to derive the econometric specification that can be taken to data" (Chintagunta et al. 2006, p. 604; see also Card et al. 2011, pp. 41, referring to *parameter estimation*). In contrast, *reduced form models*[12] "… fit to the empirical data and propose flexible functional forms to reflect variations in the data and let the data 'speak' …" (Chintagunta et al. 2006, p. 605). "There is a widespread belief that structural econometric modeling relies on strong a priori statistical and economic assumptions—which is true!— while the alternative "simple" approaches, such as "natural experiments", enable us to obtain knowledge that is not conditional on strong a priori assumptions" (Keane 2010, p. 18) (for further information on the appropriateness of structural versus reduced form models, see also Angrist and Pischke 2009; Erdem et al. 2005; Haavelmo 1944; Lucas 1976, 1987; Reiss and Wolak 2002).

In principle, the research questions could have been addressed using structural estimation methods. In the present study, however, the relationship between MSM and the different endogenous variables (i.e., direct customers' willingness-to-pay, satisfaction, and loyalty) is estimated using a reduced form model. The concept of MSM is relatively new and unexplored and calls for a less parameterized but more experimental and descriptive analysis (for further information on a possible relationship between explorative, descriptive, and causal analyses, see Kuss and Eisend 2010, pp. 39). The focus is on data fitting (versus relying on theory; see Chintagunta et al. 2006, p. 605), "which is easier, ceteris paribus, the less structure is imposed on data" (Chintagunta et al. 2006, p. 605). It is not my aim to fully specify a theoretical

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[12] According to Chintagunta et al. (2006, p. 605), it is appropriate to use the terminology of *statistical models* or *econometric models* when referring to *structural models*. Furthermore, Keane (2010, p. 3) refers to *experimental* or *atheoretic approaches* when referring to *reduced form models*. However, in the debate about the appropriateness of these types of models, these are consistently referred to as *structural models* and *reduced form models* (or *reduced form method*; see Kadiyali et al. 2001; Srinivasan 2006)—which is the approach this study follows.

(structural) model and estimate all structural parameters. Due to the lack of existing formal theory as well as the large number of dimensions that vary across my experimental manipulation (see section 4.1.4), a structural identification of all relevant model parameters would not have been feasible given the available number of potential observations (for further information on the obtained sample, see section 5.1.1). In the absence of such a model, it is actually impossible to estimate parameters structurally. Given that the model is not fully specified, but only based on non-mathematical arguments and causal predictions, I persue a reduced form approach and descriptively analyze the causal effects of the MSM types on the endogenous constructs (see the effect model and hypothesis framework in section 3.4). I abstain from structural parameter estimation and interpret the obtained empirical data under consideration of the relevant hypotheses (Chintagunta et al. 2006, pp. 604).

4.1.2 Data collection

There are different types of MSM (see section 3.1), and these are the exogenous variables relevant to the following empirical analysis. The aim is to analyze MSM's impact on direct customers' willingness-to-pay, satisfaction, and loyalty. Current marketing theory does not provide any comparable study as of yet. Besides some empirical research about the relevance of pull or branding policies in multi-stage markets (e.g., Chiou et al. 2010; Desai and Keller 2002; Ghosh and John 2009; McCarthy and Norris 1999) and an exploratory study about the relevance of an extended market orientation for upstream suppliers (Hillebrand and Biemans 2011; see also section 2.1.1), there are no studies that empirically analyze the relevance of the holistic MSM concept or an extended market orientation. Consequently, I do not expect there to be secondary data sources that can answer questions about cause-and-effect relationships in respect to MSM. A newly created data set is necessary to achieve the research task.

In the present study, the necessary (primary) data are collected in form of a large-scale quantitative study. I use a sample of industrial companies located in Austria, Germany, and Switzerland. The companies do business in different consumer product industries including beverages, packaging, food products, printing, textiles, and others. These are potential clients of the adhesives industry, or—more specifically—potential direct customers of the adhesives industry. The target group of my quantitative study is composed of these companies' managers who purchase adhesives from its adhesives suppliers.

As I show later in this chapter (section 4.2), I have implemented a limit conjoint analysis to measure the willingness-to-pay of direct customers. Willingness-to-pay is the main of three endogenous variables relevant to the present study. The selection of conjoint attributes and attribute levels is crucial for the successful application of a conjoint analysis (Hillig 2006, p. 42; Weiber and Mühlhaus 2009, pp. 43). I relied on secondary data for proper definitions of attributes. A market research company performed a practical study in 2009 and analyzed the most relevant criteria for purchase decisions in the adhesives industry. Adhesives buyers (N = 280 companies, 357 respondents) in six European countries received a survey and they revealed qualifying and differentiating factors relevant for the adhesives industry. *Qualifying factors* include criteria which qualify an adhesives supplier to be considered as a customer's option to purchase from. In contrast, *differentiating factors* refer to criteria which enable an adhesives supplier to differentiate from its competitors and to create competitive advantages. Based on the survey's results I was able to define the best-fitting criteria for the conjoint analysis (see section 4.2.2).

However, using secondary data is not free of risk. In particular, there are risks related to actuality, precision, and representation (Kuss and Eisend 2010, p. 42). In respect to the aim of the conjoint analysis, I assume the *actuality* of the criteria defined in 2009. The results can be considered valid in the long term and consequently are still useful for this conjoint analysis. The *precision* of the data can be fully evaluated and also considered a given. The whole setup and realization process of the survey is described and shows an accurate generation of data. Finally, I also assume the *representation* and fit of the data for the purpose of the conjoint analysis. The 2009 study reveals results that appropriately fulfill the definition requirements of the conjoint attributes. In summary, the core of this empirical research is based on newly generated primary data. Yet the study uses well-fitting secondary data to improve the accuracy and informative value of the conjoint analysis.

Regarding the research method, it is possible to distinguish between questioning and observation on one hand (Kuss and Eisend 2010, p. 51) and behavioral and perceptual feedback on the other hand (Anderson and Simester 2011, pp. 101). To ensure a high representation and sufficient sample size, I apply a perceptual questioning method. "Perceptual measures indicate how customers think they will respond …" (Anderson and

Simester 2011, p. 102). This is valid for the conjoint analysis (measurement of direct customers' willingness-to-pay) as well as for Likert-scaled constructs (measurement of direct customers' satisfaction and loyalty) (for further information on representative questioning, see Kuss and Eisend 2010, pp. 55).

Data were collected in form of an online survey. It includes an experiment as the appropriate type of research design. Researchers use experiments to analyze cause-and-effect relationships between exogenous (cause) and endogenous variables (effect) (Kuss and Eisend 2010, p. 50). This is the case with this empirical study. Establishing control and treatment groups exposed to different types of MSM (exogenous variable = cause) enable me to test effects on changes in direct customers' willingness-to-pay, satisfaction, and loyalty (endogenous variables = effects). *Real* or *randomized experiments* involve randomly assigning participants to the different treatment groups, whereas *quasiexperiments* involve considering existing properties of participants to assign them to either the control or the treatment group. Consequently, randomized experiments guarantee that the treatment is indeed exogenous, so that the results can be interpreted in a causal fashion. Internal validity is more likely to prevail in real experiments in which changes in the behaviors of the respondents can be clearly assigned to the manipulation of the independent variable (treatment) (Cook and Campbell 1979, pp. 55). To further ensure internal validity, it is important to control nuisance variables (Krauth 2000, p. 37; Myers et al. 2010, p. 169). Section 5.2 presents an extensive evaluation of the validity of the MSM experiment (for further information on experiments, see also Anderson and Simester 2011, pp. 99). The following section determines the experimental design.

4.1.3   Experimental design

The applied experimental design is a *one-factor between-subjects design*. It is characterized by a single independent variable (type of MSM) with several levels—on which multiple dimensions were altered—that build the conditions of the study (three different types of MSM plus a control group; see the description of exogenous variables in section 4.1.4) (Myers et al. 2010, p. 169). As Myers et al. put it, "No subject is tested in more than one condition, and each subject contributes one score to the data set" (2010, p. 169). The authors describe several advantages of a one-factor between-subjects design. The data collection is simple. Each

subject contributes only one observation. Accordingly, it is not necessary to match respondents to different conditions, and there is no relevance to the order of presentation of treatments or the interval between tests. All observations are independent, which makes statistical inference easier. [13] Therefore, there are fewer assumptions underlying the data analysis that, if violated, would increase the likelihood of drawing incorrect conclusions from the data (Myers et al. 2010, p. 169). A central disadvantage of a one-factor between-subjects design is that there is less control of nuisance variables. Accordingly, the error variance is larger than in other designs (Krauth 2000, p. 37; Myers et al. 2010, p. 169). "In particular, because subjects in different conditions [might by chance] differ in characteristics such as ability and motivation, it is more difficult to assess the effects of conditions than in designs in which such individual differences are better controlled" (Myers et al. 2010, p. 169).

An introductory scenario and four basic measures devoid of MSM ensure an equal initial situation for all participants. Three additional treatment scenarios differ in respect to the applied type of MSM (for the design of the experimental manipulation, see section 4.1.4). All participants were randomly assigned to one of the three treatment groups or to the control group. It allows me to draw conclusions about the hypothesized causal relationships between MSM and direct customers' willingness-to-pay (Cook and Campbell 1979, p. 55; for a description of the relevance of randomization for an assessment of internal validity, see also section 5.2.2). The comprehensive experimental design consists of a conjoint analysis integrated into the one-factor between-subjects design. I also included additional endogenous variables (customer satisfaction and customer loyalty). Figure 4-1 summarizes the experimental design of the MSM experiment. The following section concretizes the exogenous variable relevant for the experiment.

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[13] Otherwise, applying simple regression analysis (see section 5.3), one may have to correct standard errors for dependencies between observations (e.g., Angrist and Pischke 2009; Wooldridge 2002).
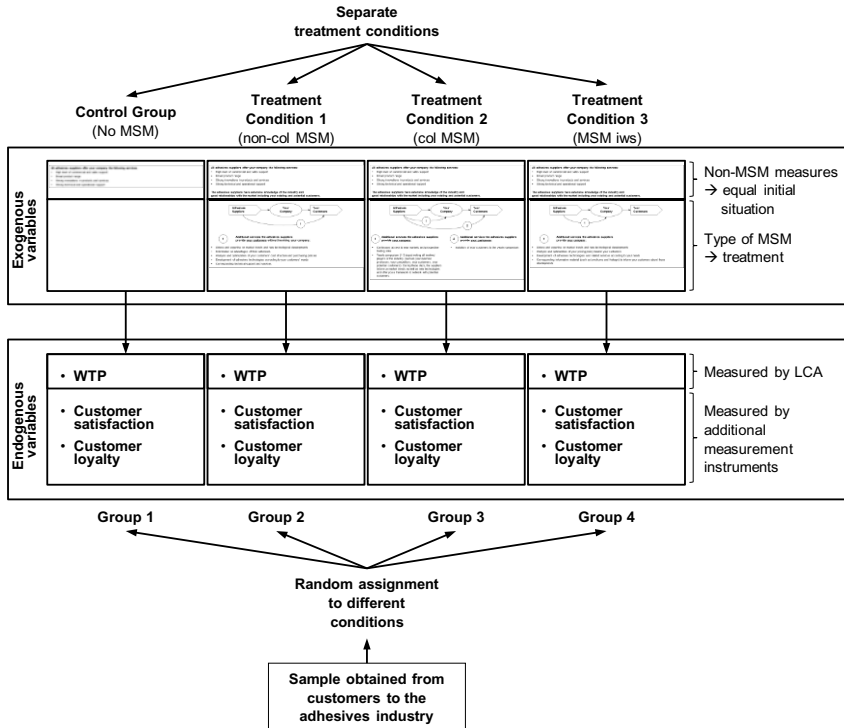
Figure 4-1:   Experimental design of the MSM experiment (source: Based on Anonymous 2012)

4.1.4   Experimental manipulation

The type of MSM represents the independent variable relevant to this study. More specifically, its different levels (types) are the three conditions of the stimulus I wish to manipulate. Every type of MSM represents one treatment condition operationalized by one scenario. A fourth scenario makes up the control group and is devoid of any MSM measures. The empirical study performed by a market research company in the adhesives industry in 2009 (for a description, see section 4.1.2) generated criteria relevant to purchase decisions in the adhesives industry. Based on this, I identified three qualifying factors as attributes to use in the limit conjoint analysis (see section 4.2.2). Additional differentiating factors were identified. Four of them do not have any MSM character but are highly relevant to purchase

decisions. They therefore qualify for building the first scenario presented to the control group. Figure 4-2 illustrates the scenario, including these four basic non-MSM measures.

All adhesives suppliers offer your company the following services:
- High level of commercial and sales support
- Broad product range
- Strong innovations in products and services
- Strong technical and operational support

Figure 4-2:   Scenario for the control group devoid of MSM (source: Author's illustration)

A classical experimental design would aim for a monadic inquiry, with each of the treatment groups and the control group being considered separately and each receiving a different scenario (Bortz and Döring 2006, pp. 528). The principal aim of this study was to analyze a potentially changed willingness-to-pay of direct customers as a consequence of MSM. In particular, my intention was to measure whether different MSM types including the marketing and sales-related activities of their suppliers can increase or decrease direct customers' willingness-to-pay. Consequently, it was important that all treatment groups have the same initial situation, including the basic measures presented to the control group devoid of any MSM activities. To ensure internal and external validity—the most relevant quality criteria in empirical research (Bortz and Döring 2006, pp. 33 and p. 53; see also section 5.2), I presented the four non-MSM measures of the control group to every treatment group at the beginning of each scenario. This allowed me to draw conclusions about the potential of MSM to create (or destroy) willingness-to-pay. It was possible, then to assign potential effects to the treatment with (additional) MSM measures and not to the absence of other differentiating (basic) measures.

The MSM measures described in section 3.1.4 build the starting point for modeling the three treatment conditions. Depending on which market stage the different activities approach, I could allocate them to one or several of the different types of MSM. It is important to note that most activities could represent measures of every type of MSM, depending on which way they are applied. To avoid ambiguity and improve the internal and external validity of this study, it is therefore important to concretize which market stage each measure approaches to

represent one of the types of MSM (for specific information on internal validity, see e.g., Gravetter and Forzano 2009, pp. 199; for an evaluation of internal and external validity, see section 5.2). A simplified supply chain illustrates the target market stages of different marketing and sales-related measures to ensure the right level of awareness of the participants.

Table 4-1 gives an overview of the possible allocation of MSM measures to different types of MSM. Some activities are part of several types of MSM. Accordingly, this table provides a suggestion in terms of the present study but does not claim to be axiomatic. With respect to the available sample (see section 4.1.2), some measures are less relevant and consequently not considered in the scenario modeling. It is important to note that the principal aim is to ensure a successful manipulation in the MSM experiment. The treatment scenarios should alter the latent variable clearly and according to the research task (Perdue and Summers 1986, p. 318). Consequently, the number of measures allocated to the different MSM scenarios is not relevant for its modeling. Whereas a single MSM measure can be expected to be sufficient in order to illustrate a supplier's MSM strategy with a collaborative character, several measures are allocated to the scenario of non-collaborative MSM in order to illustrate the non-collaborative character of a supplier's marketing strategy. It would have been possible to allocate further measures to the collaborative MSM scenario as well; but important is that each scenario represents a particular independent construct (Perdue and Summers 1986, p. 317; for further information on a successful manipulation and the testing of the present study's manipulation, see section 4.4.2).

Marketing instrument	Marketing measure	Possible allocation to different types of multi-stage marketing		
		Non-collaborative MSM (measure approaching indirect customers)	Collaborative MSM (measure approaching direct and indirect customers)	MSM in a wider sense (measure approaching direct customers)
Product design	Common development of new products, improvement of existing products (collaboration in R&D and product design)	x		x
	Multi-stage brand-name policy			
Additional services	Assistance with sales	x		
	Technical application service	x		
	Consulting for product design	x		x
	Consulting on new technical developments	x		x
	Development of processing procedures	x		x
	Warranty services			
	Assistance with advertising measures			x
	Providing information on primary and derived products, demand developments, etc.	x		x
	Making contact with potential customers		x	
	Cost and profitability analyses	x		x
	Staff training			
	Technical services for customers			
Communication (Promotion)	Springboard advertising			
	Personal selling	x		
	Fairs & exhibitions			
	Sales trainings			
	Advertising support			

Table 4-1:   Allocation of MSM measures for scenario construction (source: Author's illustration)

Instead of presenting the activities merely in a list, I used continuous explanations in order to improve the internal and external validity of my study. This could have resulted in a lower identification of single MSM activities; yet the different scenarios are described more clearly and help participants to better understand the overall message of the described scenario and whether it represents collaborative MSM, non-collaborative MSM, or MSM in a wider sense. Furthermore, I used bullet points in order to support the understanding of the different situational descriptions.

Figure 4-3, Figure 4-4, and Figure 4-5 present the three treatment groups according to their respective MSM strategies and the allocation of corresponding activities to the different scenarios.

All adhesives suppliers offer your company the following services:

- High level of commercial and sales support
- Broad product range
- Strong innovations in products and services
- Strong technical and operational support

**The adhesives suppliers have extensive knowledge of the industry and
good relationships with the market including your existing and potential customers.**

**Additional services the adhesives suppliers
provide <u>your customers</u> without involving your company:**

- Advice and expertise on market trends and new technological developments
- Information on advantages of their adhesives
- Analysis and optimization of your customers' cost structure and purchasing policies
- Development of adhesives technologies according to your customers' needs
- Corresponding technical support and services

Figure 4-3:   Scenario for non-collaborative MSM (source: Author's illustration)

All adhesives suppliers offer your company the following services:

- High level of commercial and sales support
- Broad product range
- Strong innovations in products and services
- Strong technical and operational support

**The adhesives suppliers have extensive knowledge of the industry and
good relationships with the market including your existing and potential customers.**

1   **Additional services the adhesives suppliers provide <u>your company</u>:**

- Continuous access to new markets and prospective trading links
- Yearly symposium (1-3 days) inviting all involved players of the industry (such as your machine producers, your competitors, your customers, your potential customers). During these days, the suppliers inform on market trends as well as new technologies and offer you a framework to network with potential customers.

2   **Additional services the adhesives suppliers provide <u>your customers</u>:**

- Invitation of your customers to the yearly symposium
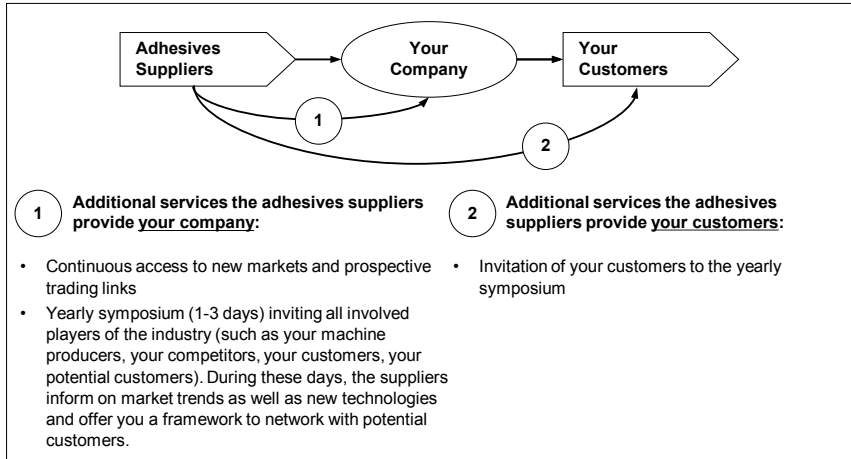
Figure 4-4:   Scenario for collaborative MSM (source: Author's illustration)

All adhesives suppliers offer your company the following services:
- High level of commercial and sales support
- Broad product range
- Strong innovations in products and services
- Strong technical and operational support

The adhesives suppliers have extensive knowledge of the industry and good relationships with the market including your existing and potential customers.

Adhesives Suppliers → Your Company → Your Customers

1
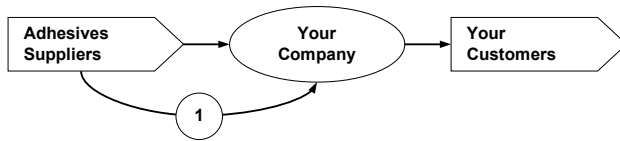
1   Additional services the adhesives suppliers provide your company:

- Advice and expertise on market trends and new technological developments
- Analysis and optimization of your pricing policy toward your customers
- Development of adhesives technologies and related services according to your needs
- Corresponding information material (such as brochures and footage) to inform your customers about these developments

Figure 4-5:   Scenario for MSM in a wider sense (source: Author's illustration)

Figure 4-6 describes a situation determining the same initial conditions of all participants. It supports the greatest possible standardization and control of influencing factors (Myers et al. 2010, p. 169) and favors the internal and external validity of this study.

Now, please imagine the following situation:

- The company you work for is using adhesives technologies (such as thermoplastic adhesives [hotmelts], dispersions, or other adhesives technologies) to produce its products.

→ **You are responsible for purchasing the adhesives for your company!**

- Different adhesives suppliers and their characteristics will be presented to you.
- It is important for you to know, that all presented adhesives suppliers offer the **same type** of adhesive technologies and corresponding packaging that generally fit the needs of your company.
- Furthermore, all presented adhesives suppliers offer you the **same services**, which are described on the following page:

Figure 4-6:   Introductory scenario (source: Author's illustration)

Randomly assigning the participants to one of the four scenarios avoided influencing respondents and further improved internal validity. This is a principal feature of real experiments as compared with quasiexperiments (Cook and Campbell 1979, pp. 55; see also section 4.1.2). After having described the research design, including the exogenous manipulation of the MSM experiment, I focus on instruments relevant for the measurement of endogenous variables in the following two sections.

4.2   Limit conjoint analysis

Focusing on the instruments relevant for the measurement of endogenous variables, I determined that limit conjoint analysis was the proper instrument with which to measure direct customers' willingness-to-pay. I describe the limit conjoint analysis and its functionality as well as the advantages and disadvantages for the choice of this instrument in section 4.2.1. The following sections focus on all parameters relevant to the limit conjoint analysis. Section 4.2.2 contains a description of its attributes and attribute levels. These attributes enable the setup of the entire design of the limit conjoint experiment presented in section 4.2.3. I close with a description of the programming and realization of the limit conjoint experiment in section 4.2.4.

4.2.1   Functionality and evaluation of the limit conjoint analysis

In the present study, I perform a limit conjoint analysis in order to measure direct customers' willingness-to-pay. It consists of three attributes of which each attribute has three attribute levels. Limit conjoint analysis closely resembles traditional conjoint analysis (TCA; Green and Srinivasan 1978) in which respondents need to rank-order stimuli according to their preferences (Backhaus et al. 2011a, p. 458). Yet in case of a limit conjoint analysis respondents must also rank order an additional limit card. The limit card represents a buy/no-buy distinction and classifies which of the stimuli would or would not be bought by a respondent. It therefore marks a respondent's point of value indifference (i.e., the point at which the perceived value corresponds to the specific price) and allows the subsequent computation of the individual, absolute willingness-to-pay of the respondent (Ahlert et al. 2006, pp. 6; Hillig 2006, pp. 61, and literature cited therein; see also Sichtmann and Stingel 2007). Corresponding to the reservation price at which a customer is indifferent between buying and not buying an offering (Jedidi and Zhang 2002, p. 1352; Niederauer 2009, p. 90;

see also section 2.2.1), a stimulus which—according to the place of the limit card—is on the "buy" side offers a higher perceived value than the price, whereas a stimulus which is on the "no-buy" side has a higher price than the perceived value.

"Gaining an understanding of what customers would be willing to pay for existing or potential product offerings remains a challenging task for business marketers" (Anderson et al. 1993, p. 25). In an empirical study among 100 informants from industrial and market research firms, Anderson et al. (1993, p. 25) found that conjoint analysis—although at that time not widely used—provides the highest judged success among compared value assessment methods. This argues in support of my decision to apply a conjoint analysis for the evaluation of direct customers' willingness-to-pay.

Meanwhile, the application of conjoint analysis is widespread in research and practice. There are a number of different variants of conjoint analysis, which differ mainly in terms of the collection of preference judgements (Backhaus et al. 2011a, p. 498). Among the most important approaches are the traditional conjoint analysis, the choice-based conjoint analysis, and the adaptive conjoint analysis (Backhaus et al. 2011a, pp. 498; Baier and Brusch 2009a, pp. 99). The principal idea of a *traditional conjoint analysis* is the presentation of (complete) objects. The stimuli are composed of an attribute level of all relevant attributes (full-profile method) that are evaluated (or rank ordered) in their comprehensive form by the respondent (*con*sidered *joint*ly). Only afterward do researchers draw conclusions about the relevance of single-object properties (i.e., partworths of the attribute levels) drawn in the sense of the *decompositional approach* of conjoint analysis. Furthermore, in order to avoid an excessive number of stimuli, the complete design—with all theoretically possible stimuli—can be reduced through a systematic selection of stimuli (reduced design) (Backhaus et al. 2011a, pp. 458 and pp. 464; Böhler and Scigliano 2009, pp. 101, and literature cited therein). Of particular high practical relevance is the *choice-based conjoint analysis* (sometimes referred to as *discrete-choice-analysis*). Inherent to this method is that respondents do not make preference judgments but are asked to take choice-based decisions. The judgement of stimuli takes place by a single or repeated selection from a set of alternatives (Backhaus et al. 2011a, pp. 458 and p. 500; Backhaus et al. 2011b, pp. 317; Balderjahn et al. 2009, pp. 129, and literature cited therein). In contrast, the *adaptive-conjoint analysis* represents a hybrid model

in which judgements of individual attributes and attribute levels (compositional part) are used to compose stimuli subject to a subsequent overall evaluation (decompositional part) (Backhaus et al. 2011a, pp. 499; Herrmann et al. 2009, pp. 113, and literature cited therein). According to Backhaus et al. (2011a, p. 501), the three types of conjoint analysis come with different advantages and disadvantages which I summarize in Table 4-2.

Criteria	Traditional conjoint analysis	Choice-based conjoint analysis	Adaptive conjoint analysis
Survey method:			
personal, in writing	++	+	--
personal, computer based	Ø	++	++
postal, in writing	Ø	Ø	--
postal, computer based	-	++	++
by telephone	Ø	(+)	+
Survey condition:			
Large number of attributes	--	--	++
Analysis on individual level	++	--	++
Individual survey profiles	-	-	++
Research objective:			
Selection decisions	Ø	++	Ø
Consideration of similarity	-	++	-
Analysis of market reactions	Ø	++	Ø
Market segmentation	++	(Ø)	(+)
Result analysis:			
Inference statistic	-	++	-

Applicability:

++ = very good   + = good   Ø = average   - = poor   -- = very poor

Table 4-2:   Comparison of different types of conjoint analysis (source: Based on Backhaus et al. 2011a, p. 501)[14]

In the present study, I chose the method of limit conjoint analysis. It can be assigned to the traditional conjoint analysis yet additionally allows the computation of individual, absolute willingness-to-pay levels of single respondents (e.g., Ahlert et al. 2006, pp. 6; Backhaus et al. 2011b, p. 360). This could have been realized with choice based conjoint variants as well. However, either a much larger sample or more complete choice sets would be necessary in order to compute individual willingness-to-pay with this type of conjoint analysis. Using

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[14] Translated from German.

hierarchical Bayesian estimation procedures in order to calculate individual willingness-to-pay levels requires a high number of respondents for each treatment group (Backhaus et al. 2011b, p. 326 and pp. 359). For example, Lenk et al. (1996) refer to a sample size of close to N = 200 in their study. Due to the experimental design including four different treatment groups, around 800 usable questionnaires would have been necessary to achieve a comparable sample size in my study. In contrast, more complete choice sets extend the complexity of the conjoint analysis and might have overwhelmed the respondents' attention level (Backhaus et al. 2011b, p. 378). Considering the expected sample size and the nature of my target group (i.e., purchasing managers for which a limited available time for participating in surveys can be assumed; see section 4.1.2), I opted for a limit conjoint analysis which poses lower application barriers (Backhaus et al. 2011b, p. 360). My final sample size and the nature of my key informant respondent population (see section 5.1.1) show that my decision was appropriate (for further information on the relevance of conjoint analysis in the context of customer value assessment and determination of willingness-to-pay, see Anderson et al. 1993; Backhaus et al. 2005a; Niederauer 2009, pp. 88).

Also the adaptive conjoint analysis could have been used for a willingness-to-pay computation on individual level. The main advantage of the adaptive conjoint analysis, however, is that a large number of attributes and attribute levels (i.e., up to 30 attributes with in each case 9 attribute levels) can be processed in form of a computer-based inquiry. It is therefore the adaptive conjoint analysis has been explicitly designed for (Backhaus et al. 2011a, pp. 499). Yet, in case of a low number of attributes and attribute levels (as in case of the present study; see section 4.2.2), a traditional conjoint analysis can be performed whereas the main advantage of the adaptive conjoint analysis is not relevant. I choose the limit conjoint analysis in which respondents need to rank order complete stimuli (Backhaus et al. 2011a, pp. 458). This results in a further important advantage. The presentation of a stimulus composed of several attributes and attribute levels allows me to avoid a direct inquiry into willingness-to-pay, which risks respondents giving biased information. In the form of a limit conjoint analysis, the attribute price represents only one of several criteria for evaluating adhesives suppliers, so—especially for respondents unfamiliar with the concept of conjoint analysis—it is barely apparent that the scaling allows for computing direct customers' willingness-to-pay. Finally, due to the consideration of trade-offs, more valid price-demand

functions can be estimated than in case of explicitly asking respondents for their willingness-to-pay (Backhaus et al. 2005a; Böhler and Scigliano 2009, p. 110).

After having determined limit conjoint analysis as the appropriate instrument to measure direct customers' willingness-to-pay, the following section focuses on the description of the attributes and attribute levels relevant to my limit conjoint analysis.

4.2.2   Conjoint attributes and attribute levels

Results from a conjoint analysis need to be considered very sensitive to the chosen attributes and attribute levels (Hillig 2006, p. 42; Weiber and Mühlhaus 2009, pp. 43). Consequently, I rely the definition of conjoint attributes and attribute levels on secondary data from the empirical study performed by a market research company in the adhesives industry in 2009 (for a description of the study and an evaluation of the appropriateness of the use of secondary data, see section 4.1.2). The representative study revealed product quality, product availability, and price as being the three most important purchase criteria in the adhesives industry. Consequently, I take these three criteria as *conjoint attributes* and I designed every attribute to possess three *attribute levels* in the limit conjoint analysis. Table 4-3 summarizes the final set of conjoint attributes and corresponding attribute levels.

Attributes	Attribute levels
A. Product quality	1. Product quality and consistency superior to average market level
	2. Product quality and consistency equal to average market level
	3. Product quality and consistency inferior to average market level
B. Product availability	1. Product availability, delivery, and security of supply superior to average market level
	2. Product availability, delivery, and security of supply equal to average market level
	3. Product availability, delivery, and security of supply inferior to average market level
C. Price	1. Adhesive costs 5% below average market level
	2. Adhesive costs equal to average market level
	3. Adhesive costs 5% above average market level

Table 4-3:   Conjoint attributes and attribute levels (source: Author's illustration)

Backhaus et al. (2011a) give an overview of the requirements relevant for the definition of conjoint attributes and corresponding attribute levels. The following criteria must be fulfilled

(Backhaus et al. 2011a, pp. 462; for a detailed description of the criteria, see also Hillig 2006, pp. 42; Weiber and Mühlhaus 2009, pp. 43):

1. The attributes are relevant for the creation of preferences.
2. The attributes are manipulable by the investigator.
3. The attributes are independent from each other.
4. The attribute levels are feasible.
5. The attribute levels have a compensatory relationship.
6. The attributes and attribute levels are not criteria for exclusion.
7. The number of attributes and attribute levels can be limited.

The purpose of the practical study performed in 2009 was to reveal the most relevant criteria for purchase decisions in the adhesives industry. Consequently, one can assume that the three most relevant criteria are relevant for the *creation of preferences*, fully meeting the first requirement for the determination of attributes. All three conjoint attributes are *feasible* and *manipulable* by a supplier or an investigator, whereas it is possible for determined attribute levels to be *limited* to a manageable number, fulfilling the second, fourth, and seventh requirements. For the creation of preferences, product quality, product availability, and price are *independent* from each other and corresponding attribute levels can be assumed to have a *compensatory relationship*. The preference for one attribute level might not be influenced by the preference for an attribute level of another attribute. For example, the preference for a specific product quality can be evaluated independently of the prevailing attribute level of product availability or price.

The price criterion related to product quality or product availability is critical. Yet practical considerations show that low price offers for products (adhesives) with high quality or high availability commonly appear in the adhesives industry. Either combining favorable attribute levels of product quality and product availability with a low price level or combining unfavorable attribute levels of product quality or product availability with a high price level is common. The overall utility is a summation of all the different attribute levels. It is possible to compensate for lower preferences for attribute levels on one attribute with higher attribute levels on other attributes. This fulfills the third and fifth requirements. Finally, I assume that

all attribute levels are generally acceptable for the respondents so that none of the attributes or corresponding levels represents a *criterion for exclusion*. This fulfills the sixth and last requirement. I consider product quality, product availability, and price to be well-fitting attributes for the conjoint experiment. Thereby, the attribute *price* enables me to draw conclusions about the impact of the different MSM strategies on the willingness-to-pay of direct customers (e.g., Ahlert et al. 2006, pp. 6; for the functionality of the limit conjoint analysis, see section 4.2.1).

4.2.3   Design of the limit conjoint experiment

I have designed the limit conjoint analysis according to the full profile method ($3 \times 3 \times 3$) (Hillig 2006, p. 40). A combination of one attribute level of each conjoint attribute represents one stimulus, namely one fictitious adhesives supplier offering a specific product quality, a specific product availability, and a specific price level. However, 27 fictitious adhesives suppliers (stimuli) would be too many for a respondent to report about his preferences regarding corresponding characteristic traits. Because of its symmetry, I reduced the $3 \times 3 \times 3$ design to an orthogonal design by the *Latin square method* as Table 4-4 illustrates (Backhaus et al. 2011a, pp. 466; Baier and Brusch 2009c, p. 74).[15]

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[15] For a reduction of asymmetric designs based on the basic plans of Addelman, see Addelman 1962, pp. 21.

Full factorial design and derived Latin square, market grey:

A1B1C1 (1)	A2B1C1	A3B1C1
A1B2C1	A2B2C1	A3B2C1 (8)
A1B3C1	A2B3C1 (6)	A3B3C1
A1B1C2	A2B1C2 (4)	A3B1C2
A1B2C2 (2)	A2B2C2	A3B2C2
A1B3C2	A2B3C2	A3B3C2 (9)
A1B1C3	A2B1C3	A3B1C3 (7)
A1B2C3	A2B2C3 (5)	A3B2C3
A1B3C3 (3)	A2B3C3	A3B3C3

Final orthogonal design:

A1B1C1	A2B1C2	A3B1C3
A1B2C2	A2B2C3	A3B2C1
A1B3C3	A2B3C1	A3B3C2

Table 4-4:   Full factorial design and reduced orthogonal design (source: Based on Backhaus et al. 2011a, p. 467)

The reduced design consists of 9 different stimuli (adhesives supplier). As an example, Figure 4-7 illustrates the plancard for Stimulus 3 (A1B3C3).

Plancard 3 (A1B3C3)
Product quality and consistency superior to average market level
Product availability, delivery, and security of supply inferior to average market level
Adhesive costs 5% above average market level

Figure 4-7:   Exemplary plancard for stimulus 3 (source: Author's illustration)

Because of the complexity of the survey and to avoid overloading the respondents, I refrained from using holdout cards (for a similar approach, see Ahlert et al. 2006, pp. 10 and p. 21).[16] Holdout cards are additional stimuli which are included into the reduced design. Similar to all other stimuli, they are also evaluated or rank ordered by the respondents. But instead of being used to calculate partworths of the attribute levels, they are being used for an evaluation of the validity of the conjoint analysis (Backhaus et al. 2011a, p. 481). However, using a single

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[16] Displaying the orthogonal design, SPSS labels stimuli (plancards) of the reduced design with "status 0", holdout cards with "status 1", and simulation cards with "status 2" (Backhaus et al. 2011a, p. 481).

holdout card is of limited value for the evaluation of internal validity, whereas using several holdout cards might have overwhelmed the respondents, considering the already high complexity of the MSM experiment (Niederauer 2009, pp. 154; Voeth 2000, pp. 241). I evaluated the internal validity of the MSM experiment extensively, and I describe this in section 5.2. I describe the realization of the limit conjoint analysis in the following section.

4.2.4   Realization of the limit conjoint experiment

A team of market research and IT specialists programmed the limit conjoint analysis specifically to be a part of the present study. [17] As an independent module, the limit conjoint analysis consisted of two pages integrated into the online questionnaire (see pages 4 and 5 of the questionnaire illustrated in Appendix 1). On the first page of the conjoint analysis (page 4), respondents were asked to rank order nine plancards representing different adhesives suppliers. All plancards were lying in a pile, so the respondents' task was to drag and drop each of them on one of nine fields, beginning with the most attractive and ending with the least attractive adhesives supplier. To facilitate the sorting, the respondents could drop the plancards temporarily on any part of their screens, and they could change the rank order as often as they wished before moving on to the next page. To improve the manipulation according to the respective treatments (four different scenarios; see section 4.1.3), the respondents were explicitly reminded of the adhesives suppliers' services described on the questionnaire page before the conjoint analysis (page 3) while completing the rank order. They also had the option of going back in the questionnaire in case they did not remember the services offered (respective scenario).

The main task on the second page of the conjoint analysis (page 5) was placing the limit card. The respondents continued to see their rank order defined on the previous page (page 4). Asking to identify adhesives suppliers they might really buy from, the respondents were then asked to place a limit card between the last acceptable and the first uninteresting adhesives supplier. Accordingly, all adhesives suppliers from which the respondent might buy remained before the limit card (left of it), whereas all the others from which the respondent would not buy remained behind the limit card (right of it). The respondents were allowed to place the

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[17] Special thanks to Martin Kolb and the team of *netzumfrage.com GbR* in Mannheim, Germany for their support in the realization of the limit conjoint analysis of the MSM experiment.

limit card at the first or last position as well, which meant that they might buy from none or all of the adhesives suppliers. The respondents could change the limit card's position as often as they wished before turning to the next page. Again, to improve the manipulation, the respondents were explicitly reminded of the adhesives suppliers' services described on page 3. Yet, additionally of having the option to go back in the questionnaire, the suppliers' services offers (scenario of page 3) were illustrated entirely on the page placing the limit card (page 5). This ensured that the respondents remembered the scenario.

The generated database of the conjoint module consisted of respondents' individual rank orders of the different stimuli (adhesives suppliers) and a respective rank number of the limit card. Thus, it was possible to translate the individual rank orders into a comprehensive scoring system for every different stimulus, allowing computation of customers' willingness-to-pay for the stimuli (Ahlert et al. 2006, pp. 6; Hillig 2006, pp. 61, and literature cited therein; see the data analysis of the limit conjoint experiment in section 5.1.2). Whereas willingness-to-pay represents the central endogenous variable relevant to the present study, the following section focuses on the operationalization of all remaining constructs.

4.3   Operationalization of constructs

Operationalization refers to the assignment of concrete measurements and statistical methods to hypothesized constructs (Kuss and Eisend 2010, p. 24). It is a principal concern in any study and applies to both treatment and outcome variables (Kubinski et al. 1991, p. 150). Theoretical constructs "are abstract, unobservable properties or attributes of a social unit or entity. They achieve their meaning through formal connections to empirical concepts as well as through their definition" (Bagozzi and Phillips 1982, p. 465; see also Bagozzi and Fornell 1982, p. 24). *Latent variables* often represent constructs that are not directly measurable. The central idea is to define adequate measures (i.e., indicator variables) that allow assessment of the (latent) variables (constructs) of interest (Churchill 1979, p. 64; Homburg and Giering 1996, p. 6; Jacoby 1978, p. 92).

A central question in the context of construct operationalization is about the determination of formative or reflective measurement models (e.g., Diamantopoulos and Winklhofer 2001). "Depending on the direction of the relationship between a factor [latent variable] and its

indicators it is distinguished between reflective and formative indicators" (Homburg and Giering 1996, p. 6[18], and literature cited therein). Section 4.3.1 contains a brief overview of the differences between these measurement models. Section 4.3.2 presents different measurement scales relevant to this study. Direct customers' willingness-to-pay is relevant to my previous hypotheses about the main effects, and I measure it using the limit conjoint analysis. Section 4.3.3 focuses on the operationalization of the constructs relevant to analyzing the moderator and additional effects. It includes the operationalization of the moderator constructs component importance and power structure as well as additional endogenous constructs, namely customer satisfaction and loyalty.

4.3.1   Formative versus reflective measurement models

Blalock (1964, p. 163) was the first to draw a distinction between formative and reflective measurement models. Reflective models are built on the fundamental assumption that dimensions of relevant indicator variables are caused by changes of a latent, higher-order construct. The dimensions of reflective indicator variables are correlated and interchangeable facets and a consequence of the effectiveness of a latent variable (cause). Indicators are considered as a (perhaps defective) measurement of a particular focal construct (Bollen and Lennox 1991, pp. 305). "In contrast, formative specifications view a higher-order construct as being caused by its dimensions" (Ulaga and Eggert 2006b, p. 127). The latent variable (effect) is described by a linear function of the indicator variables, whereas its dimensions do not need to be highly correlated with one another (Backhaus et al. 2011b, pp. 74, pp. 107, and pp. 120; Bollen and Lennox 1991, pp. 305; Ulaga and Eggert 2006b, p. 127, and literature cited therein).

According to Diamantopoulos and Winklhofer (2001), the issue of index construction using formative measures has received little attention until 2001. Despite their appropriateness, "cause indicators" are neglected in many instances and especially in marketing, in which practically "all measures available are based—implicitly or explicitly—on reflective indicators" (Diamantopoulos and Winklhofer 2001, p. 269, referring to Bollen 1989, p. 65; see also Bearden et al. 1993; Bruner and Hensel 1992, 1996). The findings require a careful evaluation as to whether a formative or reflective specification should be applied in the

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[18] Translated from German.

present study. Diamantopoulos and Winklhofer (2001, p. 274, and literature cited therein) suggest that "the choice between a formative and a reflective specification should primarily be based on theoretical considerations regarding the causal priority between the indicators and the latent variable involved.… Additional considerations include the objectives of the study and empirical issues."

Weiber and Mühlhaus (2010, p. 36) describe the central question as whether "the change of the indicator variable causes a change of the latent variable (= formative) or the change of the latent variable causes a change in the indicator variable (= reflective)."[19] This allows the identification of formative or reflective measurements. In more detail, Jarvis et al. (2003, p. 203) offer a comprehensive list of decision rules for determining formative or reflective indicator variables. For example, Ulaga and Eggert (2006b, pp. 127) rely on the decision rules offered by Jarvis et al. (2003, p. 203) and suggest a formative measurement approach in which the causality flows from the measures (value drivers) to the construct (relationship value as the composite latent construct; see also section 2.2.1). Value drivers may correlate as customers make tradeoffs between different value dimensions but do not necessarily need to (Ulaga and Eggert 2006b, pp. 127). Ulaga and Eggert (2006b, p. 128) explain: "We define customer-perceived value in a key supplier relationship as a formative higher-order construct that represents the trade-off between the benefits and the costs perceived in the supplier's core offering, in the sourcing process, and at the level of customers' operations, taking into consideration the available alternative supplier relationships."

Building on these assumptions, I have operationalized moderator variables by multiple formative items and the endogenous constructs relevant for the analysis of additional MSM effects by multiple reflective items. I describe the operationalization of these constructs in section 4.3.3. But first, the following section specifies applicable measurement scales.

4.3.2   Measurement scales

Determining formative or reflective indicators and concretizing measurement scales to generate empirical data, referred to as *scaling*, are relevant for operationalizing constructs. Extant literature provides numerous scaling methods including rankings, paired comparisons,

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[19] Translated from German.

and rating procedures such as Likert or Guttman scaling. In addition, conjoint analysis (see section 4.2) represents a method for generating empirical (measurement) data (Weiber and Mühlhaus 2010, pp. 95, and literature cited therein). Relevant to the present study, several constructs require different measurement scales. Table 4-5 gives an initial overview of the relevant constructs, the applied measurement scales, and the specification of corresponding measurement models. I present Likert scales and semantic differentials briefly in the following.

Construct	Indicators	Measurement	Specification of measurement model
Willingness-to-pay	Single item (WTP)	Limit conjoint analysis	n/a
Component importance	Multiple items (5)	Semantic differential, 5-point bipolar rating scale	Formative (cause)
Power structure	Multiple items (4)	Semantic differential, 5-point bipolar rating scale	Formative (cause)
Customer satisfaction	Multiple items (2)	Semantic differential, 5-point bipolar rating scale	Reflective (effect)
Customer loyalty	Multiple items (2)	Likert scale, 5-point bipolar rating scale	Reflective (effect)

Table 4-5:   Constructs and measures relevant to the present study (source: Based on Weiber and Mühlhaus 2010, p. 89)

As Judd et al. (1991, pp. 163; based on Likert 1932) describe, Likert developed Likert scales in 1932, and these are the most widely used scales in the social sciences today. The authors explain that, for reflective items, it is possible to derive the scale score by summing the numerically coded responses of each monotone item and interpret the score representing the respondent's attitude or other constructs being measured. The characteristic of summated scales results from the basis of its interpretation:

> The probability of agreeing with favorable items (and disagreeing with unfavorable ones) increases directly with the degree of favorability of the subject's attitude.… The measured response to any single item is considered to reflect in part the error-free underlying attitude or other construct and in part measurement error. The summation of many item responses into a single scale score allows the error components (some of which are positive, some negative) partially to be cancelled out, while preserving and strengthening the common core of the "true" underlying attitude reflected in each item. (Judd et al. 1991, p. 163)

Osgood et al. developed semantic differentials in 1957. This specialized scaling method shares the basic characteristics of summated scales. By asking respondents to make a series of ratings on multiple-point, bipolar response scales, it enables researchers to measure their attitudes toward an object (Judd et al. 1991, pp. 167, referring to Osgood et al. 1957).

Although the respondents ordinarily indicate a degree of agreement or disagreement with each item, Likert scales, as well as semantic differentials, "… may be found to produce data that approximate an interval scale" (Judd et al. 1991, p. 169, referring to Anderson 1961; Dawes and Smith 1985, pp. 531; Hays 1963; see also Kuss and Eisend 2010, p. 89). Even if some authorities claim they can in principle apply powerful data analysis meaningfully only to interval scale data, researchers can use these (ordinal) data effectively for powerful data analysis ("interval" statistics, such as correlation and factor analysis) (Judd et al. 1991, p. 169). Accordingly, I apply an *exploratory factor analysis* (EFA; e.g., Backhaus et al. 2011a, pp. 329) to potentially reduce the number of items used to describe the reflective constructs of customer satisfaction and loyalty (see section 5.2.3.1). In contrast, I apply summated scales of the item responses to reduce the number of items used to describe the formative constructs of component importance and power structure (see section 5.2.3.2).

Relevant to all applied measures, I included no negatively worded items in this study. As Podsakoff et al. (2003, p. 884) explain, the idea of such reverse-coded items is to reduce potential effects of response-pattern biases by incorporating negatively worded or reverse-coded items on the questionnaire (see also Hinkin 1995; Idaszak and Drasgow 1987). However, using reverse-coded items is controversial because, as research shows, negatively worded items are a source of method bias (Podsakoff et al. 2003, p. 884). Accordingly, I did not use them in this survey (for further information on reverse-coded items, see also Harvey et al. 1985; Schmitt and Stults 1986).

Although risking a variance restriction, I used five-point scales for all applied measures. Considering the complexity of the questionnaire and, in particular, the complexity of the respective scenarios and the subsequent conjoint task, as well as the conjoint task's priority according to the research objectives, an expansion to a seven-point or even nine-point scale might have overwhelmed the respondents' attention level. Furthermore, well-established

studies used five-point scales to measure similar constructs (see Slater and Narver 2000, pp. 70, applying a five-point, Likert-type scale for measuring market orientation; see also Diamantopoulos and Winklhofer 2001; El-Ansary and Stern 1972; Lusch 1976; Naman and Slevin 1993).

4.3.3   Operationalization of constructs relevant to the present study

The exogenous variable (treatment) relevant to the present study is the type of MSM. I operationalized the variable using three different scenarios representing each type of MSM as well as a fourth scenario devoid of MSM measures for the control group. I operationalized the scenarios by integrating different activities allocated to every respective MSM type (see section 4.1.3). The central endogenous variable is direct customers' willingness-to-pay, for which I generate measurable data using a limit conjoint analysis (see section 4.2). I have included more constructs in the model and hypothesis framework (see sections 3.2.3 and 3.3). The following sections focus on their operationalizations.

4.3.3.1   Component importance

The component importance in the final product (i.e., the importance of adhesives for the quality of the end product) potentially moderates the impact of MSM measures on the central endogenous variable defined in the effect model (see section 3.2.3.1). In current literature there are almost no examples of how to operationalize this or similar constructs. Ghosh and John (2009) provide an exception. In their study of OEMs' potential use of branded component contracts (ingredient branding) with suppliers, Ghosh and John (2009, p. 604) apply a single-item measure on a seven-point Likert-type scale to capture the significance of components to the performance of the OEMs' end products. Although not specified, I assume the single item met the requirements of a reflective measurement model (because a single item is not reasonable in the case of formative measures; Fuchs and Diamantopoulos 2009, p. 199). Judd et al. (1991, p. 164) propose several steps for constructing Likert scales, including assembling a large number of items relevant to the construct to be measured (see also Weiber and Mühlhaus 2010, p. 93). Similarly, Bollen (1989, pp. 288) and Churchill (1979, p. 69) suggest using several indicators in reflective measurement models. "The measurement of constructs with single items has been criticized in the marketing literature, as it often cannot capture the richness of a concept" (Caruana et al. 2000, p. 1345, and literature

cited therein). Relying on these suggestions, the present study proposes using a larger number of items for operationalizing component importance. At the same time, I propose implementing a formative measurement model, which in any case requires a larger number of indicators.[20]

According to its conceptualization and definition (see section 3.2.3.1), component importance is characterized by the functional and economic relevance of a component for the end product and the producing company. Relevant criteria include the impact of the component on the overall performance of the end product, the costs of the component, the availability of component suppliers, as well as the dependency on these suppliers. Yet—except of the measure to capture the component's relevance for the end product's performance provided by Ghosh and John (2009)—there are no established measurement scales in order to quantify these or similar criteria. Therefore, I based the development of a measurement scale on practical considerations as well as a review of qualitative information and exploratory interviews with marketing and sales managers working in the adhesives industry.[21]

Five indicators (cause) were determined to adequately form the construct of component importance (effect), as characterized in the adhesives industry. These indicators include the proportion of the adhesive expenses compared to the total material costs (*adhesive_expenses*), the relevance of the adhesive for the product quality of the final product (*adhesive_essential_pq*), the number of available relevant adhesives suppliers (*available_adhesive_suppliers*), the switching costs resulting from changing between different adhesives suppliers (*adhesive_suppliers_switching_costs*), and the availability of production technologies as an alternative to the usage of adhesives (*alternative_technologies*). According to its conceptualization the indicators form the construct of component importance by determining the functional and economic relevance of a component for the end product and the producing company. Consequently, the indicators meet the requirements of a formative measurement model (Weiber and Mühlhaus 2010, p. 36). The applied scaling

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[20] A decision between single-item and multi-item measurements is relevant only in the case of reflective measurement models, whereas "a single-item measurement under a formative perspective appears problematic for several reasons" (Fuchs and Diamantopoulos 2009, p. 199). The central reason is the assumption that formative measurements are "formed" by several dimensions (Weiber and Mühlhaus 2010, pp. 87 and pp. 91).

[21] Qualitative information included the description of a practical approach to measure a product's component importance in the end product.

method is a semantic differential. I describe each of the items with a five-point bipolar rating scale, as Table 4-6 summarizes. According to the applied measures, higher scores on the applied scales indicate a lower component importance of adhesives in the suppliers' products.

In general, how relevant is the adhesive from your company's point of view?

Item	Scale	Measures
adhesive_expenses	1-5	The adhesive expenses account for a **high proportion** of the total material costs / The adhesive expenses account for a **low proportion** of the total material costs
adhesive_essential_pq	1-5	The adhesive is **essential** for the product quality of the final product / The adhesive is **not essential** for the product quality of the final product
available_adhesive_suppliers	1-5	A **low number** of relevant adhesives suppliers are available for my industry / A **high number** of relevant adhesives suppliers are available for my industry
adhesive_suppliers_switching_costs	1-5	Changing between different adhesives suppliers creates **high switching costs** / Changing between different adhesives suppliers creates **low switching costs**
alternative_technologies	1-5	Instead of adhesives, there are **few** alternative technologies available for production / Instead of adhesives, there are **many** alternative technologies available for production

Table 4-6:   Operationalization of component importance (source: Author's illustration)

4.3.3.2   Power structure

The "evaluation of the presence or absence of market power is a key element of most antitrust and competition analyses" (Hausman and Sidak 2007, p. 387). Analyzing corresponding literature (e.g., Hausman and Sidak 2007), it is possible to identify a variety of econometric methods with which to measure market power. Baker and Bresnahan (1992, p. 4) describe the traditional approach of measuring market power, inferring it from market concentration. Entry conditions or the industry structure are integrated aspects to improve market power estimates made in antitrust practice. In contrast, Baker and Bresnahan (1992, pp. 6) propose new econometric methods for measuring market power—for example, empirical methods based on responses to variation in cost, variation in the elasticity of demand, or detection of multiple pricing regimes.

In addition, Hausman and Sidak (2007) propose new methods to evaluate market power and compare them with the traditional "HHI approach." The HHI approach includes defining the market and calculating the market share, typically according to the Herfindahl-Hirschman Index by summing the squared market shares of firms in the relevant market. This approach also takes into consideration additional structural features of the market (Hausman and Sidak 2007, pp. 387). In contrast, the authors suggest making market power analysis rely on

competitive benchmark prices. If significant market power exists, consumers will pay supracompetitive prices. A competitive benchmark analysis allows for determining such supracompetitive prices (Hausman and Sidak 2007, p. 388).

El-Ansary and Stern (1972, p. 47) present "a first attempt to empirically measure power relationships within a specific channel of distribution." Based on Dahl's (1964) understanding of "power of a channel member as his ability to control the decision variables in the marketing strategy of another member" (El-Ansary and Stern 1972, p. 47, referring to Dahl 1964) as well as a consideration of "power as a function of dependence" (El-Ansary and Stern 1972, p. 47, referring to Emerson 1962), and "power as a function of sources of power" (El-Ansary and Stern 1972, p. 47, referring to Simon 1953), the authors developed a power measurement model from a variety of disciplines (El-Ansary and Stern 1972, p. 51). "For every channel member four basic scores were obtained: (1) a power score ["control over marketing strategy variables"], (2) a weigthed power score ["the relative importance of each of the various marketing strategy variables"], (3) a dependence score ["the extent of dependency"], and (4) a sources-of-power score" (El-Ansary and Stern 1972, p. 49). Thereby, the measurement model of El-Ansary and Stern (1972) focuses on vertical power relationships within a distribution channel.

Diamantopoulos (1987, p. 186) outlines "a vertical power relationship is to be distinguished from a horizontal power relationship, the latter involving firms operating at the same stage of production or distribution." Similar to El-Ansary and Stern (1972), the author focusses on vertical power relationships and measures power in terms of the *domain* of power ("the set of firms over which a particular firm exercises power"; Diamantopoulos 1987, p. 186, referring to Cartwright 1965), the *weight* of power ("the degree to which the exercise of power by a firm will affect the probability of another firm to behave in a certain way under certain circumstances"; Diamantopoulos 1987, p. 186), and the *scope* of power ("the states of the domain [decision variables of other firms] that can be influenced by the firm"; Diamantopoulos 1987, p. 186). Furthermore, Diamantopoulos (1987, pp. 187) distinguishes between the possession and the use of power and relates it to five types of power based on its source or origin (i.e., reward, coercive, legitimate, referent, and expert power;

Diamantopoulos 1987, p. 187, referring to French and Raven 1959), as well as to "the link between power and dependence" (Diamantopoulos 1987, p. 190).

Relevant to the present study is the vertical power relationship between direct and indirect customers and the impact it might have on the relevance of (adhesives) suppliers' MSM measures (see section 3.2.3.2). Purposely, I have kept the market power of the adhesives suppliers constant and did not manipulate it in the (exogenous) treatment. I assume all adhesives suppliers to have the same market power. Consequently, only direct customers' (relative) market power will determine the power structure within the supply chain. According to its conceptualization and definition (see section 3.2.3.2), the market power of a direct customer in relationship to the market power of indirect customers is characterized by the power-dependence relationship between both market stages (Emerson 1962, pp. 32). More specifically, the power structure is determined by the direct customer's level of competition and its potential for differentiation, as well as by the indirect customers' switching costs in case of changing between the direct customers' and its competitors' products.

For power measurement, the models provided by El-Ansary and Stern (1972) or Diamantopoulos (1987) would be too wide-ranging and extensive. Also an evaluation of the respondents' companies' (relative) market power according to methods prevailing in the context of antitrust or competition agencies would exceed the scope of this study. Neither do I consider it constructive. As in the case of component importance, I therefore operationalized the power structure based on practical considerations as well as a review of qualitative information and exploratory interviews with marketing and sales managers working in the adhesives industry.[22] In accordance with the objectives of the study, the questions had to be answerable by the respondents, which would not necessarily have been the case if I had applied the econometric methods or the measurement models I presented earlier.

I determined that four indicators are relevant to an evaluation of the power relationship between direct and indirect customers of the adhesives industry. Focusing on the link between power and dependence, these indicators include the number of competitors the direct customer is facing (*company_no_competitors*), the relative market share of the direct

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[22] Qualitative information included the description of a practical approach to measure a company's power position within a supply chain.

customer (*company_relative_market_share*), the direct customer's differentiation in products and services (*company_differentiation*), and the customer's customers switching costs resulting from changing between the direct customer's and the direct customer's competitors' products (*company_switching_costs*). The items meet the requirements of formative indicator variables and describe adequately the construct of market power as characterized in this study (Weiber and Mühlhaus 2010, p. 36). As in the case of the operationalization of component importance, I applied a semantic differential described by a five-point bipolar rating scale. Higher scores on the applied scales indicate lower market power of the respondents' companies. Table 4-7 summarizes the items with corresponding anchors.

In general, how would you estimate the market position of your company?

Item	Scale	Measures
company_no_competitors	1-5	My company is facing a **low number** of competitors / My company is facing a **high number** of competitors
company_relative_market_share	1-5	My company has a **high relative market share*** / My company has a **low relative market share***
company_differentiation	1-5	My company has a **high differentiation** in products and services / My company has a **low differentiation** in products and services
company_switching_costs	1-5	Changing between my company's products and a competitor's products creates **high switching costs** for our customers / Changing between my company's products and a competitor's products creates **low switching costs** for our customers

** The relative market share compares a business's own turnover / sales volume
  in a given period (e.g., 1 year) with its biggest competitor in this market.*

Example:
Sales Competitor A = 25
Sales Competitor B = 12
=> Relative Market Share of Competitor A compared with Competitor B = 2.08 (25 / 12)
=> Relative Market Share of Competitor B compared with Competitor A = 0.48 (12 / 25)

Table 4-7:   Operationalization of power structure (source: Author's illustration)

4.3.3.3 Customer satisfaction

Customer satisfaction is an affective post-decision experience construct which reflects the customer's emotional state resulting from his evaluation of a product or service provider's performance. More specifically, it refers to the customer's evaluation of the perceived quality relative to his prior expectations about the quality (Homburg et al. 2005, p. 85; Lam et al.

2004, p. 295, and literature cited therein; see also section 2.2.2.1). Furthermore, centering on additional (not core offer-related) MSM measures (e.g., additional services) of a supplier (see section 3.1.4), it becomes interesting, whether a customer perceives a supplier's offer including additional MSM measures as more extensive (offering more services) compared to a supplier's offer without additional MSM measures (offering fewer services). Accordingly, I specify a supplier's performance not only in terms of qualitative but also in terms of quantitative aspects; building on Homburg et al. (2005, p. 85), I focus on customer satisfaction as an emotional state resulting from the customer's performance evaluation in respect to the quality and the quantity of provided services. Furthermore, I focus on a transaction-specific satisfaction or dissatisfaction (Caruana et al. 2000, p. 1343; see also section 2.2.2.1).

"Operationally, satisfaction is similar to an attitude, as it can be assessed as the sum of the satisfactions with the various attributes of the product or service" (Caruana et al. 2000, p. 1342, referring to Churchill and Surprenant 1982). It might be necessary to apply multiple-item scales to capture the multi-faceted nature and richness of the customer satisfaction construct (Hu et al. 2009, p. 115). However, an extensive evaluation of customer satisfaction exceeds the scope of the present study. Still, to cover the construct and possibly receive an indication of the relevance of MSM in creating customer satisfaction, I included two items to evaluate customer satisfaction as conceptualized and defined in this study.

Lam et al. (2004, p. 299, referring to Andreassen and Lindestad 1998) describe one item to evaluate overall service satisfaction in terms of congruence with expectations. Serving as a basis, I defined two similar items to evaluate customers' overall satisfaction and congruence with expectations relevant to this study. The first item (*extent_services*) evaluates whether a customer perceives a supplier offering fewer or more services than expected. Consequently, it covers the direct customer's evaluation of a supplier's performance in terms of quantity. The second item (*expectation_services*) focuses stronger on the supplier's qualitative performance. It evaluates whether the provided services meet or do not meet the direct customer's expectations in this respect. The items meet the requirements of a reflective measurement model (Weiber and Mühlhaus 2010, p. 36). The applied scaling method is a semantic differential described by a five-point bipolar rating scale. Higher scores on the applied scales

indicate service performance exceeding customers' expectations. Table 4-8 summarizes the two items[23] with corresponding anchors.

Do the described services of the adhesives suppliers come up to your expectations?

Item	Scale	Measures
extent_services	1-5	The adhesives suppliers offer **fewer** services than I expect / The adhesives suppliers offer **more** services than I expect
expectations_services	1-5	The described services **do not meet** my expectations / The described services **meet** my expectations

Table 4-8:   Operationalization of customer satisfaction (source: Author's illustration)

4.3.3.4 Customer loyalty

"Customer loyalty manifests itself in a variety of behaviors [or behavioral intentions], the more common ones being recommending a service provider to other customers and repeatedly patronizing the provider" (Lam et al. 2004, pp. 294, referring to Dwyer et al. 1987; Fornell 1992). As Lam et al. (2004, p. 295) explain, marketing literature has treated these two behaviors (or behavioral intentions) as loyalty indicators. Consequently, the authors consider "willingness to recommend" and "patronage" as key manifestations of customer loyalty (Lam et al. 2004, pp. 294, referring to Sirdeshmukh et al. 2002; Zeithaml et al. 1996).

I follow this approach and refrain from considering further manifestations of customer loyalty. In the present study, customer loyalty has been characterized as the direct customers' behavioral intention to stay in a relationship with its suppliers (see section 2.2.2.2). Thereby, repeatedly patronizing a provider indicates a customer's *repurchase intention* (Sirdeshmukh et al. 2002; Zeithaml et al. 1996). In line with my conceptualization of customer loyalty, I therefore refrained from including additional indicators for willingness-to-recommend and I included measures for repurchase intention only.

Chiou et al. (2010, p. 436) and Lam et al. (2004, p. 299) propose two items to measure repurchase intention. I used both items for this survey, corresponding to a reflective

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[23] Translated from German.

specification (Weiber and Mühlhaus 2010, p. 36). The first item evaluates a direct customer's behavioral intention to consider adhesives suppliers' described services as its first choice. The second item quantifies the direct customer's behavioral intention to do more business in future with adhesives suppliers offering the described services. According to Chiou et al. (2010, p. 436), I applied a five-point Likert rating scale anchored with 1 (I fully disagree) and 5 (I fully agree).[24] Table 4-9 summarizes the items[25] with corresponding anchors.

How do you assess the above described activities of the adhesives suppliers from your company's point of view?

Item	Scale	Measures
My company considers adhesives suppliers offering the described services as its first choice	1-5	I fully disagree / I fully agree
In the next few years, my company will do more business with adhesives suppliers offering the described services	1-5	I fully disagree / I fully agree

Table 4-9:   Operationalization of customer loyalty (source: Author's illustration)

I have specified all constructs relevant to the present study. The following section describes the testing to evaluate the developed questionnaire.

4.4   Testing

According to Perdue and Summers (1986, p. 319), *pretesting* refers "to those activities designed to assess the appropriateness of selected parts of the experimental procedures and/or instruments. The term *pilot test* applies to those procedures involved in exposing subjects to the total experimental experience under conditions like those of the main experiment, with the possible exception of the measurement of the dependent variables."

I use the same differentiation in the present study. I use *pilot testing* to evaluate the proper functioning of the programming, quality, and understandability of the questionnaire as well as its operationalizations (Kluckert 2011, p. 151). I tested the original, English version of the questionnaire using a sample of industrial companies from eight European countries and South Africa. I describe the pilot testing and the resulting adaptations of the questionnaire in

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[24] Translated from German.
[25] Translated from German.

section 4.4.1. Because of the German-speaking sample I used for the main survey, I had the revised questionnaire translated into German. I evaluated the understandability and, in particular, the successful manipulation by different MSM scenarios, using an additional *pretest* in the form of a *manipulation* and *realism check*, independent of pilot testing and the main experiment. I describe this in section 4.4.2.

4.4.1 Pilot testing of the questionnaire

For pilot testing of the English version of the questionnaire, I used a sample of industrial companies located in European countries[26] and South Africa. As in the case of the main survey (for further information on the used sample of the main survey, see section 4.1.2), the companies do business in different consumer product industries (including beverages, packaging, food products, printing, textiles, and others) and are potential clients of the adhesives industry. A selection of employees who could be key informants received an e-mail asking them to participate in the survey. The e-mail contained a hyperlink that connected them directly to the online questionnaire. A total of 4,479 e-mails were sent to 799 different companies. A total response of N = 109 (2.4%) after two mail rounds, including a reminder, enabled me to obtain N = 15 (<0.05%) completed questionnaires. The low reply rate revealed the necessity to simplify the questionnaire. An additional test run of the questionnaire among eight practitioners working as sales or marketing managers in the adhesives industry confirmed the need for simplification. The managers were asked to put themselves into the role of a purchaser for adhesives and to complete the questionnaire as accurately as possible. An average response time of more than 30 minutes confirmed the possibility that the questionnaire was excessively complex. Consequently, I simplified the questionnaire in several ways.

My analysis of the incompleted questionnaires showed that 96% of all participants stopped before finishing the first page of the questionnaire (the first page with questions after the introduction). Consequently, I shortened the introduction significantly, restricting it to a description of the general purpose of the study. I included bullets to further structure the information. Furthermore, I reduced the detail of all applied items of the semantic differentials.

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[26] European countries include Belgium, Denmark, Finland, Luxembourg, Netherlands, Norway, Sweden, and the United Kingdom.

I also removed additional information for every scale point (e.g., in the case of the item adhesive_expenses: *High: adhesive cost >50%* for scale point 1 [out of 5]; *Adhesive cost: 35–50%* for scale point 2 and so on), expecting to reduce the respondents' assumed level of sensitivity of given information. In this context, I furthermore decided to create a personalized instead of anonymous main survey to further improve the response behavior.

I used the data I obtained from the conjoint analysis to calculate the relative importance of different conjoint attributes (Backhaus et al. 2011a, p. 477 and pp. 486), which revealed a consistently low relative importance of the price attribute (<15%), independent of the treatment group. Initially, I designed the attribute price with attribute levels of adhesive costs 5% above and below the market average and equal to the market average. However, the results I obtained from pilot testing of the final questionnaire revealed that price as an attribute needed an adaptation with a greater price span than I had originally designed for (see section 4.2.2). The industry had undergone heavy price fluctuations throughout the course of 2011 and beyond. During this time, high double-digit price adaptations became common. Raw material shortages affected the adhesives industry, which might have caused a decreased relevance of prices in comparison to security of supply. Consequently, I adapted the price span to 15% above and below the market average.

To further improve the return rate of the main survey, I simplified the attribute levels of the conjoint analysis with regard to their complexity and wording. Figure 4-8 illustrates the final plancards in the English version of the questionnaire.

Card List				
	Card ID	quality	availability	price
1	1	high product quality	high product availability	pay 15% less than today
2	2	high product quality	standard product availability	pay same as today (+/-0%)
3	3	high product quality	low product availability	pay 15% more than today
4	4	standard product quality	high product availability	pay same as today (+/-0%)
5	5	standard product quality	standard product availability	pay 15% more than today
6	6	standard product quality	low product availability	pay 15% less than today
7	7	low product quality	high product availability	pay 15% more than today
8	8	low product quality	standard product availability	pay 15% less than today
9	9	low product quality	low product availability	pay same as today (+/-0%)

Figure 4-8:   Final plancards of the limit conjoint analysis (source: SPSS output)

It is possible to conduct a *principal component analysis* (PCA; Jolliffe 2002) to assess the operationalization of reflective constructs (i.e., its dimensions and internal consistencies) (Hamer 2006, p. 224). Yet factor analysis requires the minimum number of cases to be three times the number of variables and not less than 50 (Backhaus et al. 2011a, p. 389). Consequently, I obtained such a small sample during pilot testing that I refrained from performing a factor analysis and considered all items to be relevant for the ongoing study. However, I later conducted an exploratory factor analysis in the context of the result analysis with data I obtained in the main experiment (see section 5.2.3).

For accessing the German-speaking sample relevant to the main survey, the next step was to translate the questionnaire into German. Therefore, to ensure translation equivalence, I had the most relevant items as well as scenarios (exogenous variables) back-translated by a second person (for a similar process, see Homburg and Pflesser 2000, p. 455). Small adaptations

enabled me to freeze the German version of the questionnaire. I subjected it to a manipulation and realism check, as the following section describes.

4.4.2   Pretesting of manipulation and realism

"The central question in laboratory research … is whether the independent and dependent variables are related. In other words, did the experimental manipulation or explanatory independent variable produce significant differences in the outcome or dependent measures?" (Kubinski et al. 1991, p. 146). According to Perdue and Summers (1986, p. 317), the aim of the *manipulation check* is to verify that manipulations themselves are not confounded— namely that "manipulations that are meant to represent a particular independent variable can be interpreted plausibly in terms of more than one construct, each at the same level of reduction" (Perdue and Summers 1986, p. 317). The manipulation check relates to the *convergent validity* between the manipulation and a direct measure of the independent variable of interest (the same "thing"), as well as the *discriminant validity* between the manipulation and related but distinct "things" (Perdue and Summers 1986, p. 318, referring to Cook and Campbell 1979; for confounding checks[27] related to discriminant validity, see Wetzel 1977; for an evaluation of convergent and discriminant validity in the context of construct validity relevant to the endogenous variables of the MSM experiment, see section 5.2.3). "Ideally, the experimenter would like to be able to demonstrate that (1) the treatment manipulations are related to "direct" measures of the latent variables they were designed to alter and (2) the manipulations did not produce changes in measures of related but different constructs" (Perdue and Summers 1986, p. 318). In the present study, the manipulation (and realism) check relates to an assessment of the MSM scenarios representing the exogenous variable (manipulation) of the MSM experiment (see section 4.1.4).

It is undesirable to include manipulation and realism checks in the main experiment because "one of the cardinal rules of experimentation is to measure the major dependent variables first" (Wetzel 1977, p. 89), whereas it is important to evaluate the manipulation itself immediately after the respondents' exposure to it. Otherwise, respondents might not be able to fully

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[27] As Perdue and Summers (1986, p. 318) describe, *manipulation check* refers to an evaluation of convergent validity, whereas *confounding check* describes the evaluation of discriminant validity. Yet the present study will not further distinguish between these tests; the term *manipulation check* will include both manipulation and confounding checks.

describe their reactions to the manipulation (Perdue and Summers 1986, pp. 319). Consequently, I conducted the manipulation and realism checks separately from the main survey of the present study. To evaluate the German version of the scenarios, I conducted the manipulation and realism check in German. The sample consists of German-speaking purchasing, sales, and marketing managers with no less than two years of professional experience in the adhesives industry. Their ability to put themselves in the position of adhesives purchasers (according to the key informants in the main survey) allows this to be a well-fitting target group, according to the objectives of the manipulation check. I obtained a total of $N = 81$ filled questionnaires.

I evaluated the perceived scenario differences with four indicators characterized as *consent effective* only in the case of one of the three MSM scenarios or the control group scenario, respectively. The scaling method I applied was a seven-point Likert-type rating scale anchored with 1 (absolutely not true) and 7 (absolutely true).[28] On one hand, indicating a high convergent validity, I expected high scores for a specific scenario and its corresponding consent indicator; on the other hand, indicating high discriminant validity, I expected low scores for the same scenario on the three remaining indicators (Perdue and Summers 1986, p. 318, and literature cited therein). In addition, I tested the understandability and realism of the scenarios according to the realism check, as applied by Dabholkar (1996, p. 41; see also Kluckert 2011, p. 153). I considered two indicators[29] to be adequate to describe realism and applied the same seven-point Likert scale as in the manipulation check. I allocated the respondents randomly to one of the four different scenarios. Appendix 2 contains the entire questionnaire of the manipulation and realism check for scenario 3 (collaborative MSM). Table 4-10 summarizes the applied items[30] and results of the manipulation and realism check.

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[28] Translated from German.
[29] Based on Dabholkar (1996, p. 41) and translated into German according to Kluckert (2011, p. 153).
[30] Translated from German.

Please describe the services and/or additional services of the adhesives suppliers with the help of following statements:

Item	Scale	Non-collaborative MSM (N=20)		Collaborative MSM (N=20)		MSM in a wider sense (N=20)		Control Group (N=21)	
		Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation	Mean	Std. deviation
All described services of the adhesives suppliers are addressed to me as a direct customer. Based on the described services, it is not evident that the adhesives suppliers include my customers into the perspective. *(The adhesives suppliers offer 4 mentioned services but no further additional services.)*	1-7	2.00	1.747	2.00	1.717	3.20	2.262	**4.67**	**2.221**
In addition to the 4 services mentioned at the beginning, the adhesives suppliers offer underline additional services. These are addressed to my customers. They do not include me as a direct customer into the perspective. *(Regarding the additional services only direct contact between the adhesives suppliers and my customers prevails.)*	1-7	**4.50**	**2.460**	1.70	.733	2.05	1.356	1.90	1.670
In addition to the 4 services mentioned at the beginning, the adhesives suppliers offer underline additional services. These are addressed to both me as a direct customer and my customers. They do include me as a direct customer into the perspective. *(Regarding the additional services both direct contact between the adhesives suppliers and my company and direct contact between the adhesives suppliers and my customers prevail.)*	1-7	3.25	2.291	**5.85**	**1.182**	4.05	2.417	2.95	2.037
In addition to the 4 services mentioned at the beginning, the adhesives suppliers offer underline additional services. These are addressed only to me as a direct customer. Based on the described additional services it is not evident that the adhesives suppliers include my customers into the perspective. *(Regarding the additional services only direct contact between the adhesives suppliers and my company prevails.)*	1-7	2.65	2.059	3.95	2.305	**5.55**	**1.986**	3.19	2.205
The situation described is realistic	1-7	4.65	1.424	4.85	1.348	5.25	1.293	5.29	1.554
I had no difficulty imagining myself in the situation	1-7	4.65	2.059	5.40	1.875	5.50	1.732	4.95	1.987

Table 4-10:   Manipulation and realism check (source: Author's illustration)

All four indicators of the manipulation check show consent-effective mean values of 4.50 or above, which is higher than the center scale (4.00). This allows me to draw my first conclusions about a high convergent validity and successful manipulation (Perdue and Summers 1986, p. 318). Mean values that are far above 5 for collaborative MSM and MSM in a wider sense on the respective consent indicators, including low standard deviations below 2.000, are remarkable. Respondents seem to clearly realize the collaborative character of both MSM types and are able to depict the way suppliers include them into their perspectives. A lower mean on the respective consent indicator (4.50, still above center scale)

and a higher standard deviation (2.460) indicate some insecurity in the case of non-collaborative MSM, though it is explainable. The basic measures presented to the control group represent four of the most relevant differentiating factors in the adhesives industry and, therefore, principal services adhesives purchasers might expect to receive. I show these in all three MSM scenarios to ensure equal conditions for all groups (see section 4.1.3). As a consequence, respondents might perceive the non-collaborative character of non-collaborative additional services. Yet, because basic services are also presented in the non-collaborative MSM scenario and the services are addressed to direct customers as well, the non-collaborative character of the total scenario becomes weaker. However, a mean value of above 4.50 for non-collaborative MSM on the respective consent indicator can still be considered acceptable. Reflected at a level above the center scale, respondents clearly recognize the non-collaborative character of the scenario. Thus, the experimental manipulation appears to be successful (Perdue and Summers 1986, p. 318, and literature cited therein). Further evaluation can check discriminant validity.

I conducted paired *t-test comparisons* (Nachtigall and Wirtz 2002, pp. 138) to evaluate whether average differences between the means of consent indicators and remaining indicators differ significantly from 0 (null hypothesis H_0, assuming equality of means) for every scenario (within-subject comparison). For collaborative MSM, MSM in a wider sense, and the control group, all means of consent indicators significantly differ ($p < .05$, one-tailed[31]) from all other indicators within the respective treatment group (scenario). This indicates discriminant validity and allows me to assume that my manipulation is not confounded (Perdue and Summers 1986, p. 317). The mean value of the consent indicator for non-collaborative MSM (4.50) differs significantly from two other indicators, namely the consent indicator of the control group ($\bar{x} = 2.00$, $p < .01$, one-tailed) and the consent indicator of MSM in a wider sense ($\bar{x} = 2.65$, $p < .05$, one-tailed). Yet the consent indicator of non-collaborative MSM does not differ significantly from the consent indicator of collaborative MSM ($\bar{x} = 3.25$, $p = .109$, one-tailed). It allows for assuming some confounding of both indicators and follows the explanations of a lower convergent validity for non-collaborative MSM (Perdue and Summers 1986, pp. 317). I included basic services

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[31] Ex-ante hypotheses regarding the means of the consent indicator rating highest and all other indicators rating lowest allow me to apply one-tailed significance tests (for further information on a differentiation between *one-tailed* and *two-tailed* t-test comparisons, see Bleymüller et al. 2004, pp. 101; Bortz 2005, pp. 116).

addressed to direct customers in the non-collaborative MSM scenario. The non-collaborative character of the entire scenario becomes weaker because services are addressed to direct as well as downstream customers (see section 4.1.3). However, because of the importance of creating equal initial conditions for all treatment groups as well as considering an overall successful manipulation free of further confounding, I have retained the scenario of non-collaborative MSM; I consider the confounding effects in the interpretation of the results (see a critical examination of the empirical results in section 6.1). For the entire experimental manipulation, I assume convergent as well as discriminant validity to be sufficiently given (Perdue and Summers 1986, p. 318, and literature cited therein).

Using two items, I also evaluate the realism of the scenarios. Average mean values were rated 4.65 or higher on both applied items and all scenarios. Consequently, I can assume that respondents considered all applied scenarios to be realistic (Dabholkar 1996, p. 42). After pilot testing and pretesting, I can also assume the proper functioning of the programming as well as the quality and understandability of the questionnaire (i.e., its operationalizations and experimental manipulation). The following section describes the entire questionnaire and process of the main survey.

4.5   Final questionnaire

The final version of the German questionnaire consists of 10 pages (see the entire questionnaire in Appendix 1).[32] It begins with a general welcome and introduction, including information about the necessary time to finalize the entire questionnaire (**page 0**). I evaluated the minimum response time to be between 7 and 10 minutes on the basis of an additional test run[33] of the questionnaire. Although it is theoretically possible to answer within such a short time frame, the introduction of the questionnaire mentions an estimated response time as being between 18 and 19 minutes. By using these higher numbers, I hoped to ensure that respondents would not have false expectations that would lead them to stop before completing the questionnaire. As the analysis of the obtained sample shows (see section 5.1.1), the longer estimate represents the real average response time of all respondents of the main survey (18.5 minutes). The introduction also gives information about the confidential use of the obtained

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[32] The questionnaire contains three additional measures not used in this study.
[33] A test run among three participants working as marketing managers in the adhesives industry helped me evaluate the minimum possible response time.

data. To improve participation, respondents are offered a summary of the results of the market survey if they give their email-addresses at the end of the questionnaire. Contact details of the survey-executing university marketing department are provided on the introduction page as well.

The survey itself begins on the **page 1**, with the assessment of the manufacturers' component importance in the products produced by the respondents' companies. **Page 2** includes the instructions relevant to the scenarios that follow. Basically, it tells the respondents that they play the role of responsible adhesives purchasers for their company and that all in the subsequent scenario presented additional services are the same for all adhesives suppliers. It explains that there are no other differences among the adhesives suppliers (e.g., in terms of offered adhesives technologies) besides the explicitly described differences (regarding product quality, product availability, and price, according to the attribute levels relevant to the conjoint experiment).

On **page 3** respondents are randomly assigned to one of the four different scenarios, including the detailed description of the services offered by all adhesives suppliers. These services differ according to the applied type of MSM or the control group, respectively. On the same page, respondents are asked to evaluate their satisfaction and their loyalty toward adhesives suppliers (with in total four different items). The limit conjoint task begins on **page 4** with the instruction to rank order nine different adhesives suppliers according to the respondents' preferences. The adhesives suppliers differ in the defined conjoint attributes, namely product quality, product availability, and price. The respondents were asked to keep in mind the services offered by all adhesives suppliers while performing the ranking task. The second part of the limit conjoint experiment follows on **page 5**, in which the respondents are asked to place the limit card between the last adhesives supplier the respondent would still buy from and the first adhesives supplier from which the respondent would refuse to buy from. During the respondent places the limit card, the entire scenario repeats at the top of the page to ensure that the respondent memorizes the services offered by each supplier.

After finishing the conjoint experiment, **page 6** relates to the evaluation of the respondent's company power position within the supply chain with four different items. It is the last page

that is relevant to the analysis of causal relationships of the MSM experiment. **Page 7** asks for the following seven items of sociodemographic information:

- Industrial sector of the respondent's company
- Respondent's time working for the company
- Respondent's time working in the industrial sector
- Respondent's department/position in the company
- Respondent's amount of experience in the current position
- Country where the respondent is located
- Gender

I obtained corresponding menu items for the industrial sector of the respondents' companies according to industrial classifications in the European *Nomenclature statistique des activités économiques dans la Communauté européenne* (NACE; Eurostat 2008). On **page 8**, respondents are thanked for their participation and are asked to provide their e-mail addresses. This will allow them to receive a summary of the obtained results of the MSM experiment, as offered at the beginning of the survey. **Page 9** is the final step of the questionnaire, confirming that the obtained data have been saved and that the browser window can be closed. Figure 4-9 summarizes the structure of the entire questionnaire.
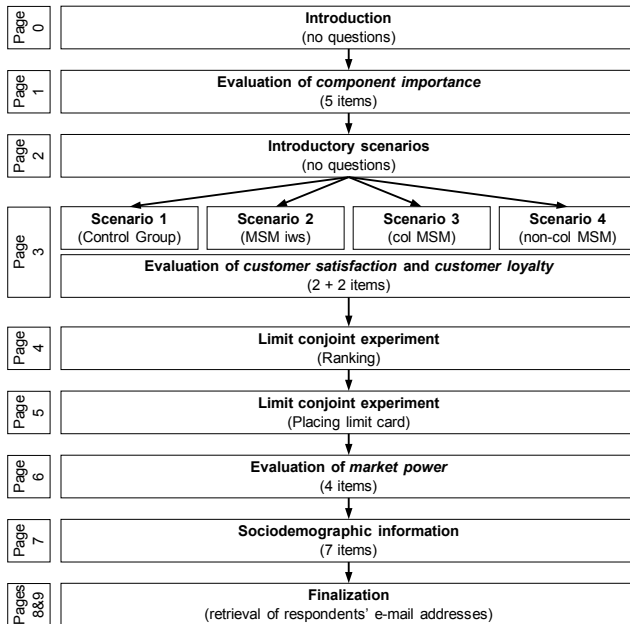
Figure 4-9:   Structure of the final questionnaire (source: Author's illustration)

After freezing the questionnaire I began the large-scale survey in February 2012. It continued until the end of July 2012. Data analysis took place in August 2012. Chapter 5 presents this analysis.

5 Results and hypotheses assessment

This chapter starts with a description of the data preparation in section 5.1. It explains both the data sample I obtained from the survey and the key steps I took to prepare the data for empirical hypothesis testing. Section 5.2 contains an evaluation of the validity of the MSM experiment. I have structured the rest of this chapter according to the hypothesized effects I presented in chapter 3. First is an analysis of the *main effects* of the relationship between MSM and direct customers' willingness-to-pay. There is also an evaluation of corresponding hypotheses in section 5.3. Section 5.4 contains an analysis of the importance of the *moderating effects* of a manufacturer's component in the end product and the power structure within a supply chain. The relevance of MSM in customers' satisfaction and their loyalty relates to the analysis of *additional effects* and is the subject of section 5.5. Section 5.6 gives an overview of all obtained results and leads to an analysis of these in chapter 6.

5.1 Data preparation

I prepared the gathered data for empirical testing and hypotheses assessment. First, I evaluate the available sample. After briefly describing the realized data collection process, I describe the obtained sample with demographic information and analyze it regarding its suitability for further empirical analysis (section 5.1.1). After that, I use the sample to analyze the results of the conjoint experiment. I compute the willingness-to-pay data for every respondent (section 5.1.2). The generated data represent the final sample and allow subsequent statistical analysis of causal relationships and hypotheses assessment.

5.1.1 Obtained sample

The large-scale survey started in February 2012 and was completed at the end of July 2012. During this time, I identified 3,207 companies from Germany, Austria, and Switzerland as being potential direct customers of the adhesives industry. In a professional social media network (*XING*) I identified 5,367 employees of these companies and asked them to provide contact details for employees responsible for adhesives purchasing in their organizations (see XING's personalized contact form in Appendix 3). As a result, 976 employees answered, which enabled me to generate 330 contacts, including e-mail addresses. Referring to the person who gave the contact details in the previous step, I asked the contact people to

participate in an online survey. By e-mail, they received a hyperlink to open the questionnaire directly (see personalized e-mail contact form in Appendix 4). The introduction to the questionnaire mentions the possibility of receiving a summary of the survey results, which I hoped would improve participation. Finally, 288 suitable key informants (87.2%) participated and opened the questionnaire, out of which 134 respondents (46.5%) successfully completed the questionnaire. One participant gave feedback but, because of technical problems, was unable to correctly place (move) the limit card. Using the participant's e-mail address, I identified him or her in the database and deleted the corresponding data.

For the remaining sample $(N = 133)$, I obtained the following (sociodemographic) information using seven additional questions at the end of the questionnaire (see the entire questionnaire in Appendix 1):

- 107 respondents (80.5%) have worked for more than 3 years in the current company
- 122 respondents (91.7%) have worked for more than 3 years in the current industry
- 104 respondents (78.2%) declare themselves to be management/owner (12.0%), purchaser (47.4%), or production manager (18.8%)
- 120 respondents (90.2%) have professional experience of more than 3 years in the current position
- 110 respondents (82.7%) are from Germany
- 120 respondents are male (90.2%)
- Average survey completion time of all 133 respondents = 18.5 minutes

According to the survey demographics, the participants make up a suitable sample for the purpose of this study. Belonging to the chemical sector, the adhesives industry is likely to be rather conservative. Many companies are organized hierarchically and careers are usually long-term, leading employees to high experience levels in the same or similar industrial sectors, departments, and positions. All positions are predominantly male. Consequently, the obtained sample is likely to be representative of the adhesives industry, supporting a high external validity of the obtained results (e.g., Bagozzi 1994, p. 333; for a further evaluation of external validity of the MSM experiment, see section 5.2.4). The average survey completion time of all 133 respondents was 18.5 minutes, falling within the suggested completion time in

the introduction of the questionnaire (see Appendix 1). Some participants were excluded on the basis of unrealistic completion times. As I have mentioned, I projected the minimum response time for the entire questionnaire to be between 7 and 10 minutes (see section 4.5). Consequently, response times of less than 7 minutes indicate inaccurate participation. Therefore, I eliminated 17 such data sets. I consider the remaining sample of N = 116 to be a successful result, considering the high level of complexity and effort necessary to finalize the questionnaire and the target group members' limited time for extra tasks.

5.1.2   Limit conjoint data analysis

Several steps were necessary to compute the willingness-to-pay for every respondent out of the results of the conjoint experiment (for a stepwise description, see e.g., Ahlert et al. 2006). IBM SPSS Statistics, version 20 (SPSS) allows analysis of conjoint data based on numerical rank orders of stimuli (choice cards). Yet, to emphasize the central advantage of the limit conjoint analysis, I conducted an analysis based on scores, allowing me to compute customers' willingness-to-pay for the different stimuli. Using this software, it is possible to not only rank order but also to comprehensively score every possible stimulus (Ahlert et al. 2006, pp. 6; Hillig 2006, pp. 61, and literature cited therein).

Based on the rank order of stimuli, the conjoint analysis enabled me to compute partworths (β) for all attribute levels and for every respondent. Linking the partworths gives the total utility (*y*) of a stimulus: The additive model of a conjoint analysis states that the sum of partworths of every attribute level of a stimulus corresponds to the total value of a stimulus for every respondent (Backhaus et al. 2011a, pp. 469). In general, it is possible to describe the additive model of the conjoint analysis as follows (Backhaus et al. 2011a, p. 469; Bichler and Trommsdorff 2009, p. 70):

$$y_k = \sum_{j=1}^{J} \sum_{m=1}^{M_j} \beta_{jm} \cdot x_{jmk}$$

With

y_k : estimated total utility for stimulus k

β_{jm} : partworth for attribute level m of attribute j

$x_{jmk} = \begin{cases} 1 & \textit{if stimulus k contains attribute j with attribute level m} \\ 0 & \textit{otherwise} \end{cases}$

In addition to administering a traditional conjoint analysis, asking respondents to place a limit card enabled me to define for every respondent the point at which total utility equals zero (Hillig 2006, pp. 62; Niederauer 2009, pp. 94; Voeth and Hahn 1998, p. 123). In this way, it is possible to transfer the empirical rank order of every respondent (n) into empirical values of total utility (U_{kn}^{L}), according to the following equation (Hillig 2006, pp. 63, and literature cited therein; Niederauer 2009, p. 95):

$$U_{kn}^{L} = U_{kn} + LR_{n} - K - 0,5$$

With

U_{kn}^{L} : total utility for stimulus k of respondent n for the LCA

U_{kn} : total utility for stimulus k of respondent n for the TCA (rank order)

LR_{n} : rank position behind which respondent n placed the limit card

K : number of stimuli of the reduced design

As an example, Figure 5-1 illustrates the calculation for participant 13. The respondent brought the stimuli into his own subjective preference order and placed the limit card between rank number 4 and rank number 5. According to the previous equation, it is possible to calculate the empirical total utilities for every stimulus along the rank order (e.g., Hillig 2006, pp. 63).

Rank	1	2	3	4		5	6	7	8	9
Participant 13 (Scenario 3 - collaborative MSM)	Stimulus 1 - A0B0C0	Stimulus 2 - A0B1C1	Stimulus 4 - A1B0C1	Stimulus 6 - A1B2C0	**Limit-Card**	Stimulus 9 - A2B2C1	Stimulus 3 - A0B2C2	Stimulus 8 - A2B1C0	Stimulus 7 - A2B0C2	Stimulus 5 - A1B1C2
Empirical total utility	3.5	2.5	1.5	0.5	0	-0.5	-1.5	-2.5	-3.5	-4.5
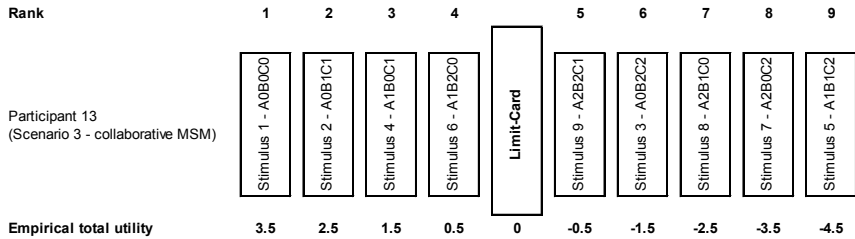
Figure 5-1:   Rank order and corresponding scoring (participant 13) (source: Based on Hillig 2006, p. 63)

After determining the empirical total utilities of every stimulus according to the individual rank order of every respondent, I calculated the partworths of every attribute level with SPSS (see corresponding syntax in Appendix 5). The program estimates the parameters using an ordinary least squares (OLS) regression model (Baltes-Götz 2009, p. 14; see also Ahlert et al. 2006, p. 11, referring to Fischer 2001, p. 93; Klein 2002, p. 25). Figure 5-2 illustrates the results for participant 13 (see original SPSS output for conjoint analysis for participant 13 in Appendix 6):

Utility		Partworth β_{jm}	Standard error
quality	high product quality	-1.833	.778
	standard product quality	-3.667	1.556
	low product quality	-5.500	2.335
availability	high product availability	-.500	.778
	standard product availability	-1.000	1.556
	low product availability	-1.500	2.335
price	pay 15% less than today	-1.833	.778
	pay same as today (+/- 0%)	-3.667	1.556
	pay 15% more than today	-5.500	2.335
(constant)		7.833	2.770

Averaged importance of conjoint attributes & coefficients		B-Coefficient	
	Averaged importance	Estimate	Standard error
quality	44.000	-1.833	.778
availability	12.000	-.500	.778
price	44.000	-1.833	.778

Correlations	Value	Significance
Pearson-r	.835	.003
Kendall-Tau	.667	.006

Figure 5-2:   SPSS output of conjoint analysis (participant 13) (source: Author's illustration)

Partworths for all indicators rated negatively, indicating that independent of respective attribute levels, all attributes caused a reduction of total utility (y) for participant 13 (based on a base utility [constant] of 7.833). However, favorable attribute levels cause lower utility reduction than do unfavorable attribute levels. Corresponding standard errors indicate the quality of the conjoint results, whereas lower values allow the assumption of a better reproduction of empirical (observed) rank orders by calculated rank orders (Backhaus et al. 2011a, pp. 484; Hillig 2006, pp. 56). Criteria to evaluate the goodness of reproduction are given by correlation coefficients. *Pearson's correlation coefficient* analyzes the correlation between calculated (metric) total utilities and empirical (observed) rank orders, whereas *Kendall's Tau* measures the correlation between real (observed) rank orders and those obtained from the conjoint results. Values close to 1 indicate a successful reproduction of empirical data by the conjoint analysis results (Backhaus et al. 2011a, pp. 485; Brusch 2009, p. 95). The average importance of the attributes allows me to draw conclusions about the influence of the different attributes on the preference building of each respondent. In the case

of participant 13, the product availability has a low influence of 12%. Product quality and product price are the strongest preference influences—both at 44% (Backhaus et al. 2011a, p. 477 and pp. 486).

The conjoint data revealed reversals for 13 participants. When respondents reverse their decisions, their favorable attribute levels will likely be worse compared with less favorable attribute levels (Backhaus et al. 2011a, p. 487). Reversals can indicate an unconscious realization of the meaning of the ranking task. Yet one participant (participant 44) showed reversals in all three conjoint attributes, which allows the assumption that he or she misunderstood the request to rank order preferences (the instructions requested that respondents sort adhesives suppliers according to descending preferences). The rank order of participant 44 was turned manually. The 12 other participants who showed reversals on only one or two attributes were eliminated and excluded from further analysis (making the final sample N = 104).

Because the price was included as an attribute, it was possible to compute the maximum willingness-to-pay for every respondent and combination of attribute levels (Ahlert et al. 2006, p. 13, referring to Balderjahn 2003, pp. 389; see also section 4.2.1). First, I calculated the utility of every stimulus by summing the partworths of the attribute levels of the attributes "product quality" and "product availability." This resulted in 9 different utility values (3×3 possible combinations). The values reflect the possible loss of utility that can result from price (in terms of costs), whereas the overall utility remains positive. In other words, the value reflects the possible loss of utility, whereas the respondent is still willing to buy (Ahlert et al. 2006, p. 39). Figure 5-3 illustrates the utility for participant 13 as a combination of the attribute levels of "high product quality" and "high product availability."

Utility of a stimulus (without price) for respondent 13	
high product quality	-1.833
high product availability	-0.500
+ constant	7.833
	5.500

Figure 5-3:   Utility of a stimulus without price (participant 13) (source: Based on Ahlert et al. 2006, p. 39)

The utility of the stimulus with high product quality and high product availability is 5.500 for participant 13. Consequently, a loss of utility of (marginally less than) 5.500 units is possible so that respondent 13 is still willing to buy this stimulus. Based on these utility values, it is now possible to draw conclusions about the maximum willingness-to-pay for every respondent and attribute level combination. First, the partworths of price are operationalized as a function of price (Ahlert et al. 2006, pp. 39). Using the method of linear regression, it is possible to estimate a regression line according to following equation (Backhaus et al. 2011a, p. 63):

$$\hat{y}_k = b_0 + b_1 * x_k$$

With

$\hat{y}_k$: estimated partworth for the corresponding price level

b_0 : intercept (constant)

b_1 : regression coefficient

k : number of observations

The regression coefficient and intercept can be calculated as follows (Backhaus et al. 2011a, p. 67):

$$b_1 = \frac{K(\sum x_k y_k) - (\sum x_k)(\sum y_k)}{K(\sum x_k^2) - (\sum x_k)^2}$$

$$b_0 = \bar{y} - b_1\bar{x}$$

As an example, Figure 5-4 illustrates the regression line of price and partworths (of price) for participant 13.
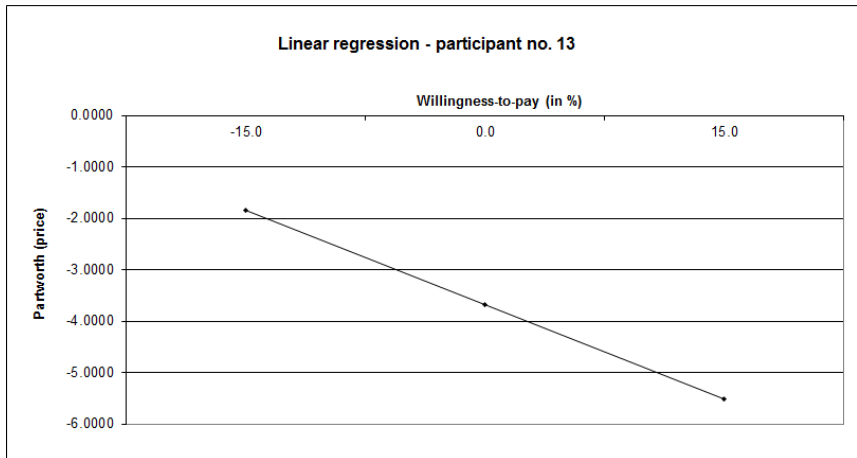

Figure 5-4:   Linear regression of price and partworths (participant 13) (source: Based on Ahlert et al. 2006, p. 40)

It is easy to realize the linear regression of price and partworth for every respondent with SPSS (Ahlert et al. 2006, pp. 40). As an example, Figure 5-5 shows SPSS's output of linear regression between price and price partworths for participant 13.

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	-3,667	,000		-116235961,9	,000
Price	-12,222	,000	-1,000	-47453132,81	,000
a. Dependent Variable: Partworth_price					

Figure 5-5:   SPSS output for linear regression (participant 13) (source: SPSS output)

Accordingly, the equation for participant 13 is the following (Ahlert et al. 2006, p. 41):

parthworth = −3.667 − 12.222 * *price*

By entering the negative values of utilities into the linear equation, it is now possible to obtain the individual willingness-to-pay of every respondent for every attribute level combination of product quality and product availability (Ahlert et al. 2006, pp. 40). As I have shown, the utility of "high product quality" and "high product availability" is 5.500 for participant 13. Because this can be defined as the possible loss of utility resulting from the price, I have entered a value of –5.500 into the linear equation of participant 13 as follows (Ahlert et al. 2006, p. 39):

−5.500 = −3.667 − 12.222 * *price*

Solving this equation for the price results in a value of 0.15 (or 15%). This means, that respondent 13 is willing to accept a price increase of +15% in return for high product quality and high product availability (Ahlert et al. 2006, p. 40). Figure 5-6 illustrates the method of defining the individual willingness-to-pay for every respondent and attribute-level combination through participant 13's results.
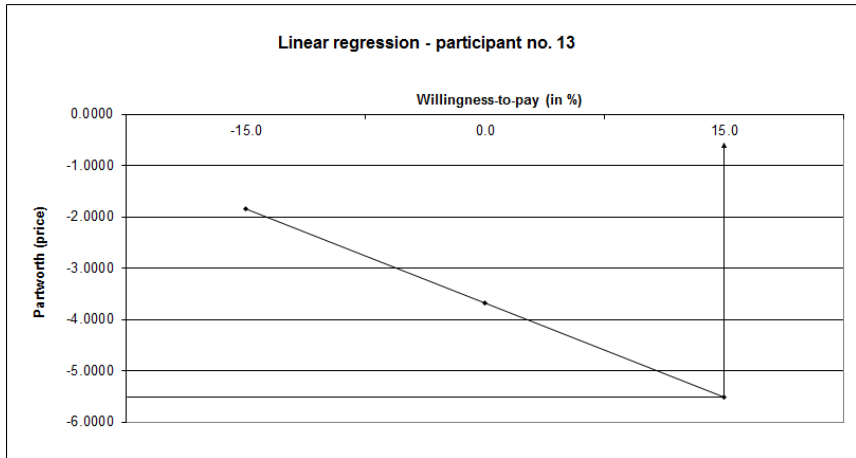
Figure 5-6:   Graphical definition of willingness-to-pay (participant 13) (source: Based on Ahlert et al. 2006, p. 41)

I have calculated all possible combinations of attribute levels of product quality and product availability for all respondents. The obtained data ($N = 104$), including the willingness-to-pay for every respondent, represent the final sample relevant to the present study. I use this sample for further statistical analysis beginning with an evaluation of validity.

5.2   Validity of the MSM experiment

As a research method, experiments potentially provide the highest possible validity (Kotler et al. 2007, p. 172). In the context of experiments, the term "validity" can refer to

> the approximate truth of an inference. When we say something is valid, we make a judgment about the extent to which relevant evidence supports that inference as being true or correct. Usually, that evidence comes from both empirical findings and the consistency of these findings with other sources of knowledge, including past findings and theories. (Shadish et al. 2002, p. 34)

In 1963, Campbell and Stanley invoked two different types of validity: *Internal validity* and *external validity*. Some authors find these two types of validity to offer sufficient distinction

(e.g., Levine and Parkinson 1994, p. 82). Yet Cook and Campbell further divided this differentiation in 1979. They introduced two further types of validity and elaborated a validity typology of four related components that became essential for literature on research design validity (Cook and Campbell 1979, pp. 37; see also Hager et al. 2001, pp. 17; Huber 2009, p. 149; Krauth 2000, pp. 21; Shadish et al. 2002, pp. 37; Westermann 2000, pp. 291). MSM and especially the empirical analysis of its relevance for the creation of competitive advantages for suppliers are unexplored areas of research. Consequently, the validity of corresponding empirical research is of paramount importance and I evaluate all four types of validity. Shadish et al. (2002, p. 38) give a comprehensive definition of all four types of validity (see also Cook and Campbell 1979, pp. 37; Huber 2009, pp. 149; Westermann 2000, pp. 296):

> *Statistical conclusion validity:* The validity of inferences about the correlation (covariation) between treatment and outcome.

> *Internal validity:* The validity of inferences about whether the observed covariation between A (the presumed treatment) and B (the presumed outcome) reflects a causal relationship from A to B as those variables were manipulated or measured.

> *Construct validity:* The validity of inferences about the higher order constructs that represent sampling particulars.

> *External validity:* The validity of inferences about whether the cause–effect relationship holds over variation in persons, settings, treatment variables, and measurement variables.

The four types of validity are not independent of each other. Statistical conclusion validity ensures some part of internal validity, whereas construct validity is regarded as part of external validity (Krauth 2000, p. 22).

Experiments provide a research method that enables researchers to systematically manipulate one or several variables while controlling alternative explanations (Huber 2009, p. 69). Yet various factors can threaten the validity of an experiment. "Threats to validity are specific

reasons why we can be partly or completely wrong when we make an inference about covariance, about causation, about constructs, or about whether the causal relationship holds over variations in persons, settings, treatments, and outcomes" (Shadish et al. 2002, p. 39). The following sections describe the most relevant threats to the different types of validity and the corresponding measures applied in this study to evaluate the overall validity of the MSM experiment.

5.2.1   Statistical conclusion validity

In relationship to internal validity, *statistical conclusion validity* is relevant to evaluating whether there is a statistical relationship between the analyzed variables (e.g., whether the values of the endogenous variable differ systematically between the control and treatment groups) (Westermann 2000, p. 296). Statistical conclusion validity focuses on "the appropriate use of statistics to infer whether the presumed independent and dependent variables covary" (Shadish et al. 2002, p. 37). The intention is to determine whether a statistical measurement or method has been chosen appropriately in the context of a specific research target and if all corresponding conditions are fulfilled to apply this measurement (e.g., right measurement scale, normal distribution of variables, homogene variances) (Huber 2009, p. 150).

Decisions about scientific and empirical hypotheses often rely on results of statistical analysis and, in particular, on results of corresponding significance tests (Westermann 2000, p. 321). Accordingly, this study focuses on significance tests as a major indication of statistical conclusion validity. Tests of significance are the subjects of the following sections: Empirical analysis of main effects (section 5.3), moderator effects (section 5.4), and additional effects (section 5.5). Furthermore, the necessary strictness of applied tests on statistical significance (as opposed to theoretical significance), especially in the context of testing new theories (e.g., Westermann 2000, p. 295), is the subject of section 6.1's critical analysis of the MSM experiment's results. Statistical conclusion validity, therefore, needs no more analysis at this point.

5.2.2   Internal validity

The strongest possible interference with validity results from threats to internal validity (Westermann 2000, p. 303). Therefore,

> to support such an inference [whether observed covariation between A and B reflects a causal relationship from A to B in the form in which the variables were manipulated or measured] the researcher must show that A preceded B in time, that A covaries with B [already covered under statistical conclusion validity] and that no other explanations for the relationship are plausible. (Shadish et al. 2002, p. 53)

The central idea of experiments is to manipulate A before measuring B; therefore, it is possible to solve the first problem only by doing experiments (Shadish et al. 2002, p. 53). Thus, "threats to internal validity are those other possible causes—reasons to think that the relationship between A and B is not causal, that it could have occurred even in the absence of the treatment, and that it could have led to the same outcomes that were observed for the treatment" (Shadish et al. 2002, p. 54). Table 5-1 summarizes the most relevant threats to internal validity and the measures I have applied to this study to rule these out (Cook and Campbell 1979, pp. 51; Geiger 2007, pp. 151 and p. 167; Krauth 2000, pp. 25; Shadish et al. 2002, pp. 54; Westermann 2000, pp. 303).

Threat	Possible problem	Measures to rule out threats to validity
History	Events occurring concurrently with treatment could cause the observed effect.	*Randomization:* Each group experiences the same global pattern of history (no history problem).
Maturation	Naturally occurring changes over time (respondents growing older, wiser, stronger, more experienced, etc.) could be confused with a treatment effect.	*Randomization:* Each group is similarly constituted on the average (no maturation problem).
Testing	Exposure to the test can affect scores on subsequent exposures to that test, an occurrence that can be confused with a treatment effect.	*Randomization:* Each group experiences the same testing conditions (no testing problem).
Instrumentation	The nature of a measure may change over time or conditions in a way that could be confused with a treatment effect.	*Randomization:* Each group experiences the same research instruments (no instrumentation problem).
Statistical regression	When participants are selected for their extreme scores, they will often have less extreme scores on other variables, an occurrence which can be confused with a treatment effect.	*Randomization:* No deliberate selection is made of high and low scorers on any tests (no statistical regression problem).
Selection	Systematic differences over conditions in respondent characteristics which could also cause the observed effect.	*Randomization:* Central advantage of (real) experiments (vs. quasi-experiments); each group is similarly constituted on the average (no selection problem).
Experimental mortality	Persons who dropped out of a particular treatment group during the course of an experiment could be an occurrence confused with a treatment effect.	Generally Consequences of the treatment in who drops out of the experiment can be interpreted as a consequence of the treatment. Relevant to this study No dropout of participants during the course of MSM experiment possible (no mortality problem).
Additive or interactive effects of threats to internal validity	The impact of a threat can be added to that of another threat or may depend on the level of another threat.	*Randomization:* Each group is similarly constituted on the average (no selection-maturation, selection-history, or selection-instrumentation problem).
Ambiguity about the direction of causal influence	Unclear whether A causes B or B causes A; unclear whether cause precedes effect.	Generally Central idea of experiments is to manipulate A before measuring B. Relevant to this study Threat not salient in MSM experiment: - Direction of causal influence clear. - Order of the temporal precedence clear.
Exchange of information	Respondents in one treatment group may learn the information intended for others.	No possible rule out.

Table 5-1:   Threats and measures applied to ensure internal validity (source: Based on Cook and Campbell 1979, pp. 51; Krauth 2000, pp. 25; Shadish et al. 2002, p. 55)

Nuisance variables are "causal variables in which the researcher is not interested in, but which, however, influence the dependent variable …" (Krauth 2000, p. 37). Fisher (1925) and others propose *randomization*, and this builds the central technique for the control of nuisance variables in experimental research. In the context of internal validity, randomization in experimental design refers to a random assignment of different factor levels (different levels of the exogenous variable) to respondents or of respondents to different factor levels,

respectively. It enables a *structural equality* of different populations to be compared and consequently supports *comparability* in respect to the treatment to be studied (Biefang et al. 1979, p. 8; Krauth 2000, pp. 37). It is possible to rule out most of the described threats to internal validity using randomization in the MSM experiment (see section 4.1.3).

Yet, though "randomized experiments are superior to quasi-experiments with respect to internal validity, they are not perfect" (Cook and Campbell 1979, p. 56). Threats resulting from an exchange of information between participants are salient even though the MSM experiment has successfully implemented randomization (Cook and Campbell 1979, p. 53). However, there is only a small probability of information exchange between the participants of the defined population. Every company received multiple approaches to render only one contact person to participate in the survey. Consequently, all respondents were competitors with each other and geographically spread apart. It is probable that no two participants answering the inquiry were situated in the same place. Furthermore, the relevance of the survey from a respondent's perspective is probably rather low. This supports the assumption that participants made no effort to exchange information or gain further insights about the experiment from each other. All respondents' judgments almost certainly are independent of the others'. In summary, I can plausibly rule out all threats to internal validity or at least reduce them to the lowest possible probability. Consequently, it is possible to confidently assume causality for any observed relationships between MSM and dependent constructs (direct cusomters' willingness-to-pay, satisfaction, and loyalty) (Cook and Campbell 1979, p. 55).

Internal validity represents a necessary yet insufficient condition for external validity (Krauth 2000, p. 22). "However, increased confidence in the internal validity of the study comes at the expense of external validity (i.e., generalizability of the findings). [For example,] it is possible, based on the Narver and Slater study [1990] that the market orientation–profitability relationship is corporation- or industry-specific" (Slater and Narver 2000, p. 69). As opposed to internal and statistical conclusion validity, construct and external validity refer to generalizability (Levine and Parkinson 1994, p. 83; Shadish et al. 2002, p. 37). The following sections contain an analysis of each of these concepts.

5.2.3   Construct validity

Jacoby (1978, p. 92) suggests that "the most necessary type of validity in scientific research is *construct validity*." Indeed, the relevance of construct validity is crucial for marketing research. Related to the context of the present study, Homburg and Giering (1996, p. 5) assert the importance of construct validity when analyzing complex constructs and specifically refer to the construct of market orientation as an example. Related to external validity, *construct validity* emphasizes the generalization from operations to cause-and-effect constructs (Shadish et al. 2002, p. 37). More generally, the central problem for the quality of operationalizations is for them to be *confounding* (Perdue and Summers 1986, pp. 317, and literature cited therein). "This refers to the possibility that the operations which are meant to represent a particular cause or effect construct can be construed in terms of more than one construct …" (Cook and Campbell 1979, p. 59).

As a result of its relevance to the conclusions I derived from the MSM experiment, I assessed the exogenous construct (*cause*)—namely the different generic types of MSM—separately in the form of an extensive pretesting of the manipulation and realism (see section 4.4.2). The results I obtained from the pretesting revealed both a sufficiently high *convergence* and *discriminant validity* for the different treatments and the control group. Furthermore, the results of the pretesting proved the MSM scenarios to be understandable and realistic, indicating *content validity* (Haynes et al. 1995, p. 238). The accurate construction of the MSM scenarios—under consideration of a variety of available MSM measures (see section 4.1.3)—further supports this assumption. Therefore, it is possible to assume high construct validity for the exogenous construct relevant to the present survey. I abstain from further evaluating construct validity of the exogenous construct.

For an assessment of the construct validity of endogenous constructs (*effect*), it is necessary to make a distinction between the reflective and formative measurement models (Homburg and Giering 1996, p. 6). In the case of formative measurement models, the indicators determine the construct and indicator variables might, but do not need to, correlate with one another. It is not possible to apply statistical measurements to an evaluation of formative constructs (Weiber and Mühlhaus 2010, p. 207). Eliminating single-indicator variables based on low correlation risks changing the construct itself (Diamantopoulos and Winklhofer 2001, p. 272).

Therefore, the absence of correlations indicates poor construct validity only in the case of reflective model specifications (Weiber and Mühlhaus 2010, p. 207). Section 5.2.3.1 focuses on the evaluation of the construct validity of reflective measurement models—namely customer satisfaction and loyalty. In contrast, I operationalized the manufacturers' component importance in the end product and the direct customers' market power in a formative way. With respect to construct validity, section 5.2.3.2 contains an evaluation of both formative measurement models.

5.2.3.1 Construct validity of the reflective measurement models

To evaluate the quality of the operationalizations of reflective constructs (see a description of operationalizations in section 4.3), two central qualifying factors have been established: The *reliability* of a measure and the *validity* of a measure (e.g., Homburg and Giering 1996, pp. 6). "A measure is reliable to the extent that independent but comparable measures of the same trait or construct of a given object agree" (Churchill 1979, p. 65). A "… measure is considered valid if it measures what it has been designed to measure" (Goodwin 1995, p. 98). It is possible to express the relationship between reliability and validity as follows (Churchill 1979, p. 65; see also Homburg and Giering 1996, p. 7):

$$X_o = X_t + X_s + X_r$$

With

$X_o =$ observed score

$X_t =$ true score

$X_s =$ systematic sources of error such as stable characteristics of the object that affect its score

$X_r =$ random sources of error such as transient personal factors that affect the object's score

Accordingly, a measure is perfectly reliable if random sources of errors score 0 ($X_r = 0$) (Homburg and Giering 1996, pp. 6). Yet "a measure is valid when the differences in observed scores reflect true differences on the characteristic one is attempting to measure and nothing

else, that is $X_o = X_t$" (Churchill 1979, p. 65). Thus, if a measure is valid ($X_o = X_t$), it is reliable, but if a measure is reliable ($X_r = 0$), it is not necessarily valid ($X_o = X_t + X_s$ is still possible). Consequently, reliability is a necessary but not sufficient condition for validity (Carmines and Zeller 1979, p. 13; Peter 1979, p. 6). Building on these general definitions of the measures' reliability and validity, four types of validity are relevant for construct validity[34] (Haynes et al. 1995; Homburg and Giering 1996, p. 7, and literature cited therein):

> *Content validity* … is the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose. (Haynes et al. 1995, p. 238)

> *Convergent validity* … is the degree to which two or more attempts to measure the same concept are in agreement. (Bagozzi and Phillips 1982, p. 468)

> *Discriminant validity* … is the degree to which measures of distinct concepts differ. (Bagozzi and Phillips 1982, p. 469)

> *Nomological validity* … represents the degree to which predictions based on a concept are confirmed within the context of a larger theory. (Bagozzi 1979, p. 14)

Only if the items applied to measure a reflective construct fulfill all of these four validity criteria can the construct measure be considered valid (Homburg and Giering 1996, p. 8).

"It is accepted in social science research that measures must be demonstrated to be content-valid before they can be held to be any other type of 'valid'" (Rossiter 2008, p. 380).[35] The

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[34] The term *content validity* is sometimes considered to be independent of *construct validity* (e.g., Hildebrandt 1984, p. 42). Campbell and Fiske (1959) suggest that construct validity is determined by *convergent validity* and *discriminant validity*. Some sources follow this approach and refer to these two types of validity as being relevant for construct validity only (e.g., Kluckert 2011, p. 160). Yet, content validity (as well as criteria validity) must be considered as a relevant aspect of construct validity (e.g., Homburg and Giering 1996, p. 7; Jacoby 1978, p. 91; Lienert and Raatz 1998, p. 228; Rossiter 2008; Wacker 2004, p. 629). The present study follows this approach for the endogenous constructs. *Nomological validity* can also be seen as relevant to construct validity (e.g., Hildebrandt 1984, p. 42; Peter 1981, p. 136). Accordingly, this study considers it to be a part of construct validity as well.

[35] Rossiter (2008) argues that content validity even represents construct validity: "The fact that a new measure correlates highly with an old measure (convergent validity) says nothing about which is the more valid, and the fact that a measure correlates only modestly with a measure of another 'related but distinct' construct (discriminant validity) is similarly uninformative because a low content-valid measure of the same second

importance of ***content validity*** is unquestionable. The entire meaning of a concept must be represented by the collection of items (Hildebrandt 1984, p. 42). Bollen (1989, p. 186) emphasizes that a concept being defined by a non-representative sample of measures can lead to distorted understanding of the concept.

However, content validity is a qualitative type of validity in which analysts or experts judge whether the measures (*semantically*) represent a domain—that is, whether content validity is given or not (Bollen 1989, p. 185; Lienert and Raatz 1998, p. 11). Although some statistical or logical procedures can help test content validity after measures have been constructed (Bohrnstedt 1971, p. 93; see also Lawshe 1975), it is important to ensure content validity during the construction of measures (Nunnally 1978, p. 92). Bohrnstedt (1971, pp. 91) states: "The researcher needs to search the literature carefully to determine how various authors have used the concept. Moreover, he should rely on his own observations and experiences and ask whether they yield any new facets to the concept under consideration." In view of the MSM experiment, the endogenous constructs represent conventional concepts whose operationalization can rely on well-established measurements and items (see section 4.3.3). Customers' willingness-to-pay builds the core construct of this study. The performed conjoint experiment represents a proven tool to determine customers' willingness-to-pay (e.g., Ahlert et al. 2006; Backhaus et al. 2005a; Hillig 2006), and I apply it according to the highest standards of accuracy (see section 4.2).

Additional endogenous variables are direct customers' satisfaction and loyalty. I have operationalized all constructs under consideration of current literature (see sections 4.3.3.3 and 4.3.3.4). Yet the conjoint experiment itself imposes excessive data collection demands. To ensure the participants' undivided attention on the conjoint experiment, I reduced the constructs of customer satisfaction and loyalty with respect to their applied measures. For example, common measurements of customer satisfaction propose scales with several items (e.g., Lam et al. 2004, p. 299). Similar, it is possible to measure customer loyalty not only in respect to customers' repurchase intentions but also regarding their willingness to recommend

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construct would show indistinguishably the same result. Rossiter (2002) argues that a construct's construct validity must be established independently of other constructs. This means logically that content validity is construct validity" (Rossiter 2008, p. 380). Despite this argument, the present study considers content validity to be a part of construct validity, in line with well-established extant literature on measurement construction.

a supplier (Lam et al. 2004, pp. 294; see also section 4.3.3.4). In addition to the performed conjoint experiment, a full evaluation of direct customers' satisfaction and loyalty might overwhelm a respondent's attention span (which could cause unrepresentative answer patterns). Thus, I reduced the number of items at the expense of the content validity of these two constructs (for importance of including a maximum possible number of items, see Bohrnstedt 1971, pp. 92). Yet, because measures of customer satisfaction and loyalty are well established and I expect sampled items to also correlate highly with non-applied items (for the relevance of correlating items, see Bohrnstedt 1971, p. 93), my assumptions about causal relationships between MSM and these constructs remain reasonable—even though I did not consider other available items. It is still possible to expect sufficient content validity based on my choice of highly relevant and established items that intercorrelate with other items of the construct. This allows ongoing consideration of customer satisfaction and loyalty for further analysis.

To evaluate **convergent validity** and **discriminant validity**, it is possible to distinguish criteria of the first and second generation (Homburg and Giering 1996, p. 8). Reliability and validity criteria of the second generation prove to be more powerful in various aspects than criteria of the first generation (Homburg and Giering 1996, p. 8, referring to Fornell 1982, 1986). Yet, it is necessary to distinguish whether structural models or reduced form models are applied. The general form of causal models (*covariance structure analysis*) is composed of two parts: A *measurement model* for the description of latent variables (factors) by the indicators (see operationalization of constructs in section 4.3), and the *structural model,* which applies econometric *structural equation models* to explain the relationship between exogenous and latent endogenous variables (Homburg and Giering 1996, p. 9; see also Bagozzi and Baumgartner 1994, p. 417; Fornell 1986; Hildebrandt 1995, p. 1126; Homburg 1992, p. 500; Jöreskog and Sörbom 1982, p. 404). Here is where the differentiation between reduced form and structural models comes along.

As described in section 4.1.1, I abstain from defining a structural model. Consequently, I do not evaluate a covariance structure.[36] Rather, my aim is to analyze by simple OLS regression

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[36] The evaluation of structural models usually includes a χ^2-test, goodness-of-fit index (GFI), an adjusted GFI (AGFI), and a determination coefficient of the measurement model (TCD; for further information on the

the potential relationship between the experimental treatment (MSM scenarios) and the endogenous constructs and test whether there is any correlation or not. I describe the corresponding evaluation of the regression model in section 5.3.2.

However, the different endogenous variables represent constructs for which single (reflective) measurement models determine the relationship between indicators and factors (latent variables) (Homburg and Giering 1996, p. 9). The operationalizations of the present study rely on well-established theory (see section 4.3) and aim to best possibly represent the factors (latent variables). Accordingly, for measurement models it is important to build an econometric model (versus data fitting, as in the case of reduced form models; Chintagunta et al. 2006, p. 605). For the measures of direct customers' satisfaction and loyalty, it is important to compare the hypothesized relationships between indicators and latent variables (factors) to the calculated correlations resulting from empirical data. I apply criteria of the first generation for the evaluation of these partial structures.[37] The criteria encompass the exploratory factor analysis, Cronbach's alpha, and the item-to-total correlation (Homburg and Giering 1996, pp. 8, and literature cited therein). The *exploratory factor analysis* (Backhaus et al. 2011a, pp. 329) aims to reduce the number of indicator variables by consolidating them to one or more factors. In case of an exploratory factor analysis, there are no a priori hypotheses about the factor structure.[38] Factor loadings allow first assumptions about the convergent and discriminant validity of indicators. A sufficient convergent and discriminant validity can be expected if all indicators can be clearly assigned to one factor— that is, if the indicators load sufficiently high on one factor, for example, exceeding 0.4, while loading lower on other factors (Homburg and Giering 1996, p. 8).

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evaluation of covariance structures, see Bagozzi and Baumgartner 1994; Bentler 1990; Bentler and Bonett 1980; Förster et al. 1984; Homburg and Dobratz 1991; Jöreskog and Sörbom 1989).

[37] According to the purpose of this study, I can refrain from applying criteria of the second generation. These criteria rely on confirmatory factor analysis (CFA), which can also be assigned to structural equation models. Criteria of the second generation include indicator reliability, composite reliability, and average variance extracted (AVE) (Bagozzi and Baumgartner 1994, pp. 402; Codita 2011, p. 104; Homburg and Giering 1996, p. 10).

[38] In contrast, the confirmatory factor analysis relies on a priori hypotheses about the indicators' underlying factor structure (Backhaus et al. 2011a, p. 387; Bagozzi and Phillips 1982; Gerbing and Anderson 1988; Hildebrandt 1984; Homburg and Giering 1996, p. 9; Steenkamp and van Trijp 1991).

Cronbach's alpha (Cronbach 1951) measures the reliability of a group of a factor's indicators and represents a coefficient for the *internal consistency* of the indicators of a factor (Homburg and Giering 1996, p. 23; for further information on Cronbach's alpha, see also Carmines and Zeller 1979, pp. 44; Churchill 1979, p. 68; Cortina 1993; Gerbing and Anderson 1988, p. 190; Novick and Lewis 1967; Nunnally 1978; Peterson 1994). Alpha "… can be considered a unique estimate of the expected correlation of one test with an alternative form containing the same number of items" (Carmines and Zeller 1979, p. 45). The alpha coefficient can take values between 0 and 1, whereas higher values indicate a higher reliability (Homburg and Giering 1996, p. 8). Nunnally (1978, p. 245) suggests that alpha values should reach 0.7 to assume acceptable reliability. Yet, coefficient alpha depends positively on the number of indicators (for a detailed analysis of the relationship between alpha and the number of indicators, see Homburg and Giering 1996, p. 22). To avoid overwhelming participants, the number of defined indicators was reduced for the constructs of direct customers' satisfaction and loyalty. Higher alpha values could have been expected for these two endogenous variables for determining additional items.

Finally, the *item-to-total correlation* of one indicator variable is defined as the correlation of this indicator variable with the sum of all other indicators related to the same factor (Homburg and Giering 1996, p. 8; Nunnally 1978, pp. 279). The item-to-total coefficient represents an elimination criterion for indicators. In case of a too-low Cronbach's alpha of one factor, it is possible to improve the reliability by eliminating the item with the lowest item-to-total correlation (Churchill 1979, p. 68). Yet it is important to consider a potential decrease of content validity when eliminating single indicators (Bohrnstedt 1971, pp. 92). Table 5-2 summarizes the applied criteria, its target levels, as well as the levels reached in the MSM experiment. The evaluation relies on the full sample of N = 104.

Factor	Item	EFA		Cronbach's alpha	Item-to-total
		MSA (KMO; > 0.5)	Factor loading (> 0.4)	(> 0.7)	(> 0.5)
Customer satisfaction	extent_services	.500	.875	.690	.531
	expectations_services	.500	.875		.531
Customer loyalty	My company considers adhesives suppliers offering the described services as its first choice	.500	.957	.908	.833
	In the next few years, my company will do more business with adhesives suppliers offering the described services	.500	.957		.833

Table 5-2:   Criteria for the evaluation of endogenous measurement models (source: Author's illustration)

The exploratory factor analysis does not make distribution assumptions, for which reason it is possible to omit an evaluation of the variables' normal distribution (Backhaus et al. 2011a, p. 339). I applied a principal component analysis (Jolliffe 2002) as a factor extraction method. The corresponding (initial) anti-image matrices revealed acceptable *MSA* values (*measure of sampling adequacy* or *Kaiser-Meyer-Olkin-criterion* [39] ; Cureton and D'Agostino 1993, pp. 389; Kaiser 1970, p. 405; Kaiser and Rice 1974, pp. 111). The MSA values for all applied items equaled 0.5 and revealed factor loadings far above 0.4 (see the entire principal component analysis for the two latent endogenous constructs in Appendix 7). This allowed me to group the four items (two items for each endogenous construct) into the conceptualized constructs of *customer satisfaction* (FAC_{sat}; $\chi^2 = 33.582$, $p < .01$ with 1 df; KMO = .500; $var_{expl} = 76.537\%$) and *customer loyalty* (FAC_{loy}; $\chi^2 = 120.412$, $p < .01$ with 1 df; KMO = .500; $var_{expl} = 91.673\%$) (Homburg and Giering 1996, p. 8). SPSS transferred the extracted factor scores of both constructs automatically into the original database. Although it is possible to build an average rated score for all grouped items (for a similar approach, see Hamer 2006, p. 224), it is also possible to use the extracted factor scores for further empirical analysis. The following regression analysis takes this approach.

Although derived from a low number of items, the endogenous construct of customer loyalty shows a high Cronbach's alpha of 0.908. Therefore, it is possible to omit an elimination of

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[39] The evaluation of correlation matrix can include, for example, significance evaluation of correlation, evaluation of correlation matrix inverse, Bartlett-test or test of sphericity, evaluation of anti-image-covariance-matrix, and the Kaiser-Meyer-Olkin criterion (MSA). The Kaiser-Meyer-Olkin criterion is considered to be the best available criterion for evaluating the correlation matrix. Its application is recommended before performing a factor analysis (Backhaus et al. 2011a, pp. 339; Dziuban and Shirkey 1974, pp. 360; Stewart 1981, pp. 57). The present study follows this approach as well.

items of this construct. However, the construct of customer satisfaction shows a Cronbach's alpha of 0.690, which is below the conservative threshold of 0.7. It would be possible to apply the item-to-total correlation (with a cut-off value of 0.5) as an elimination criterion to improve the reliability criteria of Cronbach's alpha (see the reliability analysis in Appendix 8) (Homburg and Giering 1996, pp. 8). However, as I have shown, Cronbach's alpha also depends on the number of items. Alpha thresholds are controversial, and Cronbach values of less than 0.7 are accepted in the case of a low number of indicators (Homburg and Giering 1996, p. 8 and p. 22, and literature cited therein). For example, Peter (1999, p. 180) considers Cronbach's alpha values of 0.4 acceptable in the case of two or three items. Because the number of items is also low for the construct of customer satisfaction, and Cronbach's alpha comes close to the conservative threshold of 0.7, it avoids elimination of one single item. In addition, a further elimination of indicators would negatively influence the content validity (Bohrnstedt 1971, pp. 92), as I described earlier. Consequently, the following analysis relies on the factors extracted from the indicators listed in Table 5-2. Based on these results, both measurement models can be assumed to have sufficient convergent and discriminant validity.

Nomological validation includes the analysis of relationships among several constructs (causal model). Therefore, the nomological validation relies on an entire covariance structure analysis (causal model), including its structural models as well as measurement models (Peter 1981, p. 135; Weiber and Mühlhaus 2010, pp. 131). I apply a reduced-form model in which I descriptively analyze the (potentially existing) causal relationships between MSM (treatment) and willingness-to-pay, as well as other endogenous variables. The corresponding validation relies on criteria relevant to regression analysis. I describe these in the context of the performed regression analysis (see section 5.3.2). Further evaluation of nomological validity is unnecessary.

5.2.3.2   Construct validity of the formative measurement models

I have operationalized both moderator constructs—the manufacturer's component importance in the end product and the direct customers' power position within the supply chain—according to a formative specification (see sections 4.3.3.1 and 4.3.3.2). Consequently, the applied indicators determine the two constructs, and a relationship between indicators does not necessarily exist (Weiber and Mühlhaus 2010, p. 202). For example, it is possible that in

the case of the construct component importance, the adhesive expenses account for a high proportion of material costs (item 1), whereas there are many alternative technologies to adhesives (item 5). For formative measurement models it is often referred to *index construction,* which describes the differences to reflective measurement concepts (Weiber and Mühlhaus 2010, pp. 202; see also Diamantopoulos and Winklhofer 2001). Diamantopoulos and Winklhofer (2001, pp. 271) suggest four criteria to evaluate indexes based on formative indicators:

> *Content Specification*: Specification of the scope of the latent variable…. (Diamantopoulos and Winklhofer 2001, pp. 271)

> *Indicator Specification*: … Items used as indicators must cover the entire scope of the latent variable as described under the content specification. (Diamantopoulos and Winklhofer 2001, pp. 271)

> *Indicator Collinearity*: Excessive collinearity among indicators … makes it difficult to separate the distinct influence of the individual [regressors] on the latent variable…. (Diamantopoulos and Winklhofer 2001, pp. 272)

> *External validity*: … How well the index relates to measures of other variables. (Bagozzi 1994, p. 333)

According to Bagozzi (1994, p. 333), "an index is more abstract and ambiguous than a latent variable measured with reflective indicators." Consequently, the **content specification**, namely the content the index is intended to capture, is of superior relevance to the construction of formative constructs. It is especially important to consider all possible facets of the construct (Diamantopoulos and Winklhofer 2001, p. 271, and literature cited therein). In the MSM experiment, I developed both formative moderator constructs based on extensive practical considerations as well as a review of qualitative information and exploratory manager interviews (see sections 4.3.3.1 and 4.3.3.2). The domain of the content of both latent variables was comprehensively captured, whereas, in the case of formative measurements, the content of the constructs is by definition "inextricably linked with **indicator specification**" (Diamantopoulos and Winklhofer 2001, p. 271). I determined that

five indicators adequately formed the construct of manufacturers' component importance as characterized in the adhesives industry (see section 4.3.3.1). I determined that four indicators were relevant to evaluating the market power of direct customers of the adhesives industry (see section 4.3.3.2).

However, "an issue particular to formative indicators is that of **multicollinearity**" (Diamantopoulos and Winklhofer 2001, p. 272). Perfect multicollinearity prevails if it is possible to construct one regressor (indicator) as a linear function of the remaining regressors (Backhaus et al. 2011a, p. 93). This is problematic because this would complicate the assessment of the influences of different regressors on the latent variable. Furthermore, an indicator highly correlating with one or more other indicators is likely to contain redundant information and might need to be excluded from the construct (Backhaus et al. 2011a, pp. 93; Diamantopoulos and Winklhofer 2001, p. 272, and literature cited therein).

To test the formative moderator constructs on multicollinearity, I analyzed the indicators on correlations using SPSS. The corresponding correlation matrices (see Appendix 9) do not show strong correlations between indicators, allowing a first assumption of low multicollinearity prevailing for the moderator constructs (Backhaus et al. 2011a, p. 94). Further tests on multicollinearity include *tolerance values* ($T = 1 - R^2$) and *variance inflation factors* ($VIF = 1/T$) (Backhaus et al. 2011a, pp. 94 and p. 102; Weiber and Mühlhaus 2010, p. 207). VIF values for all indicators (see Appendix 10) rate far below the common cut-off threshold of 10 (Diamantopoulos and Winklhofer 2001, p. 272, and literature cited therein) and also below a more strict threshold of 3 (Weiber and Mühlhaus 2010, pp. 207), allowing the conclusion that the moderator constructs are free of noteworthy multicollinearity.[40] For further empirical analysis, I summed the nine item scores (five items for the construct of *component importance* and four items for the construct of *power structure*) and took their standardized mean values (SUM_{Comp} and SUM_{Power}) as the measures of the two moderator constructs (for a similar approach, see Hamer 2006, p. 224).

Diamantopoulos and Winklhofer (2001, pp. 272, and literature cited therein) suggest three approaches to evaluating **external validity** of formative measurement models. The first

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[40] For methods about how to deal with multicollinearity (i.e., *ridge regression*) see Backhaus et al. 2011a, p. 96, and literature cited therein.

approach consists of correlating each indicator to another variable external to the index while retaining indicators that are significantly correlated with the variable of interest. A possible external criterion could be a global item summarizing the essence of the formative construct. The second, more satisfactory approach suggests "to include some reflective indicators and estimate a multiple indicators and multiple causes (MIMIC) model" (Diamantopoulos and Winklhofer 2001, p. 272, and literature cited therein). Thus acceptable overall model fit allows me to draw conclusions about the indicators forming the index (Diamantopoulos and Winklhofer 2001, p. 272). Although relevant to the MSM experiment, I refrained from including further external (global) criteria or additional reflective items. To reduce the risk of overwhelming the participants with the major conjoint task, I avoided this additional complexity.

The third and final approach suggests "linking the index to other constructs with which it would be expected to be linked (i.e., antecedents and/or consequences)" (Diamantopoulos and Winklhofer 2001, p. 273, and literature cited therein). Such a validation requires prevailing information about one additional construct that must be specified by reflective indicators. If it is possible to postulate a theoretical relationship between the formative and reflective constructs, one can assume external validity when the path between the formative and reflective construct proves to be significant and consistent with expectations (Diamantopoulos and Winklhofer 2001, pp. 273). For the MSM experiment, both formative constructs represent moderators that I do not postulate to directly relate to other (reflective) constructs but rather to moderate existing causal relationships. Therefore, it is neither possible to postulate plausible hypotheses nor reasonable to test direct relationships prevailing between the formative constructs and other reflective constructs. In accordance with Weiber and Mühlhaus (2010, p. 209, and literature cited therein), I evaluate nomological aspects of the formative measurement models in the context of estimating the overall regression model under consideration of global quality criteria related to the model fit as well as the significance of the postulated relationships (see section 5.4). I refrain from further analyzing the external validity of the formative measurements at this point. Yet the external validity relevant to the overall causal model is the subject of the following section.

5.2.4   External validity

"*External validity* refers to the approximate validity with which we can infer that the presumed causal relationship can be generalized to and across alternate measures of the cause and effect and across different types of persons, settings, and times" (Cook and Campbell 1979, p. 37). A precondition to external validity is the existence of sufficient internal validity (Geiger 2007, p. 170). External validity is related to statistical interactions that, if they prevail, restrict the generalizability. Three different types of interactions compose the most relevant threats to external validity. An *interaction of selection and treatment* threatens the generalizability of cause-and-effect relationships beyond the groups used to establish the initial relationship. It is questionable whether the same results hold for other subpopulations (i.e., participants of the MSM experiment versus other managers responsible for adhesives purchasing). Similarly, an *interaction of setting and treatment* threatens the generalizability of the results found in a specific setting (i.e., artificial setting of the MSM experiment versus a real purchasing situation). Finally, an *interaction of history and treatment* refers to the risk that the results might be related to the time in which an experiment takes place (i.e., the time when the MSM experiment was conducted versus the time of a real purchase situation) (Cook and Campbell 1979, pp. 73; Krauth 2000, pp. 33).

In the context of interactions, the applied sampling model influences external validation (Cook and Campbell 1979, pp. 74). I have shown that the obtained sample for the MSM experiment is representative according to sociodemographic information in support of high external validity (e.g., Bagozzi 1994, p. 333; see also section 5.1.1). Furthermore, as in the case of internal validity, randomization is crucial for external validity as well (Krauth 2000, p. 37). In the context of external validity, randomization in experimental design refers to the "random selection [without replacement] of a sample of subjects from a defined population in order to examine it in the study" (Krauth 2000, p. 37). "An advantage of this kind of random sampling without replacement is that those causal relations whose existence was proved for the random sample might be generalized to the total population to a certain extent (external validity)" (Krauth 2000, p. 38). This allows assumptions about the high external validity of the MSM experiment.

In addition to applying the sampling method (i.e., randomization), it is possible to improve external validity by increasing its realism (Goodwin 1995, p. 62). Two types of realism are distinguishable. *Mundane realism* refers to "how closely the experiment mirrors real life experiences …" (Goodwin 1995, p. 62). It is possible to improve it by using context in experiments more carefully (Croson 2005, pp. 136). "Experiments with context have more external validity, cueing subjects to behavior that we might more often observe in the real world" (Croson 2005, p. 137). In contrast, "*experimental realism* concerns the extent to which an experiment has an impact on the subjects, forces them to take the matter seriously, and involves them in the procedures…. If subjects are involved in the study and taking it seriously, then the researcher can draw valid conclusions about their behavior" (Goodwin 1995, p. 62, referring to Aronson 1992, p. 411). In this context, the application of a limit conjoint experiment is advantageous. The objects (stimuli) are composed of one attribute level of all relevant attributes. According to the decompositional approach, respondents' evaluations or rank orders of the stimuli are used to calculate partworths of the attribute levels (Backhaus et al. 2011a, pp. 458 and pp. 464; Böhler and Scigliano 2009, pp. 101, and literature cited therein; see also section 4.2.1). Therefore, experimental realism improves in favor of a higher external validity. The respondents receive more realistic object descriptions than a mere measurement scale evaluating single properties. In addition, it is likely that the participants pay close attention because realistic ranking is possible only if they consider all object properties (Baier and Brusch 2009b, pp. 4 and pp. 10; Teichert and Shehu 2009, pp. 31, and literature cited therein). The unusual questionnaire—including a limit conjoint experiment—might also have raise the respondents' attention and increase their motivation (for further information on the evaluation of the reliability and validity of conjoint measurements, see Brzoska 2003; McCullough and Best 1979).

Finally, when conducting a conjoint experiment, it is important to avoid overwhelming respondents. "A model should be detailed enough to represent the important aspects of the reality it is meant to represent, but not so detailed as to overwhelm the participant with information" (Wilkenfeld 2004, pp. 435). Therefore, it is important to avoid defining too many conjoint attributes and attribute levels (Backhaus et al. 2011a, pp. 465). The present study meets this requirement, defining three attributes and $3 \times 3 = 9$ corresponding levels. As I have mentioned, I reduced the number of endogenous or moderator measurements to avoid

overloading the participants (see a description of operationalizations in section 4.3.3). In addition, although I took measures to preserve the external validity of the MSM experiment, I also preserved sufficient internal validity. In summary, it is possible to assume that internal as well as external validity are sufficiently high for the MSM experiment.

5.3   Main effects of the MSM experiment

The main effects relevant to this study relate to the relationship between MSM and willingness-to-pay on the direct customers' market stage, as expressed in the hypotheses H_{1a} through H_{1c}. I have assumed that these customers react differently to different types of MSM (see section 3.2.2). This section focuses on the empirical testing of the developed model of main effects and the hypothesis framework. I use the *ordinary least squares (OLS) regression analysis* method, which is one of the most flexible and important multivariate methods of statistical analysis of a priori (ex ante) hypothesized causal relationships (Backhaus et al. 2011a, p. 14; for the relation between causal and descriptive data analysis, see section 4.1.1). Applying the *dummy variable technique*, I can include nominal scaled exogenous variables in the (multiple) regression and extend its application area (Backhaus et al. 2011a, p. 15; for a similar approach, see Bertrand et al. 2010). In contrast with an *analysis of variance (ANOVA*; e.g., Backhaus et al. 2011a, pp. 157), regression analysis enables the explicit use of product terms, whereby the design of developed models becomes especially clear by facilitating their graphical illustration (Baltes-Götz 2009, pp. 5). This is especially relevant for the analysis of influencing factors moderating causal relationships, which is the subject of section 5.4. Therefore, to improve the structure and consistency of the empirical analysis, I apply multiple linear regression right from the start on all the statistical tests of main effects and moderator effects, as well as statistical tests of additional effects.

I computed individual willingness-to-pay for every respondent and the conjoint attribute levels *standard product quality* and *standard product availability*. These attribute levels can be considered the most relevant as they reflect the mean value of all attribute level combinations for every different scenario. Consequently, excluding other attribute level combinations facilitated the statistical analysis of MSM effects and allowed to reveal the relevance of MSM for direct customers' willingness-to-pay and other endogenous constructs.

With respect to main effects, descriptive statistics will evaluate the obtained data structure regarding measures of central tendency (i.e., mean values). Paired t-test comparisons allow statistical testing of the described mean differences between groups (section 5.3.1). The subsequent regression analysis includes the estimation, analysis and validation of the regression model with respect to differences in willingness-to-pay between control and treatment groups (section 5.3.2). Concluding the analysis of main effects, I perform a final assessment of corresponding hypotheses (section 5.3.3).

5.3.1   Descriptive statistics for main effects

I first analyze the obtained data of direct customers' individual willingness-to-pay using descriptive statistics (Bourier 2001a; Eckstein 2013, pp. 19; Wirtz and Nachtigall 2002). Figure 5-7 summarizes the quantitative description of obtained (computed) data for willingness-to-pay of respective conjoint attribute levels (POG_SQ_SA[41]) depending on the treatment groups or control group (i.e., the MSM scenario applied).

Figure 5-7:   Descriptive statistics for willingness-to-pay (source: Author's illustration)

Descriptive statistics of central tendency show a mean value of −15.54% for the additional willingness-to-pay of the control group devoid of any MSM measures. When applying

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[41] POG stands for "Preisobergrenze," which is the German translation of willingness-to-pay. Accordingly, the variable name refers to the willingness-to-pay for the conjoint attribute levels *standard product quality (SQ)* and *standard product availability (SA)*—together POG_SQ_SA.

collaborative MSM, the mean value increases to 17.86%. Applying paired t-test comparisons for independent samples (Nachtigall and Wirtz 2002, pp. 138) while assuming unequal variances compared with the control group (Levene's test for homogeneity of variance with $F = 1.505$; $p = .226$) (for further information on Levene's test for homogeneity of variance, see Dayton 1970, pp. 34), shows the means to differ significantly from 0 at a significance level of $p = .039$ (two-tailed) (see the results of paired t-test comparisons in Appendix 11). In support of hypothesis H_{1b}, this gives a first indication about the expected positive effect of collaborative MSM on the willingness-to-pay of direct customers. In contrast, the mean value of additional willingness-to-pay applying non-collaborative MSM decreases to −19.32% in comparison with the control group. This is in line with the hypothesized negative impact of non-collaborative MSM on direct customers' willingness-to-pay. Yet a paired t-test comparison shows this difference of mean values to not be significant ($p = .721$). There are only weak observable effects in MSM in a wider sense. The mean value of willingness-to-pay slightly increases from −15.54% to −13.78% in comparison with the control group, though this difference also does not prove to be significant ($p = .855$) according to a paired t-test comparison. It is noteworthy that all percentage values of price changes are realistic and representative of the adhesives industry, which confirms the suitability of price-attribute levels (see section 4.2.2 for an initial determination of price-attribute levels and section 4.4.1. for its modification after performed pilot testing). Given the plausibility of the data, the following section focuses on the regression analysis of main effects.

5.3.2   Regression analysis for main effects

Relying on the suggested causal relationships for main effects, I define endogenous and exogenous variables to determine the assumed regression relationship. Based on the obtained data of willingness-to-pay, I estimate and analyze the regression function with respect to differences in willingness-to-pay between control and treatment groups (section 5.3.2.1). My analysis of single regressors according to t-statistics allows further evaluation of differences in willingness-to-pay between groups (section 5.3.2.2). Finally, I validate the obtained regression model (section 5.3.2.3).

5.3.2.1   Regression function and model fit

The regression analysis begins with modeling (for a stepwise description, see Backhaus et al. 2011a, pp. 61). Willingness-to-pay presumably depends on the type of MSM applied. Accordingly, direct customers' willingness-to-pay represents the endogenous variable of the regression model, whereas different types of MSM represent the exogenous variables. A linear relationship between exogenous and endogenous variables is assumed and allows the application of multiple linear regression analysis (Backhaus et al. 2011a, p. 61). However, exogenous variables are scaled nominally. To include nominal variables in a regression model, it is necessary to transfer them into metric scale. *Dummy* or *indicator variables* represent binary variables that rate either 0 or 1. The four different scenarios can be described explicitly using three indicator variables, as the following formulas express (Backhaus et al. 2011a, p. 15):

$$x_{2k} = \begin{cases} 1 & \text{in case of scenario 2} \\ 0 & \text{otherwise} \end{cases}$$

$$x_{3k} = \begin{cases} 1 & \text{in case of scenario 3} \\ 0 & \text{otherwise} \end{cases}$$

$$x_{4k} = \begin{cases} 1 & \text{in case of scenario 4} \\ 0 & \text{otherwise} \end{cases}$$

With

x_{jk} = *values of independent variables (j = 1, 2, ..., J; k = 1, 2, ..., K)*

J = *number of independent variables*
K = *number of observations*

One indicator variable describes each of the three MSM scenarios, which rate 1 in the case of the respective treatment group. For the control group, all indicator variables rate 0, describing the first scenario being presented (Backhaus et al. 2011a, p. 15). To use the obtained data of

the main survey for regression analysis, I translated the variable *scenario*, with values between 1 and 4 for one of the four presented scenarios, into three indicator variables, building the final database for analysis of main effects. The next step is to estimate the regression function.

It is possible to describe the function for multiple regressions and the corresponding target function as follows (Backhaus et al. 2011a, p. 69):

$$\hat{Y} = b_0 + b_1 X_1 + b_2 X_2 + ... + b_j X_j + ... + b_J X_J$$

$$\sum_{k=1}^{K} e_k^2 = \sum_{k=1}^{K} [y_k - (b_0 + b_1 x_{1k} + b_2 x_{2k} + ... + b_j x_{jk} + ... + b_J x_{Jk})]^2 \rightarrow \min$$

With

e_k : values of residual (k = 1, 2, …, K)

y_k : values of dependent variables (k = 1, 2, …, K)

b_0 : intercept (constant)

b_j : regression coefficients (j = 1, 2, …, J)

x_{jk} : values of independent variables (j = 1, 2, …, J; k = 1, 2, …, K)

J : number of independent variables

K : number of observations

I estimated the regression parameters using the OLS method and SPSS (for further information on estimating regression parameters, see Backhaus et al. 2011a, pp. 114, and literature cited on p. 69; Eckstein 2013, pp. 91). The endogenous variable is represented by *POG_SQ_SA*. Exogenous variables are the three-indicator variables determining the different types of MSM and respective scenarios presented to the different treatment and control groups. I performed blockwise regression using the *enter* method in SPSS (Backhaus et al. 2011a, p. 97). Figure 5-8 illustrates my results.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,326[a]	,106	,079	43,93257%

a. Predictors: (Constant), sc2_iws, sc4_noncol, sc3_col

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22956,299	3	7652,100	3,965	,010[b]
	Residual	193007,107	100	1930,071		
	Total	215963,406	103			

a. Dependent Variable: POG_SQ_SA
b. Predictors: (Constant), sc2_iws, sc4_noncol, sc3_col

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-15,540	8,616		-1,804	,074
	sc3_col	33,397	12,185	,317	2,741	,007
	sc4_noncol	-3,783	12,306	-,035	-,307	,759
	sc2_iws	1,758	12,071	,017	,146	,884

a. Dependent Variable: POG_SQ_SA

Figure 5-8:   SPSS output for linear regression for main effects (source: SPSS output)

The unstandardized regression coefficients show the marginal effect of exogenous variable changes and build the regression function relevant for the analysis of main effects of the MSM experiment (Backhaus et al. 2011a, p. 71):

WTP = −15.540 + 33.397 * col MSM − 3.783 * non-col MSM + 1.758 * MSM iws

I estimated the unstandardized coefficient for the indicator variable of collaborative MSM with 33.397. The coefficient is positive, indicating that the application of collaborative MSM increases the respondents' willingness-to-pay. In addition, the indicator variable of MSM in a wider sense rates positive with 1.758 and therefore increases respondents'

willingness-to-pay when the respective scenario is applied. In contrast, the indicator variable of non-collaborative MSM rates negative with −3.783. It indicates that, compared with the control group, the application of non-collaborative MSM decreases respondents' willingness-to-pay.

To compare the effect sizes related to the different MSM types, it is necessary to compare standardized beta (β) coefficients[42] (Backhaus et al. 2011a, pp. 70). It is possible to see that the positive effect size of the indicator variable of collaborative MSM (β = 0.317) is strong compared with both the negative-effect size of the indicator variable of non-collaborative MSM (β = –0.035) and the positive-effect size of the indicator variable of MSM in a wider sense (β = 0.017). This allows the first assumption that collaborative MSM has a stronger relevance for the respondents' willingness-to-pay, whereas the relevance of non-collaborative MSM and MSM in a wider sense is close to 0 and, consequently, relatively low.

The global quality criteria relevant to evaluating the obtained regression function include the coefficient of determination, standard error of the estimate, and F-statistic (Backhaus et al. 2011a, pp. 72; Eckstein 2013, pp. 102). The *coefficient of determination*[43] (R^2) rates 0.106, which shows that 10.6% of the variance of respondents' willingness-to-pay can be explained by the regressors (i.e., the indicator variables included in the model) (Backhaus et al. 2011a, p. 75). The value appears to be rather low even though there is no general statement as to which value the determination coefficient can classify as good. It always depends on the particular problem to be analyzed (Backhaus et al. 2011a, pp. 99). Relevant to the present study is the analysis whether MSM shows significant effects on various endogenous variables. If significant variations can be found in the data, it is reasonable to assign them to the experimental treatment (Cook and Campbell 1979, pp. 55). Yet it is not my intention to determine all possible factors explaining such variations in the data (for an evaluation of my empirical approach for data analysis, see section 4.1.1). Furthermore, as Myers et al. (2010,

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[42] The standardized beta coefficients are obtained by multiplying the regression coefficient (b_j) with the fraction of the respective standard deviation of the regressor and the standard deviation of the endogenous variable (standard deviation of X_j / standard deviation of Y) (Backhaus et al. 2011a, p. 70).

[43] The determination coefficient R^2 always rates between 0 and 1 and can be described by $R^2 = 1 – $ *(not explained variance / total variance)*. The higher the value, the greater the total variance that can be explained by the regressors included in the regression model (Backhaus et al. 2011a, p. 75; Bourier 2001a, pp. 213; Eckstein 2013, pp. 102).

p. 169) describe, a disadvantage of a one-factor between-subjects design is that there is less control of nuisance variables, and error variance will likely be higher than in other designs (see section 4.1.3). The corresponding *standard error of the estimate* describes the standard deviation of the residua and indicates the average error generated by using the obtained regression function to estimate the endogenous variable (Backhaus et al. 2011a, p. 80). For the analysis of main effects of the MSM experiment, the standard error of the estimate rates 44.93%. In line with a rather low determination coefficient, it indicates a rather high average error generation using the obtained regression function. However, relying on the reasons I have described and the practical considerations, the overall fit statistics demonstrate acceptable model fit for willingness-to-pay. [44]

Whereas the determination coefficient and standard error of estimate indicate how much of the variance can be explained by the obtained regression function, the *F-statistic* evaluates how representative the regression model is for the total population. The sample size (N) becomes relevant to determine if the regression function can be considered representative and at which level of significance (Backhaus et al. 2011a, pp. 76). The empirical F-value (F_{emp}) for the obtained results rates 3.965. Comparing this value with the theoretical F-value (F_{tab}) shows that the $F_{emp} > F_{tab}$ allowing me to reject the null hypothesis H_0 that all standardized beta coefficients equal zero ($\beta_1 = \beta_2 = \ldots = \beta_J = 0$) at a significance level of $\alpha = 0.05$ (1 – confidence level of 95%) (Bourier 2001b, pp. 217; Eckstein 2013, pp. 248). The obtained regression function can therefore be considered significant at $p = .01$, allowing the assumption of statistical conclusion validity (Westermann 2000, p. 296; see also section 5.2.1) for the analysis of main effects of the MSM experiment.[45]

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[44] See, for example, a comparable study of the relationship between market orientation and profitability as well as some further argumentation in support of the acceptance of low determination coefficients provided by Slater and Narver 2000, p. 71; for information on reasons influencing the explanatory power of comparable models, see also Slater 1995, pp. 262.

[45] Alternatively, I could have analyzed the variance between groups for statistical testing. *Analysis of variance* (*ANOVA*) applies the same regression-analytical algorithms as linear regression does, and the results are practically the same (Baltes-Götz 2009, pp. 10). To prove the similarity of the multivariate methods of statistical analysis, I performed an additional _univariate analysis of variance_ (UNIANOVA) between subjects to test main effects of the MSM experiment. Appendix 12 illustrates the obtained results (corrected model: F = 3.965; $p = .01$ with 3 df; $\eta^2 = 10.6\%$) and describes the correspondence to the results obtained from regression analysis.

5.3.2.2   t-statistics for the analysis of single variables

The evaluation of global quality criteria and, in particular, the F-test, revealed that not all regression coefficients equal 0. It was possible to reject the null hypothesis H_0 that no systematic relationship prevails. This section contains analysis of the influence of single (exogenous) variables (i.e., types of MSM on the respondents' willingness-to-pay). Single regression coefficients will be evaluated according to a t-statistic (Backhaus et al. 2011a, pp. 81). Similar to the F-test, the t-statistic allows testing of the null hypothesis H_0, that single beta coefficients equal zero ($\beta_J = 0$). Comparing the theoretical t-values (t_{tab}) with the empirical t-values (t_{emp}) allows rejection of the null hypothesis H_0 in case $\mid t_{emp} \mid > t_{tab}$ at a significance level of $\alpha = 0.05$ (1 – confidence level of 95%) (Bourier 2001b, pp. 215; Eckstein 2013, pp. 246). Accordingly, the relevance of a specific exogenous variable would be significant if the null hypothesis H_0 can be rejected. It is possible to obtain the t-value of an exogenous variable by dividing the regression coefficient of a regressor by its standard error (Backhaus et al. 2011a, pp. 81). Figure 5-8 displays these values in the SPSS output of linear regression.

For the analysis of main effects of the MSM experiment, the t-value of the indicator variable of collaborative MSM rates 2.741 at a significance level of $p < .01$. That allows the conclusion that the positive effect of collaborative MSM on the respondents' willingness-to-pay is highly significant. Applying collaborative MSM significantly increases the mean value from –15.54 for the control group to 17.86% for the respective treatment group of scenario 3 (see descriptive statistics in section 5.3.1). The result supports the suggested effect of hypothesis H_{1b}.

The rather low effect size represented in the standardized beta coefficients (β) of non-collaborative MSM   ($\beta = -0.035$)   and   MSM in a wider sense   ($\beta = 0.017$)   (see section 5.3.2.1) is also reflected in the significance level of the respective regression parameters (Backhaus et al. 2011a, p. 101). The mean value of additional willingness-to-pay applying non-collaborative MSM decreases from –15.54 for the control group to –19.32%. However, the t-value of the indicator variable for non-collaborative MSM rates –0.307 and the effect is not significant with $p = .759$. The result is in opposition to hypothesis H_{1a}. MSM in a wider sense also shows no significant difference from the control group in terms of

willingness-to-pay. Applying MSM in a wider sense, willingness-to-pay increases from −15.54 (control group) to −13.78%. However, a corresponding t-value of 0.146 reveals the regression coefficient to be not significant with $p = .884$. Thus, I also reject hypothesis H_{1c}. However, before finally confirming the obtained results and deriving corresponding conclusions, I must validate and test the model using assumptions relevant to regression models. This is the subject of the following section.

5.3.2.3   Validation of the obtained regression model

A complete regression model includes modeling errors, which confirms that an empirical variable (Y) can never be fully explained by a limited number of observable variables. Consequently, regression analysis relies on a stochastic model, which depends on compliance with several propositions for its validation. This includes tests of multicollinearity, autocorrelation, heteroscedasticity, and a normal distribution of disturbance variables (Backhaus et al. 2011a, pp. 84). In the case of the MSM experiment, particularly in terms of the analysis of main effects, *multicollinearity* of regressors cannot prevail. All included regressors characterize dummy variables for which, by definition, multicollinearity is impossible (Backhaus et al. 2011a, pp. 93). The regressor values can only rate 0 or 1, and a specific indicator variable takes a value of 1 only in case all remaining regressors take a value of 0. The control group can be described by remaining dummy variables, namely if all indicator variables take values of 0 (Backhaus et al. 2011a, p. 15; see also section 5.3.2.1). Therefore, it is impossible to describe one of the regressors by a linear function of remaining regressors, and there is no need to test multicollinearity at this point (Backhaus et al. 2011a, pp. 93). However, testing multicollinearity becomes necessary when including metric scaled variables in the model, as I do when I analyze moderator effects (see section 5.4).

Because there are no time-series data available and the sequence of obtained cross-sectional data is changeable, a test of *autocorrelation* of residua is not reasonable for the MSM experiment, independent of the effects to be tested (Backhaus et al. 2011a, p. 103). I assume that all respondents' judgments are independent of each other's (see evaluation of internal validity in section 5.2.2.) and variations from the regression line do not depend on other (e.g., previous or later) variations (Backhaus et al. 2011a, pp. 92). Relying on the

central limit theorem [46] (CLT; e.g., Rice 1988, pp. 161), it is possible to assume *normal distribution* of disturbance variables, and it does not require testing (Backhaus et al. 2011a, p. 96). However, it is necessary to test the regression model for main effects on heteroscedasticity.

"*Heteroscedasticity* arises when the variances of the error terms of a regression model are not constant over different sample observations" (Lee et al. 2000, p. 705; see also Hayes and Cai 2007, pp. 710). Heteroscedasticity infringes on the regression models' proposition of normal distribution and uncorrelation of disturbance variables as well as its independence of the effects being modeled (exogenous variables) (Backhaus et al. 2011a, pp. 90). Yet applying dummy variable technique for independent (nominal) variables hinders a graphical analysis of heteroscedasticity by scatterplot (Backhaus et al. 2011a, pp. 90). As White (1980, p. 817) asserts, it is therefore reasonable to regress by applying heteroscedasticity-consistent standard errors (HCSE), which correct for eventual heteroscedasticity while coefficient values of the regression model remain constant. The consistent (adjusted) estimators of standard errors diverge from the usual covariance matrix estimator (OLS) in cases of heteroscedasticity (being biased downward), whereas "in the absence of heteroscedasticity, both estimators will be about the same" (White 1980, p. 817).

By default, SPSS software does not provide an appropriate method for estimating heteroscedasticity-consistent standard errors in multiple regressions. Nor can SPSS software be updated to use a menu-driven approach. Therefore, it is necessary to apply a special macro and syntax tool (Hayes and Cai 2007, p. 714). Hayes and Cai (2007) have developed an SPSS macro[47] that enables extending SPSS functions so it is possible to later apply a special syntax function to call the macro and run a linear regression with heteroscedasticity-consistent standard errors (see applied HCSE linear regression syntax in Appendix 13). As in the case of ordinary (non-HCSE) regression (see section 5.3.2.1), I included three indicator variables relevant to the MSM experiment as well as the dependent willingness-to-pay variable

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[46] In probability theory, the central limit theorem states that "the sampling distribution of sample means will more closely resemble the normal distribution as the sample size increases [N > 40]" (Johnson and Kuby 2008, p. 370; see also Backhaus et al. 2011a, p. 96; Rice 1988, pp. 161).

[47] I downloaded the macro from http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html on January 16, 2013. It must be run once by SPSS, which adds a defined function to the SPSS syntax library. An additional syntax file (Appendix 13) enables running the newly obtained SPSS function to regress linearly with heteroscedasticity-consistent standard errors.

(POG_SQ_SA) in the regression model for analyzing main effects. Figure 5-9 illustrates the results that I obtained by running the syntax for multiple regressions with heteroscedasticity-consistent standard errors.

```
Run MATRIX procedure:

HC Method
 3

Criterion Variable
 POG_SQ_S

Model Fit:
       R-sq          F         df1         df2            p
       ,1063     2,1852     3,0000    100,0000         ,0945

Heteroscedasticity-Consistent Regression Results
              Coeff      SE(HC)           t      P>|t|
Constant   -15,5401     8,8671     -1,7526        ,0827
sc3_col     33,3972    15,9674      2,0916        ,0390
sc4_nonc    -3,7833    10,7328      -,3525        ,7252
sc2_iws      1,7585     9,8618       ,1783        ,8588

Covariance Matrix of Parameter Estimates
            Constant    sc3_col    sc4_nonc    sc2_iws
Constant    78,6249    -78,6249   -78,6249    -78,6249
sc3_col    -78,6249    254,9594    78,6249     78,6249
sc4_nonc   -78,6249     78,6249   115,1924     78,6249
sc2_iws    -78,6249     78,6249    78,6249     97,2560

Setwise Hypothesis Test
        F          df1         df2            p
      ,0318     1,0000    100,0000         ,8588

Variables in Set:
 sc2_iws

------ END MATRIX -----
```

Figure 5-9:   Multiple regression analysis with HCSE (source: SPSS output)

As Figure 5-9 shows, the determination coefficient remains unchanged with $R^2 = 0.106$, whereas corresponding empirical F-values decrease from $F = 3.965$ for the ordinary (non-HCSE) regression model to $F = 2.185$ for the regression model with corrected standard errors. Consequently, the null hypothesis H_0 can be rejected only at a confidence level of 90% (significant only at a level of $p < .10$). It allows reduced statistical conclusion validity when

applying heteroscedasticity-consistent standard errors. In contrast, the intercept and regression coefficients (standardized as well as unstandardized) stay the same and provide redundant information based on the regression already ran for the same indicators and dependent variables (Hayes and Cai 2007, pp. 711; Westermann 2000, p. 296; see also section 5.3.2.1). Yet, comparing the uncorrected standard errors with the corrected standard errors, the heteroscedasticity-consistent standard errors increase and show different (lower) values of statistical significance for the different indicator variables. In general, applying heteroscedasticity-consistent standard errors can lead to different conclusions, and it might be necessary to exclude additional exogenous variables from the model, showing lower statistical significance. Conclusions based on uncorrected (biased) standard errors might be misleading (Backhaus et al. 2011a, pp. 90; Hayes and Cai 2007, pp. 710). But in the MSM experiment, heteroscedasticity appears to be moderate. The standard errors increased slightly and the coefficient (β) remains statistically significant at $p = .039$ (before $p = .007$) for the indicator variable of collaborative MSM (scenario 3). Consequently, obtained conclusions for tests using t-statistics with uncorrected standard errors (see section 5.3.2.2) remain the same when applying heteroscedasticity-consistent standard errors. Based on that, the model's explanatory power (i.e., the determination coefficient) does not decrease; it is therefore appropriate to always apply heteroscedasticity-consistent standard errors to avoid wrong conclusions based on biased standard errors and corresponding (eventually higher) significances (Hayes and Cai 2007, p. 714, referring to Long and Ervin 2000). I follow this approach for further empirical testing to analyze moderator and additional effects, and I omit further testing on heteroscedasticity. I summarize the results of the entire regression analysis for main effects of the MSM experiment in the following section.

5.3.3   Results of hypotheses assessment for main effects

Within the scope of an analysis of main effects relevant to the MSM experiment, I postulated that non-collaborative MSM has a negative influence on the direct customers' willingness-to-pay, whereas I suggested that collaborative MSM as well as MSM in a wider sense influence direct customers' willingness-to-pay positively. Figure 5-10 summarizes the results I obtained from the regression analysis of main effects of the MSM experiment.
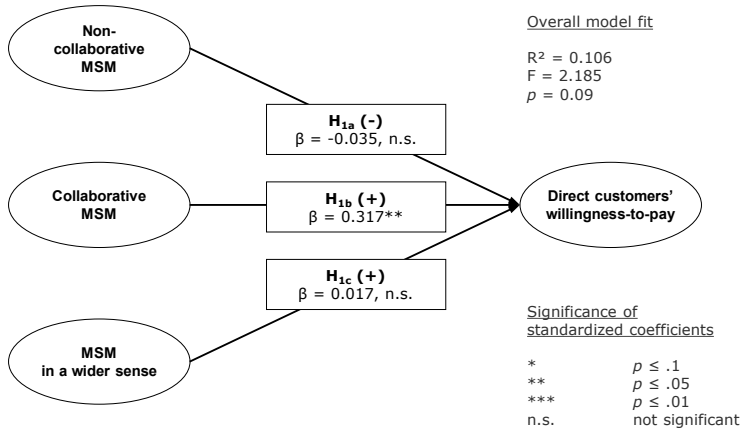
Figure 5-10:   Results of hypotheses assessment for main effects (source: Author's illustration)

The overall model fit shows a determination coefficient of $R^2 = 0.106$. Consequently, the variance the obtained regression model explains does not reach the minimum threshold of 0.4, required by some researchers (e.g., Homburg and Baumgartner 1998, p. 364). As I have shown, applying a one-factor between-subjects design reduces the control of nuisance variables and increases the expected error variance (Myers et al. 2010, p. 169; see also section 4.1.3). Furthermore, considering the complexity of the MSM experiment and its operationalizations as well as the objective to analyze whether MSM shows significant effects on various endogenous variables or not, I consider the obtained model fit and a higher standard error of estimate acceptable to draw an appropriate conclusion (see section 5.3.2.1). Applying heteroscedasticity-consistent standard errors, the significance of the obtained model remains acceptable at a level of $p < .10$. Regarding the relevance of single regressors, only the indicator variable of collaborative MSM shows a significant influence on the respondents' willingness-to-pay. This allows the conclusion that collaborative MSM positively affects direct customers' willingness-to-pay, supporting hypothesis H_{1b} at a significance level of $p < .05$ for heteroscedasticity-consistent standard errors. It is possible to find the hypothesized negative influence of non-collaborative MSM on direct customers' willingness-to-pay (H_{1a}), as well as the assumed positive influence of MSM in a wider sense on direct customers' willingness-to-pay (H_{1c}), in terms of their respective effect directions. Yet the effect sizes are

not significant. Consequently, I reject both hypotheses (H_{1a} and H_{1c}). Other factors are suggested to influence the relationship between MSM and direct customers' willingness-to-pay. The analysis of such moderator effects is the subject of the following section.

5.4   Moderator effects of the MSM experiment

I have hypothesized that the importance of the manufacturer's component in the end product and the direct customers' power position within the supply chain moderate the association between MSM and willingness-to-pay (see section 3.2.3). Accordingly, the present section focuses on the empirical testing of hypothesis H_2 (H_{2a} to H_{2c}) and hypothesis H_3 (H_{3a} to H_{3c}). Figure 5-11 helps describe the function of a moderator model. It illustrates a general model with three causal paths that feed into the outcome variable. A moderator might influence the central interaction between an independent and dependent variable (path a) (Baron and Kenny 1986, p. 1174). "The moderator hypothesis is supported if the interaction (path c) is significant. There may also be significant main effects for the predictor and the moderator (paths a and b), but these are not directly relevant conceptually to testing the moderator hypothesis" (Baron and Kenny 1986, p. 1174).
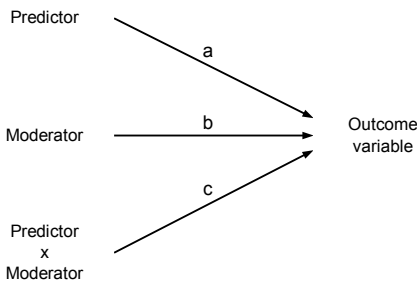

Figure 5-11:   Moderator model (source: Baron and Kenny 1986, p. 1174)

Adapted to the MSM experiment, the central interaction (path a) relates to the causal relationship between different types of MSM (predictor) and the outcome variable, namely the

direct customers' willingness-to-pay. As I have shown, this interaction is significant for collaborative MSM (see section 5.3.3). However, two different moderators might influence this relationship. For example, the moderator hypothesis H_3 is supported if the interaction of MSM types and direct customers' market power (MSM type × market power) has a significant effect on direct customers' willingness-to-pay (path c). Accordingly, it is also possible to depict moderator effects as *interaction effects* (Baltes-Götz 2009, p. 6), which are "at the very heart of theory testing in the social sciences" (Cohen et al. 2003, p. 255).

Similar to my analysis of main effects, I also analyze the moderator effects by multiple linear regression analysis. To test non-additive hypotheses, it is therefore important to include hypothesized interactions as product terms in the regression model (Baltes-Götz 2009, pp. 6). Although the analysis of moderator effects is standard within the analysis of variance, the results do not differ without it; but the application of regression analysis offers some major advantages. The interaction effects prevail as multiplicative terms whereby the design of the model is more "visible." It is easier to illustrate the regression model graphically even though it includes several exogenous variables and interaction effects. A graphical illustration also facilitates interpreting the results and supports understanding how the moderator variables affect the original causal relationships (Baltes-Götz 2009, pp. 5).

The regression analysis of moderator effects begins with the potential influence of a manufacturer's component importance on the relationship between MSM and direct customers' willingness-to-pay, as hypothesis H_2 (H_{2a} to H_{2c}) suggest. I include potential interactions in the regression model of main effects (section 5.4.1). I describe a similar approach for the second moderator—namely the influence of direct customers' market power on the relationship between MSM and direct customers' willingness-to-pay, as suggested by hypothesis H_3 (H_{3a} to H_{3c}) (section 5.4.2). Again, I extend the regression analysis of main effects by including potential interactions in the regression model. I illustrate the analysis of respective moderator effects graphically to derive corresponding conclusions. Finally, I summarize the overall results of the hypotheses assessment with respect to both potential moderator effects (section 5.4.3).

5.4.1   Moderation by component importance

Similar to the analysis of main effects of the MSM experiment, the analysis of moderator effects begins with modeling (Backhaus et al. 2011a, pp. 61; see also section 5.3.2.1). The extended model relies on the regression model I obtained for analyzing main effects. Again, the endogenous variable results from the willingness-to-pay computed for standard product quality and standard product availability (POG_SQ_SA). Three dummy variables represent the indicators relevant to describe one of the three different treatment groups (MSM scenarios) or the control group, respectively (see section 5.3.2.1). In addition, the standardized mean value (SUM_{Comp}) for component importance (see section 5.2.3.2) is included in the regression model. The inclusion of the mean value itself allows displaying a potential moderation relevant to the control group. It is possible to map interaction effects to the treatment groups by multiplicative terms of the mean value with each of the three indicator variables (Baltes-Götz 2009, pp. 6). Accordingly, I prepared the database upfront by multiplying each indicator variable with the standardized mean value. The regression model includes seven variables as the following regression function illustrates. This is relevant to the analysis of a potential moderation of the association between MSM and direct customers' willingness-to-pay by component importance:

$$\text{WTP} = b_0 + b_1 * \text{col MSM} + b_2 * \text{non-col MSM} + b_3 * \text{MSM iws} + b_4 * SUM_{Comp} + b_5 * (\text{col MSM} \times SUM_{Comp}) + b_6 * (\text{non-col MSM} \times SUM_{Comp}) + b_7 * (\text{MSM iws} \times SUM_{Comp})$$

I estimated the regression parameters using SPSS. To ensure a high validity of the obtained model, the regression applies heteroscedasticity-consistent standard errors (Hayes and Cai 2007, pp. 713; see also section 5.3.2.3). The results (see the SPSS output for component importance in Appendix 14) show a determination coefficient of $R^2 = 0.118$. It indicates that all included regressors can explain 11.8% of the variance (Backhaus et al. 2011a, p. 75). However, the empirical F-value (F_{emp}) rates 1.314 at a significance level of $p = .252$. I cannot reject the null hypothesis H_0 that all standardized beta coefficients equal zero ($\beta_1 = \beta_2 = \ldots = \beta_J = 0$) at a confidence level of 90% (significance level $\alpha = 0.10$). Consequently, I cannot consider the obtained regression function significant and representative for the total population. Based on the obtained results, it is necessary to assume that all regression

coefficients equal zero and an analysis of the influence of single variables is unnecessary (Backhaus et al. 2011a, pp. 76). There is no significant influence of a manufacturer's component importance in the end product on the relevance of MSM measures for direct customers' willingness-to-pay. Based on the results obtained from the data of the MSM experiment, it is necessary to reject the entire hypothesis H_2 (H_{2a} to H_{2c}).

5.4.2   Moderation by power structure

As in the case of the moderation analysis for component importance (see section 5.4.1), the regression model for a potential moderation of main effects by direct customers' market power includes seven variables. The analysis includes the three indicator variables for one of the three treatment or control groups, the standardized mean value (SUM_{Power}) for direct customers' market power (see section 5.2.3.2), displaying a potential moderation relevant to the control group as well as the multiplicative terms of the three indicator variables with the mean value to map possible interaction effects with the treatment groups (Baltes-Götz 2009, pp. 6). The following regression function illustrates the model:

WTP = b_0 + b_1 * col MSM + b_2 * non-col MSM + b_3 * MSM iws + b_4 * SUM_{Power} + b_5 * (col MSM × SUM_{Power}) + b_6 * (non-col MSM × SUM_{Power}) + b_7 * (MSM iws × SUM_{Power})

In contrast with the moderation analysis of component importance, the explanation of variance improves when including the direct customer's *market power* as a moderator variable in the regression model (see the SPSS output for power structure in Appendix 14). The determination coefficient R^2 rates 0.226 and represents a strong improvement in comparison with the obtained regression model for main effects of the MSM experiment (Backhaus et al. 2011a, pp. 75; see also section 5.3.2.1). This is in line with Slater (1995, p. 262) postulating that the "... introduction of the moderator … should increase the explanatory power of the model." However, because the regression model includes several regressors, it is relevant to also assess the *adjusted determination coefficient* (R^2_{adj}). Unlike the simple determination coefficient (R^2), it considers the overall number of regressors included in the model as well as the given number of degrees of freedom (Backhaus et al.

2011a, p. 76; Tabachnick and Fidell 1983, pp. 115).[48] The adjusted determination coefficient (R^2_{adj}) rates 0.170, which indicates a still-acceptable model fit for the present type of experiment (see section 5.3.2.1). F-value rates 3.699 at a significance level of $p = .001$, which indicates a high representativity of the obtained regression function (Backhaus et al. 2011a, pp. 76). It furthermore allows drawing the conclusion of nomological validity and consequently external validity prevailing for the formative measurement model of the power structure (Weiber and Mühlhaus 2010, pp. 131; see also section 5.2.3.2). I reject the null hypothesis H_0, which states that all regression coefficients equal 0, which allows the following analysis of single regression coefficients (Backhaus et al. 2011a, pp. 81).

Similar to the regression analysis I performed for main effects, the unstandardized coefficients for indicator variables of collaborative MSM and MSM in a wider sense rate positively with values of 32.907 and 2.908, respectively, whereas the coefficient for the indicator variable for non-collaborative MSM rates negatively with −5.825. Consequently, all coefficients rate according to the hypothesized direction, even though only the indicator variable for collaborative MSM shows a significant effect with an empirical t-value (t_{emp}) of 2.010 and a significance level of $p = .047$ (Backhaus et al. 2011a, pp. 81). This underpins the results I obtained from the regression analysis for the main effects (see section 5.3.2).

Figure 5-12 illustrates the influence of the direct customers' *market power* on the relationship between MSM types and the direct customers' willingness-to-pay. Each of the straight lines represents one of the four types of MSM or the control group (four scenarios), and their gradient indicates the influence of the moderator variable on the association between the respective type of MSM (straight lines) and willingness-to-pay.

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[48] The adjusted determination coefficient can be calculated by $R^2_{adj} = R^2 - [(J \times (1 - R^2)] / [K - J - 1]$; with K = number of observations; J = number of regressors and $(K - J - 1)$ = number of degrees of freedom. It is easy to see that a higher number of regressors and a lower number of degrees of freedom negatively affect the adjusted determination coefficient (Backhaus et al. 2011a, p. 76, referring to Kmenta 1997, pp. 417).
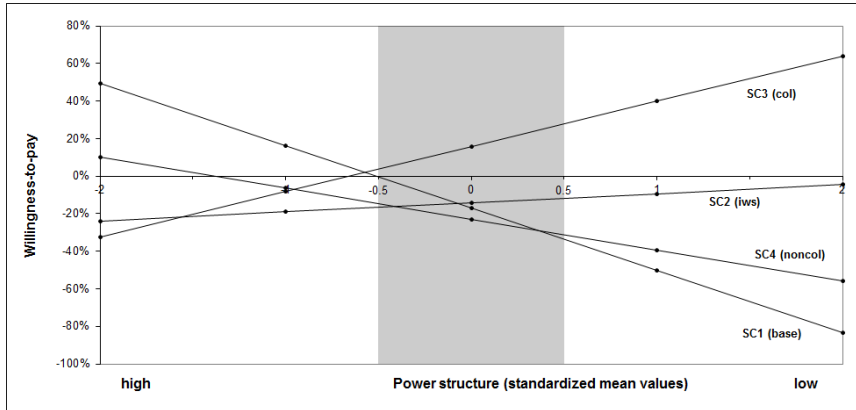
Figure 5-12: Influence of power structure (source: Author's illustration)

Based on the results (see the SPSS output for power structure in Appendix 14), the unstandardized coefficient for the interaction of collaborative MSM and the standardized mean value for direct customers' market power (SUM_{p_sc3}) rates 57.359. The interaction effect is significant with an empirical t-value (t_{emp}) of 2.211 at a significance level of $p = .029$. As the graphic illustrates, as market power of direct customers decreases, the relevance of collaborative MSM increases at a gradient of +24.127 (Gradient$_{colMSM}$ = SUM$_{power}$ + SUM$_{p\_sc3}$ = $-33.232 + 57.359 = +24.127$). There is a similar effect for MSM in a wider sense. The coefficient rates 38.076, with an empirical t-value (t_{emp}) of 2.979. The interaction effect of power structure and MSM in a wider sense is significant at a confidence level of >99% ($p = .004$). The gradient rates +4.843 (Gradient$_{MSMiwS}$ = SUM$_{power}$ + SUM$_{p\_sc2}$ = $-33.232 + 38.076 = +4.843$). Compared with collaborative MSM (Gradient$_{colMSM}$ = +24.127), direct customers' market power has a lower moderating effect on the association between MSM in a wider sense and direct customers' willingness-to-pay. Thus, a stronger power position of the direct customer negatively affects the relevance of collaborative MSM and MSM in a wider sense in support of hypotheses H_{3b} and H_{3c}. Yet there is no significant influence of direct customers' market power on the relevance of non-collaborative MSM ($t_{emp} = 1.224$; $p = .224$), so I reject hypothesis H_{3a}.

In addition to the description of interaction effects relying on the gradient of the different straight lines, their position relative to one another further illustrates appearing effects. The relevant range for analysis of the standardized mean value for power structure (SUM_{power}) can be defined by the interquartile range ($Q_{25} = -.500$; $Q_{75} = +.500$) (see the descriptive statistics for SUM_{Power} in Appendix 15), shadowed in grey. For example, a strong power position of direct customers (at $Q_{25} = -.500$) causes a positive effect of collaborative MSM on direct customers' willingness-to-pay, identifiable by the higher position of the straight line of collaborative MSM, compared with the straight line of the control group (base). The relevance of collaborative MSM at the high level of market power at $Q_{25} = -.500$ is low, yet it has a positive effect on willingness-to-pay. The extent of this positive effect is reflected in the positive coefficient of the indicator variable of collaborative MSM of $\beta = +32.907$ (or a standardized coefficient of $\beta = +0.313$), whereas the effect is significant at a level of $p = .047$, as reflected in the corresponding empirical t-value ($t_{emp} = 2.010$). However, the relevance of collaborative MSM increases with the decreasing market power of direct customers. This is visible in the increased distance between the straight line of collaborative MSM and the straight line of the control group, at a low level market power at $Q_{75} = +.500$. As I have shown before, the moderator effect of increasing relevance is significant as well ($p = .029$). There is a similar effect for MSM in a wider sense. Although the influence of MSM in a wider sense on direct customers' willingness-to-pay is not significant at a high level of direct customers' market power at $Q_{25} = -.500$ (standardized coefficient of $\beta = +0.028$), it increases with decreasing market power. Correspondingly, the distance between the straight lines of MSM in a wider sense and the control group increases, whereas I have proven the effect of increasing relevance at decreasing market power to be significant at $p = .004$. It is likely that testing the relevance of MSM in a wider sense on direct customers' willingness-to-pay at a low level of market power (by only including customers with low market power in the regression analysis) will show the (positive) effect of MSM in a wider sense on direct customers' willingness-to-pay to be significant. The increased distance between the straight lines of MSM in a wider sense and the control group reflects this.

Furthermore, as the graph shows clearly, the influence of non-collaborative MSM on direct customers' willingness-to-pay is negative in the case of high market power. But the relevance of non-collaborative MSM decreases with the decreasing market power of direct customers,

as the decreasing distance between both the straight line of non-collaborative MSM and the straight line of the control group reflects. The observed effect goes in the opposite direction of the hypothesized effect (see section 3.2.3.2). I suggested that a stronger power position of direct customers would decrease the potential negative impact of non-collaborative MSM. As the graphic illustrates, with high market power, the negative influence of non-collaborative MSM is bigger than that of the control group and decreases with the decreasing market power of direct customers. Comparing the figures, the gradient of the interaction effect of power structure and non-collaborative MSM rates -16.541 ($Gradient_{noncolMSM} = SUM_{power} + SUM_{p\_sc4} = -33.232 + 16.691 = -16.541$). This explains the same effect as the straight lines describe. However, as I have shown, none of the observed effects for non-collaborative MSM appear to be significant.

To validate the results, I estimated the regression model by applying heteroscedasticity-consistent standard errors. Consequently, I assume that the random variables have a constant variance, fulfilling one of the major propositions of regression models (Backhaus et al. 2011a, pp. 90). Another prerequisite for the use of linear regression models is that the regressors are not perfectly correlated with each other. As I have shown (see validation of formative measurement models in section 5.2.3.2), perfect multicollinearity prevails if it is possible to construct one regressor as a linear function of the remaining regressors (Backhaus et al. 2011a, p. 93). Although this proposition has no relevance in applying only binary dummy variables (see section 5.3.2.3), it becomes relevant when including metric-scaled moderator variables in the MSM experiment. However, as long as regressors are not perfectly correlated, a certain degree of multicollinearity is not necessarily a problem for regression analysis. Multicollinearity causes less precise regression coefficient estimates, reflected by higher standard errors. Hence, some single coefficients may be found not to differ significantly from 0 even though they would be significant in case of lower multicollinearity. Importantly, however, the point estimates of the coefficients remain unbiased (Backhaus et al. 2011a, pp. 93). Consequently, multicollinearity is not critical here—the obtained results of the MSM experiment could only improve in case of lower multicollinearity. [49] As I have

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[49] Nonetheless, to assess the extent of multicollinearity in the regression model, I analyzed the regressors on correlations and I performed tests on multicollinearity including *tolerance values* ($T = 1 - R^2$) and *variance inflation factors* (VIF = 1/T) (Backhaus et al. 2011a, pp. 94 and p. 102; Weiber and Mühlhaus 2010, p. 207). The corresponding correlation matrix (see Appendix 16) does not show strong correlations between regressors.

mentioned regarding analysis of main effects (see validation of the respective regression model in section 5.3.2.3), I assume that further propositions including autocorrelation and normal distribution of disturbance variables (Backhaus et al. 2011a, pp. 92 and pp. 96) are fulfilled for the MSM experiment, independent of the effects to be tested. Therefore, I also assume that the regression model for moderator effects is sufficiently valid to derive corresponding conclusions. I summarize the results of both moderator analyses in the following section.

5.4.3   Results of hypotheses assessment for moderator effects

Within the scope of an analysis of potential interactions, I tested two possible moderator effects. I postulated the first interaction to be a result of a manufacturer's component importance in the end product. I assumed that a higher component importance causes a lower relevance of MSM measures (see section 3.2.3.1). I postulated that the second interaction would result from the direct customers' power position within the supply chain. I suggested that a stronger power position of direct customers decreases the relevance of MSM for the direct customers' willingness-to-pay (see section 3.2.3.2). Figure 5-13 summarizes the results from the regression analysis of the moderator effects of the MSM experiment.

VIF values for all regressors (see Appendix 17) rate far below the common cut-off threshold of 10 (Diamantopoulos and Winklhofer 2001, p. 272, and literature cited therein), allowing the conclusion that the regression model is free of noteworthy multicollinearity.
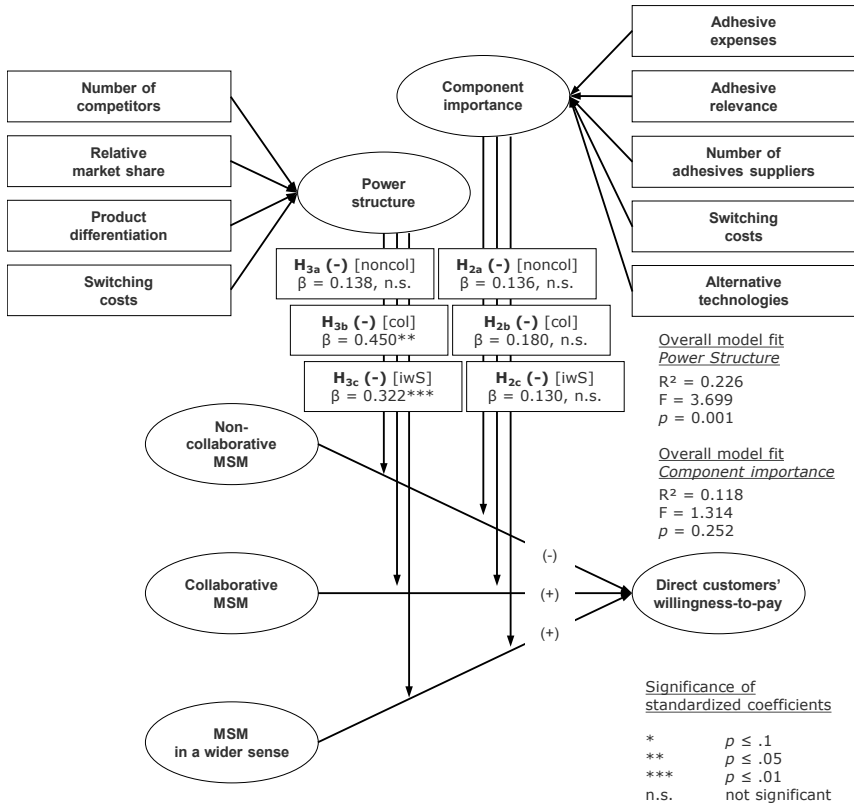
Figure 5-13:   Results of hypotheses assessment for moderator effects (source: Author's illustration)

For the moderator variable component importance, the overall model fit shows a determination coefficient (R^2) of 0.118. Yet I cannot assume the model is representative at a confidence level of 10% ($p = .252$). I cannot prove any of the suggested moderator effects resulting from the manufacturer's component importance in the end product to be significant. Accordingly, I reject hypothesis H_2 (H_{2a} to H_{2c}). In contrast, I consider the regression model for the moderator variable power structure to be representative at a significance level of $p < .01$. The explanation of variance improves to $R^2 = 0.226$ when including direct customers' market power as a moderator variable in the model of main effects, which—as I have shown for the analysis of main effects (see section 5.3.2.1)—represents a satisfying model fit. The

interaction effect of power structure shows a significant influence on the association between collaborative MSM and the direct customers' willingness-to-pay. Direct customers' decreasing market power increases the relevance of collaborative MSM at a significance level of $p < .05$. The results support hypothesis H_{3b}. I obtained a similar result for the influence of power structure on the relationship between MSM in a wider sense and direct customers' willingness-to-pay. As I hypothesized, direct customers' decreasing market power increases the relevance of MSM in a wider sense. The effects are highly significant at a level of $p < .01$, supporting hypothesis H_{3c}. I found the effect direction of power structure on the association between non-collaborative MSM and direct customers' willingness-to-pay to be opposed to my hypothesized direction. The relevance of non-collaborative MSM seems to decrease with decreasing market power. However, in terms of effect strength, there is no significant influence of direct customers' market power on the relevance of non-collaborative MSM. Consequently, I must reject hypothesis H_{3a}. This concludes the empirical analysis of main and moderator effects relevant to the MSM experiment. I analyze possible additional effects of MSM in the following section.

5.5 Additional effects of the MSM experiment

I postulated that MSM has additional effects, as I express in hypothesis H_4 (MSM effects on customer satisfaction, H_{4a} to H_{4c}) and hypothesis H_5 (MSM effects on customer loyalty, H_{5a} to H_{5c}). The present section focuses on the empirical testing of those postulated associations. In section 5.5.1, I apply descriptive statistics in the form of mean values (measures of central tendency) to describe the obtained data, and I use paired t-test comparisons to evaluate mean differences between groups to find statistical significance. Section 5.5.2 describes a multiple linear regression analysis of additional effects. A summary of the final results of the hypotheses assessment for additional effects follows in section 5.5.3.

5.5.1 Descriptive statistics for additional effects

The entire analysis of additional effects relies on the two factors I extracted for each of the constructs of direct customers' satisfaction and loyalty (see section 5.2.3.1). Table 5-3 summarizes the number of cases as well as the mean values and standard deviations of the factors extracted for the respective constructs depending on whether they pertained to the

treatment or control groups (see the full report of all obtained descriptive statistics in Appendix 18).

Endogen construct	Non-collaborative MSM Scenario 4, N = 25			Collaborative MSM Scenario 3, N = 26			MSM in a wider sense Scenario 2, N = 27			Control Group Scenario 1, N = 26	
	Mean	Mean 4 vs. 1	Std. deviation	Mean	Mean 3 vs. 1	Std. deviation	Mean	Mean 2 vs. 1	Std. deviation	Mean	Std. deviation
FAC_{sat}	-0.499	↘	0.922	+0.168	↗	1.215	+0.176	↗	0.954	+0.129	0.743
FAC_{loy}	-0.312	↘	1.167	-0.080	↘	0.965	+0.005	↘	0.907	+0.376	0.879

Table 5-3:   Selected descriptive statistics for endogenous constructs (source: Author's illustration)

Descriptive statistics of central tendency (i.e., mean values) reveal unexpected results at first glance. In line with the hypothesized tendencies, non-collaborative MSM decreases the mean value of the extracted factors for both endogenous constructs in comparison with the control group. This is in line with the postulated negative effects of non-collaborative MSM on both constructs, namely customer satisfaction (H_{4a}) and customer loyalty (H_{5a}). However, I postulated that collaborative MSM and MSM in a wider sense would affect all constructs positively. Although there were some positive effects in the direct customers' willingness-to-pay (see section 5.3), I found negative results for the additional effects. Compared with the control group, collaborative MSM and MSM in a wider sense decrease the scores of the endogenous construct of customer loyalty. The downward pointing arrows in Table 5-3 illustrate this. In line with the hypotheses, collaborative MSM and MSM in a wider sense increase the scores of the endogenous construct of customer satisfaction, as the upward pointing arrows in Table 5-3 illustrate.

Non-collaborative MSM decreases the means of both extracted factors the most. For customer satisfaction, the mean value of the control group scores positive at +0.129. Applying non-collaborative MSM, the mean value of customer satisfaction decreases to –0.499. A paired t-test comparison for independent samples proves the difference to be significant at $p = .01$ (see the results of paired t-test comparisons in Appendix 11). This supports hypothesis H_{4a} about the expected negative effect of non-collaborative MSM on direct customers' satisfaction. I obtained a similar result for the construct of customer loyalty.

Non-collaborative MSM decreases the mean value from +0.376 to –0.312. The difference is significant at $p < .05$. This result, therefore, supports hypothesis H_{5a}.

I postulated that collaborative MSM and MSM in a wider sense would influence all endogenous constructs positively. However, there are some opposing results for the construct of customer loyalty (construct of behavioral intention). Collaborative MSM decreases the mean value from +0.376 for the control group to –0.080 for the respective treatment group. Applying paired t-test comparisons, the difference proves significant at $p < .1$. This result falsifies hypothesis H_{5b}, which suggests opposing effects, namely a positive influence of collaborative MSM on customer loyalty. When customers are explicitly asked, collaborative MSM reduces customer loyalty compared with the control group. In addition, MSM in a wider sense unexpectedly decreases customer loyalty from +0.376 for the control group to +0.005. However, the negative influence does not prove to be significant at $p = .137$ (two-tailed)[50] for paired t-test comparisons. Consequently, I must reject hypothesis H_{5c}.

Customer satisfaction provides a more consistent picture. Whereas non-collaborative MSM has a significant negative effect on customer satisfaction, the effect of collaborative MSM and MSM in a wider sense are both positive when compared with the control group. Applying collaborative MSM increases the mean value from +0.129 to +0.168. There is an even stronger increase for MSM in a wider sense, which increases its mean value to +0.176, compared with +0.129 for the control group. Consequently, all effects are in line with the hypothesized associations between MSM and customer satisfaction even though I did not expect to have the strongest positive effect in MSM in a wider sense. However, none of the positive influences of collaborative MSM or MSM in a wider sense on customer satisfaction prove to be significant according to paired t-test comparisons. As a result, I must reject hypotheses H_{4b} and H_{4c}.

5.5.2   Regression analysis for additional effects

Modeling for the analysis of additional effects builds on the regression model I determined for the analysis of main effects (see section 5.3.2.1). Again, I describe the four different scenarios

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[50] Owing to the opposed effect direction, it is necessary to consider a two-tailed significance (for further information on a differentiation between *one-tailed* and *two-tailed* t-test comparisons, see Bleymüller et al. 2004, pp. 101; Bortz 2005, pp. 116).

using three binary indicator variables. The extracted factors of the constructs of customer satisfaction and customer loyalty represent the endogenous variables. Accordingly, two regression functions determine the regression models relevant to the analysis of additional effects of the MSM experiment. I performed the corresponding estimate of regression parameters using SPSS. I also applied heteroscedasticity-consistent standard errors to ensure high validity (Hayes and Cai 2007, pp. 713). The obtained results (see the SPSS outputs for both regression models of additional effects in Appendix 19) show rather low determination coefficients (R^2) for all endogenous constructs. The determination coefficient R^2 for customer satisfaction was 0.080, which indicates that 8.0% of the variance in customers' satisfaction can be explained by the different indicator variables, namely scenarios (Backhaus et al. 2011a, p. 75). The determination coefficient R^2 for customer loyalty was 0.061. As I have shown for the analysis of main effects (see section 5.3.2.1), I expected a lower model fit as well as higher standard errors of estimates for this type of experiment and a one-factor between-subjects design (Myers et al. 2010, p. 169).

The empirical F-value (F_{emp}) for customer satisfaction is 3.050 and proves to be significant at a confidence level higher than 95% ($p < .05$). Consequently, I consider the regression function to be representative. In contrast, the F-value of the customer loyalty construct rates 2.085 and does not prove to be significant at a confidence level of 90% ($p = .107$). I cannot reject the null hypothesis H_0 that all standardized beta coefficients equal zero ($\beta_1 = \beta_2 = \ldots = \beta_J = 0$), and I would need to consider the obtained regression function to be unrepresentative of the total population (Backhaus et al. 2011a, pp. 76). However, considering that the applied confidence level for rejection comes close to the threshold of 90% ($p = .107$) (for an evaluation of applicable thresholds in the context of new theories, see Bortz 2005, p. 114 and p. 123; Westermann 2000, p. 295) and paired t-test comparisons reveal a highly significant difference of mean values for collaborative and non-collaborative MSM compared with the control group, I refrain from rejecting the corresponding hypotheses.

To ensure stability of the observed differences of mean values, I conducted an additional *Mann-Whitney-U-test* (MW) for the construct of customer loyalty. In contrast to t-test comparisons, MW represents a non-parametric test for the analysis of tendency differences between two or more independent groups (Bortz 2005, pp. 150). It is therefore a reasonable

complement for comparing means between groups, especially if the regression function must be rejected based on low significance. In line with the obtained result of the paired t-test comparison, it proves the negative influence of non-collaborative MSM on customer loyalty to be significant at $p < .05$ as well (see the SPSS output of MW for the construct of customer loyalty in Appendix 20). Also for collaborative MSM, the MW proves a significant but negative influence on customer loyalty at $p < .1$ (two-tailed). According to the results of paired t-test comparisons, MW shows no significant mean differences for MSM in a wider sense. Owing to the consistency of the obtained results for the paired t-test comparisons and MW tests, as well as the level of significance of the regression model being close to the common threshold, I consider the construct of customer loyalty for further regression analysis.

Also for the construct of customer satisfaction, I reject the null hypothesis H_0—that all regression coefficients equal 0—which allows the analysis of single regression coefficients (Backhaus et al. 2011a, pp. 81). As the descriptive statistics show (see section 5.5.1), non-collaborative MSM has a negative effect on the two constructs of customer satisfaction and loyalty. Corresponding standardized beta coefficients (β) of the respective indicator variables also reflect this. For non-collaborative MSM, they rate negative with $\beta = -0.270$ for customer satisfaction and $\beta = -0.295$ for customer loyalty. Corresponding empirical t-values (t_{emp}) rate -2.618 at a significance level of $p = .01$ for customer satisfaction and $t_{emp} = -2.323$ at a significance level of $p = .022$ for customer loyalty. The results support hypothesized associations between non-collaborative MSM and customer satisfaction (H_{4a}), as well as between non-collaborative MSM and customer loyalty (H_{5a}).

For customer loyalty, the regression coefficient of the indicator variable of collaborative MSM ($\beta = -0.198$) is significant, with an empirical t-value (t_{emp}) of -1.746 at a level of $p = .084$. Contrary to the results I obtained for the analysis of main effects, the results I obtained from the analysis of additional effects do not support hypothesis H_{5b}. When explicitly asking customers, collaborative MSM seems to reduce customers' loyalty regarded as a favorable behavioral intention. All other regression coefficients of indicator variables of MSM in a wider sense for customer loyalty as well as collaborative MSM and

MSM in a wider sense for customer satisfaction are not significant, so I refrain from analyzing them further.

I applied heteroscedasticity-consistent standard errors when estimating the regression model. Consequently, I have fulfilled a major proposition of regression models (Backhaus et al. 2011a, pp. 90). Further validation criteria include tests of multicollinearity, autocorrelation, and normal distribution of disturbance variables. As I have shown in my analysis of main effects (see section 5.3.2.3), multicollinearity cannot prevail when applying only binary indicator variables as regressors. I have also shown that autocorrelation is not relevant because there are no time-series data involved. Finally, I assume there is a normal distribution of disturbance variables relying on the central limit theorem (Backhaus et al. 2011a, pp. 84 and p. 96; Rice 1988, pp. 161). I also assume the obtained regression models are statistically valid (see section 5.2.1). I summarize the results of the regression analysis of additional effects of the MSM experiment in the following section.

5.5.3 Results of hypotheses assessment for additional effects

I have postulated that MSM would affect customer satisfaction and customer loyalty. In particular, I assumed that non-collaborative MSM would negatively influence these constructs, whereas collaborative MSM and MSM in a wider sense would influence them positively. Figure 5-14 summarizes the results of my regression analysis for additional effects.
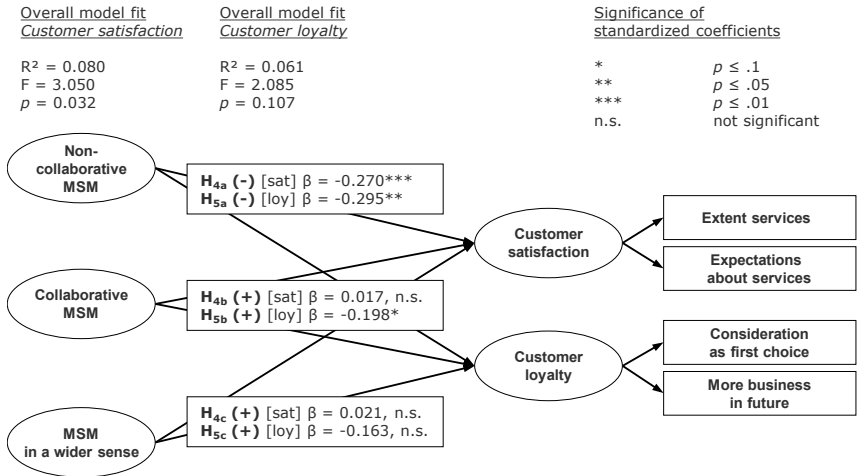
Overall model fit
Customer satisfaction

$R^2 = 0.080$
F = 3.050
p = 0.032

Overall model fit
Customer loyalty

$R^2 = 0.061$
F = 2.085
p = 0.107

Significance of
standardized coefficients

*	$p \leq .1$
**	$p \leq .05$
***	$p \leq .01$
n.s.	not significant

Non-collaborative MSM

H_{4a} (-) [sat] β = -0.270***
H_{5a} (-) [loy] β = -0.295**

Customer satisfaction

Extent services

Expectations about services

Collaborative MSM

H_{4b} (+) [sat] β = 0.017, n.s.
H_{5b} (+) [loy] β = -0.198*

Customer loyalty

Consideration as first choice

More business in future

MSM in a wider sense

H_{4c} (+) [sat] β = 0.021, n.s.
H_{5c} (+) [loy] β = -0.163, n.s.

Figure 5-14: Results of hypotheses assessment for additional effects (source: Author's illustration)

For customer satisfaction, the determination coefficient is $R^2 = 0.080$, and the obtained regression model is representative at a significance level of $p < .05$. In contrast, the overall model fit shows a determinant coefficient of $R^2 = 0.061$ for customer loyalty, although the approximation cannot be assumed to be representative at a confidence level of 10% ($p = .107$). I conducted additional MW tests for the construct of customer loyalty. Because of the high consistency of the obtained results for paired t-test comparisons, MW tests, as well as an analysis of single regression coefficients, I did not reject hypothesis H_5 (H_{5a} to H_{5c}). The performed regression analysis revealed significant negative effects for non-collaborative MSM on the constructs of customer satisfaction and loyalty at a level of $p < .05$. I postulated this in hypotheses H_{4a} and H_{5a}, which the obtained results support. In contrast, I falsify hypothesis H_{5b} because of the significant ($p < .1$) but opposed (negative) influence of collaborative MSM on customer loyalty. Likewise, the opposed (negative) effect of MSM in a wider sense was not significant. Accordingly, I reject hypothesis H_{5c}. The positive influences of collaborative MSM and MSM in a wider sense on customer satisfaction were also not significant; therefore, I reject hypotheses H_{4b} and H_{4c} as well. The following section summarizes all of the results of the MSM experiment, which concludes the performed empirical study.

5.6   Final results

The aim of the empirical study was to analyze the relevance of MSM for creating willingness-to-pay, customer satisfaction, and customer loyalty, allowing me to draw conclusions about the relevance of MSM for creating competitive advantages. As a main effect, I postulated that MSM would be relevant to direct customers' willingness-to-pay. I suggested that influencing factors, including the manufacturer's component importance in the end product as well as direct customers' market power, would influence the association between MSM and direct customers' willingness-to-pay. Finally, I postulated additional effects, including the relevance of MSM for direct customers' satisfaction and loyalty. I performed a MSM experiment to test the hypothesized main effects (H_1), moderator effects (H_2 and H_3), and additional effects (H_4 and H_5).

I allocated respondents randomly to one of the three treatments or the control group and exhibited a scenario representing one of the three generic types of MSM or a situation devoid of MSM. To analyze the main effects, I determined a limit conjoint experiment as an adequate measurement instrument for direct customers' willingness-to-pay. I specified additional endogenous constructs, namely the constructs of customer satisfaction and loyalty, with reflective measurements; whereas I operationalized moderator constructs in the form of formative measurement models.

I tested all hypothesized associations with multiple linear regression analysis. Table 5-4 gives an overview of all hypothesized associations as well as obtained results from empirical testing. Among other things, the table shows the obtained standardized beta coefficients (β), allowing an overall comparison of effect sizes and direction of effects (Backhaus et al. 2011a, p. 101).[51]

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[51] I adapted this format for presenting the results of the multiple regression analysis from Slater and Narver 2000, p. 72.

	Hypothesized path	Standardized path coefficient (β)	t-value	Hypotheses	Result
Main effects	Willingness-to-pay	R² = .106**		**H₁**	
	Non-collaborative MSM → lower direct customers' WTP	-.035	-.353	H₁ₐ	n.s.
	Collaborative MSM → higher direct customers' WTP	.317	2.092**	H₁ᵦ	Support
	MSM in a wider sense → higher direct customers' WTP	.017	.178	H₁c	n.s.
Moderator effects	Higher component importance in the end product → lower relevance of MSM on customers' WTP	R² = .118, n.s.		**H₂**	
	Higher component importance→ lower relevance of non-collaborative MSM on WTP	.136	.883	H₂ₐ	-
	Higher component importance → lower relevance of collaborative MSM on WTP	.180	.920	H₂ᵦ	-
	Higher component importance → lower relevance of MSM in a wider sense on WTP	.130	.982	H₂c	-
	Stronger power position of customers within supply chain → lower relevance of MSM on customers' WTP	R² = .226***		**H₃**	
	Stronger power position→ lower relevance of non-collaborative MSM on WTP	.138	1.224	H₃ₐ	n.s.
	Stronger power position → lower relevance of collaborative MSM on WTP	.450	2.211**	H₃ᵦ	Support
	Stronger power position → lower relevance of MSM in a wider sense on WTP	.322	2.979***	H₃c	Support
Additional effects	Customer satisfaction	R² = .080**		**H₄**	
	Non-collaborative MSM → lower customer satisfaction	-.270	-2.618***	H₄ₐ	Support
	Collaborative MSM → higher customer satisfaction	.017	.139	H₄ᵦ	n.s.
	MSM in a wider sense → higher customer satisfaction	.021	.199	H₄c	n.s.
	Customer loyalty	R² = .061, n.s.		**H₅**	
	Non-collaborative MSM → lower customer loyalty	-.295	-2.323**	H₅ₐ	Support
	Collaborative MSM → higher customer loyalty	-.198	-1.746*	H₅ᵦ	Falsified
	MSM in a wider sense → higher customer loyalty	-.163	-1.482	H₅c	n.s.

* $p \leq .1$
** $p \leq .05$
*** $p \leq .01$
n.s. not significant
-     not applicable

Table 5-4:   Final results of the MSM experiment (source: Author's illustration)

For **main effects**, collaborative MSM proves to have a significant influence on direct customers' willingness-to-pay. This supports hypothesis H_{1b}.

The regression model estimated for an analysis of **moderator effects** resulting from component importance proved to be not significant. According to the null hypothesis H_0, I needed to assume all regression coefficients to be equal to zero. An analysis of the influence of single variables was not reasonable. Consequently, I must reject hypothesis H_2 (H_{2a} to H_{2c}). In contrast, I obtained a significant model approximation by including direct customers' market power as a moderator variable in the regression model. It showed a significant influence on collaborative MSM and MSM in a wider sense; the influence of both types of MSM on direct customers' willingness-to-pay increases as market power of direct customers decreases. Accordingly, hypotheses H_{3b} and H_{3c} are supported.

Evaluating **additional effects**, the relevance of MSM for the creation of direct customers' satisfaction reveals a significant negative influence of non-collaborative MSM in support of hypothesis H_{4a}. I proved the regression model of customer loyalty to be significant at a confidence level of 89%. Because this is close to the threshold of 90%, I performed paired t-test comparisons as well as additional MW tests. Consistent results allowed further analysis and revealed a significant negative impact of non-collaborative MSM on customer loyalty (i.e., repurchase intention), which supports hypothesis H_{5a}. The influence of collaborative MSM on customer loyalty differs from my expectations, yet it is significant; therefore I falsify hypothesis H_{5b}. Section 6.1 contains an extensive analysis of the possible explanations for the controversial results I obtained for the association between collaborative MSM and customer loyalty regarded as a favorable behavioral intention.

Although I could not support all hypothesized associations to be significant, the obtained results allow the assumption of a high relevance of MSM for most of the included constructs and, consequently, for creating competitive advantages. A detailed discussion of the obtained results and the implications they have for marketing research and managerial practice is the subject of the following chapter.

6   Discussion and outlook

This final chapter provides a review and an outlook of the present study. I critically analyze the obtained empirical results of the MSM experiment in section 6.1. Building on this, the following two sections describe the contribution of the present study to current marketing research in section 6.2 as well as the relevance of MSM for managerial practice in section 6.3. Concluding this chapter, section 6.4 describes limitations of the present study and determines potential areas for further research on MSM.

6.1   Critical discussion of empirical results

To begin with, I evaluate the effects of **collaborative MSM**. The MSM experiment provides results that, at first sight, appear contradictory. On the one hand, the limit conjoint experiment revealed a positive association of collaborative MSM and direct customers' willingness-to-pay. By applying collaborative MSM, the direct customers' willingness-to-pay increased significantly from, on average, −19.32% for the control group to +17.86% for the respective treatment group. The effect size is strong, but I consider it to be realistic for the adhesives industry.[52] The obtained results are fully in line with the hypothesized relationship between collaborative MSM and direct customers' willingness-to-pay. The results strongly support hypothesis H_{1b}.

In addition, I analyzed the associations between MSM and additional constructs; among others direct customers' loyalty. I conceptualized it as the direct customers' repurchase intention and operationalized the construct with a measurement model that included two reflective indicators (see sections 2.2.2.2 and 4.3.3.4). The items asked respondents for their behavioral intention to consider adhesives suppliers' offering as its first choice and for their behavioral intention to do more business in the future with adhesives suppliers offering the described services. Contrary to what the limit conjoint experiment found for respondents' willingness-to-pay, the questions revealed a decreased loyalty compared with the control group. The means of the loyalty construct significantly decreased from +0.376 for the control group to −0.080 for the collaborative MSM treatment group. The results oppose the

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[52] This is especially true considering the year the survey was performed: Raw material shortages prevailed in the adhesives industry throughout 2011 and beyond. During this time, high double-digit price adaptations became very common (see section 4.4.1).

hypothesized relationship between collaborative MSM and direct customers' loyalty. Apparently manufacturers should question whether collaborative MSM positively affects customers' loyalty because it does not seem to.

Yet, considering the different methods applied for generating empirical data (see section 4.3.2), the obtained results might be consistent and in line with the suggested associations between collaborative MSM and direct customers' willingness-to-pay, as well as between collaborative MSM and direct customers' loyalty. The following example illustrates why.

Company A offers one single but highly appreciated service to its customers (plentiful stock level and therefore plentiful product availability). In contrast, Company B not only offers this highly appreciated service but also provides an additional service: Deliveries on Sundays if requested. Customers appreciate this option but appreciate it less than the high product availability.

Company A	Company B
Offer	**Offer**
▪ High product availability (highly appreciated)	▪ High product availability (highly appreciated)
	▪ Delivery on Sundays (less appreciated)

Questions

1. How much do you appreciate the service offering (on a scale from 1 [low] to 5 [high])?
2. How much are you willing to (additionally) pay for the service offering?

Different ways of asking the customers about the provided services reveal different results. As in the case of the MSM experiment, I assume that customers are familiar with either the offer of company A or the offer of company B, but they cannot compare the offers. For customers who receive company A's offer and give an overall evaluation of their appreciation of the service (according to question 1), it is reasonable to assume they will report that they highly appreciate it by, for example,

rating it as a 5 on a scale of 1 to 5. In contrast, customers who receive company B's service offer will confront one highly appreciated and one less appreciated service. For an overall evaluation of their appreciation of the services, and without knowing the benchmark (offer of company A), I assume that customers will build an overall (maybe weighted) average of both services. An overall lower appreciation of company B's services will reflect this with, for example, a rating of 4 on the scale. Comparing these results, I could conclude that additionally offering deliveries on Sundays must have reduced customers' appreciation.

The picture looks different in terms of customers showing their appreciation with willingness-to-pay (according to question 2). For example, customers might be willing to pay €10 for company A's offer (i.e., high product availability). It is reasonable to assume the same for company B. However, the additional service that company B offers might make customers willing to pay even more. The additional willingness-to-pay might be low, however, because the additional service has a lower appreciation. But the overall willingness-to-pay cannot decrease; it can only increase—for example, to €14 (€10 for high product availability and €4 for Sunday delivery service). When comparing the offers of company A and company B, it is logical to conclude that company B will receive increased appreciation in terms of willingness-to-pay. Derived implications can appear contrary when explicitly asking for overall appreciation (according to question 1).

This example is relevant for the obtained results of the MSM experiment. Evaluating willingness-to-pay (by means of the limit conjoint experiment) reveals a significant increase when applying collaborative MSM. Obviously, additional MSM services are sufficiently appreciated to significantly increase the willingness-to-pay compared with the control group devoid of additional MSM measures. The obtained results argue in support of the design of the treatment scenarios.

As I have mentioned, I presented basic measures (four non-MSM services) to the control group, which I also presented to every treatment group at the beginning of the survey (see

section 4.1.3). Even if this caused some lower convergent and discriminant validity of the scenarios, especially with regard to non-collaborative MSM (for a description of confounding effects in the experimental manipulation of the MSM experiment, see section 4.4.2), the design of the scenarios was important. Only with this design could there be proved a higher willingness-to-pay when applying collaborative MSM. It is reasonable to assume that if basic measures would not have been repeatedly presented; the willingness-to-pay would have decreased, comparing the treatment group of collaborative MSM with the control group. However, presenting basic measures together with additional MSM measures increased the direct customers' willingness-to-pay.

In contrast, when respondents were explicitly asked for their loyalty (i.e., repurchase intention), it decreased in the case of collaborative MSM compared with the control group. Yet this does not indicate that MSM destroys loyalty. Possibly, the opposite: The result is consistent with the result of the conjoint experiment. Customers' appreciation of collaborative MSM measures might be lower than their appreciation of principal non-MSM measures causing a decrease of the overall ('averaged') evaluation of loyalty; yet their appreciation for collaborative MSM measures could still be positive, which leads to increased customer loyalty. However, based on the obtained data, I cannot prove that collaborative MSM results in increased customer loyalty, so I falsify hypothesis H_{5b}. Furthermore, collaborative MSM tends to increase direct customers' affective appreciation as reflected in an increased value for customer satisfaction. However, the positive influence of collaborative MSM on customer satisfaction—as predicted by hypothesis H_{4b}—could not be proved to be significant.

Next, I evaluate the effects of **non-collaborative MSM**. In line with my predictions, non-collaborative MSM decreases direct customers' satisfaction and loyalty, the latter regarded as a favorable behavioral intention. All effects are highly significant and strongly support hypotheses H_{4a} and H_{5a}. Considering the results of the conjoint experiment, there is also a tendency for a decreasing willingness-to-pay: Even if not significant, non-collaborative MSM seems not only to decrease customers' appreciation of the applied MSM measures; the depreciation of non-collaborative MSM measures might even outblance customers' appreciation provided by basic (non-MSM) services and decrease direct customers'

overall evaluation of the applied MSM and non-MSM measures. With regard to the design of the scenarios, it is reasonable to assume that if basic measures would not have been repeatedly presented, the negative perception of non-collaborative MSM measures would not have been compensated by (appreciated) non-MSM measures. The observed confounding effects in case of non-collaborative MSM (see section 4.4.2) would have been lower or even eliminated. Possibly, the negative effects of non-collaborative MSM on direct customers' willingness-to-pay could have been found significant. However, based on the obtained data, I need to reject hypothesis H_{1a}.

The direct customers' **market power** toward their indirect customers proved to have a significant influence on the association between collaborative MSM and direct customers' willingness-to-pay, as well as on the association between MSM in a wider sense and direct customers' willingness-to-pay. For both types of MSM, a decreasing market power of direct customers increases the relevance of MSM. In support of hypotheses H_{3b} and H_{3c}, the positive influence of collaborative MSM and MSM in a wider sense on direct customers' willingness-to-pay increases with the decreasing market power of direct customers. For non-collaborative MSM, there is the opposite tendency. The negative influence of non-collaborative MSM seems to be stronger when direct customers have a high power position. A possible explanation is that customers with high market power might pay less attention to collaborative MSM and MSM in a wider sense, whereas their intention and power to penalize suppliers' non-collaborative activities increases with increasing market power, reflected in a higher relevance of non-collaborative MSM. However, the effects for non-collaborative MSM do not prove to be significant and I reject hypothesis H_{3a}. Also the influence of the manufacturer's **component importance** in the end product on the associations between MSM and direct customers' willingness-to-pay, was not found to be significant and I reject the entire hypothesis H_2.

Finally, I evaluate the effects of **MSM in a wider sense**. It tends to influence direct customers' willingness-to-pay, satisfaction, and loyalty in a similar way to other MSM types. However, the influence of MSM in a wider sense seems to be rather low, and the associations do not prove to be significant. A possible explanation is that the activities included in MSM in a wider sense are not necessarily considered something special anymore. Customers

appreciate them, but they consider them to add relationship value only to a limited extent. Consequently, I need to reject hypotheses H_{1c}, H_{4c}, and H_{5c}.

Considering the relatively small sample, less conservative statistical tests to reject the null hypotheses might have allowed me to find support for some further hypothesized associations (Slater and Narver 2000, p. 71). Slater and Narver (2000, p. 71, referring to Sawyer and Peter 1983, p. 124) suggest having more confidence in studies with smaller sample sizes because "we would expect virtually always to find a significant result in a study with high statistical power (i.e., a large sample)." Similarly, Wacker (2004, p. 631) refers to "good" theory building measurements and the necessity not to focus solely on statistical significance but also to put sufficient emphasis on theoretical significance. Westermann (2000, p. 295; see also Bortz 2005, p. 114 and p. 123) refers to "courtesy"[53] to accept lower significance levels, especially when testing new theories for the first time, which is also relevant for the MSM experiment. However, the significant effects found in the data are sufficiently meaningful, and I refrain from accepting less conservative statistical tests. The subject of the following two sections is the relevance of the present study and its findings for marketing research and managerial practice.

6.2   Contributions to current marketing research

The aim of this study was to analyze the relevance of MSM for creating competitive advantages. It makes two major contributions to current marketing research: A conceptualization and consistent definition of MSM as well as an analysis of its potential effects on direct customers' willingness-to-pay, satisfaction, and loyalty.

Building on an extensive review of extant literature, I compiled numerous contributions that include the multi-stage idea. There has been a strong emphasis on ingredient branding, vertical marketing, and pull strategies, which represent only some of the elements of this concept. However, it is apparent, that previous research on MSM rarely mentions its relevance to creating value, and empirical evidence for the relevance of MSM is scarce. In addition, current literature lacks a clear definition of MSM (see section 2.1.1).

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[53] Translated from German "Wohlwollen."

To fill this void, I have conceptualized MSM as the behavioral perspective of an extended market orientation (see section 2.1.2). This conceptualization encompasses two central aspects of modern market orientation research. The first aspect relies on a distinction between a cognitive perspective and a behavioral perspective on market orientation. To create value, firms must be more than merely market-oriented. Firms must translate their market orientation needs into an action-oriented perspective and cultivate concrete value-creating capabilities (O'Cass and Ngo 2012). The second aspect emphasizes the necessity of moving beyond considering direct customers only. In response to the characteristics of derived demand in B-to-B relationships, an extended market orientation spreads beyond a company's direct customers and involves indirect customers in its perspective as well (Hillebrand and Biemans 2011). The present study combines both aspects to develop a new holistic concept of MSM, which in turn allows inferences about a new definition of MSM. I consistently define MSM and differentiate it from related concepts including multi-stage characteristics that are also part of the overall concept of MSM (e.g., branding instruments, pull strategy, and vertical marketing, as well as derived demand and market orientation as underlying concepts) (see sections 3.1.1 and 3.1.4).

Only after making this initial conceptualization and definition could I relate the concept of MSM to the generation of competitive advantages. I determined and described different generic types of MSM, namely non-collaborative MSM, collaborative MSM, and MSM in a wider sense, with regard to their (relationship) value creation potential on direct and indirect customers' market stages (see section 3.1). Based on this description, I developed my hypotheses about how the various types of MSM affect direct customers' willingness-to-pay (main effects; see section 3.2). I also included influencing factors in the analysis of these associations (moderator effects; see section 3.2.3). The cognitive–affective– behavioral framework allowed me to consider further concepts for creating competitive advantages, and it was possible to associate MSM with creating customer satisfaction and loyalty (i.e., repurchase intention) on the direct customers' market stage (additional effects; see section 3.3). I tested the entire hypothesis framework with a large-scale quantitative study, including a scenario-based, between-subjects conjoint experiment. Therefore, the present study is the first to analyze the relationship between a supplier's different MSM activities and the direct customers' willingness-to-pay, satisfaction, and loyalty.

The findings emphasize the significance of MSM and call for additional research on this topic. For this purpose, the new conceptualization and definition of MSM are well analyzed and provide a good foundation and starting point. In addition, the applied constructs (i.e., the determined generic types of MSM and its operationalizations in the form of three different scenarios) are transferrable to other research tasks in the same or similar areas. Based on existing literature (e.g., Ahlert et al. 2006; Hillig 2006), I have comprehensively described the stepwise and manual implementation of a limit conjoint analysis which might facilitate its future application in other research or practical projects. This is especially relevant considering the importance of aligning a company's pricing policies according to the value provided to customers—a strategy called *value-based pricing* (Hinterhuber 2004; Ingenbleek 2007). Knowledge of customers' willingness-to-pay has become a key success factor for marketers and companies (Backhaus et al. 2005b, p. 543; Niederauer 2009, p. 3; Simon 1993, p. 190; Simon 2003, p. 88, and literature cited therein). While MSM itself provides extended market intelligence and supports a more founded determination of value provided to direct and downstream customers (i.e., "real value-based pricing"; for the relevance of a market-oriented pricing management, see also Totzek and Alavi 2010), limit conjoint analysis proves to be a reliable instrument to meet this challenge in marketing research and practice (e.g., Ahlert et al. 2006; Backhaus et al. 2005a; Hillig 2006; see also sections 4.2.1 and 5.2.4). Besides its relevance for marketing research, the present study and its findings provide further essential implications for management, which is the subject of the following section.

6.3   Managerial implications

The associations I have discovered between MSM on the one hand and various concepts relevant to the creation of competitive advantages on the other hand have essential implications for management. The present study proves that MSM has—depending on the respective MSM type—either a positive or negative impact on direct customers' willingness-to-pay as well as on affective and intentional behavior patterns, as reflected by the concepts of customer satisfaction and loyalty. The findings emphasize the significance of MSM. In the context of an activity-oriented extended market orientation, it is necessary to have a vertically coordinated marketing strategy focusing on direct customers as well as subsequent market stages (Kleinaltenkamp et al. 2012, pp. 146 and pp. 170). Only by including the entire value chain into their perspectives can firms make use of their full

potential to create competitive advantages by either creating additional willingness-to-pay in case of collaborative MSM, or avoiding a decrease of customer satisfaction and customer loyalty in case of non-collaborative MSM.

The positive relationship between collaborative MSM and direct customers' willingness-to-pay allows the conclusion that MSM pays. Even if the increase in willingness-to-pay might be lower compared with the willingness-to-pay created by principal non-MSM services demanded by customers (see section 6.1), the positive impact of collaborative MSM is significant. Offering additional services that on the one hand include downstream customers in its perspective and on the other hand reveal the supplier's intention to collaboratively work with direct customers provides direct customers with additional relationship value for which they are willing to pay.

The lower the power position of the direct customer within the supply chain, the more positive the influence of collaborative MSM. I found similar effects for MSM in a wider sense, which also shows an increased relevance in case of a decreasing market power of direct customers. Derived from the findings, it is possible to assert that the direct customers' market power can have an influential role when it comes to perceiving marketing initiatives. For example, segmenting customers by their power position within the supply chain can be helpful when deciding on B-to-B marketing initiatives.

The present study found that non-collaborative MSM has a negative influence on direct customers' satisfaction and loyalty (i.e., repurchase intention). The study proved that the negative effects on the direct customers' market stage are significant even though these customers receive offers of additional principal (non-MSM) services. This allows two conclusions relevant for practice. On the one hand it underpins the significance of MSM from the direct customers' perspective. Direct customers clearly perceive the extent and composition of suppliers' marketing and sales-related services offer as well as the involved level of collaboration. On the other hand it reveals the threat resulting from non-collaborative MSM. Not involving direct customers in their own marketing plans and ignoring their ideas for marketing and sales-related activities risks turning direct customers against the firm itself, leading to a decreased satisfaction and repurchase intention. In terms of

actual behavior, realized demand pulls might overcompensate for these negative effects (Kleinaltenkamp et al. 2011c, pp. 61; Lam et al. 2004, p. 297; Webster 1991, p. 221). However, firms should consider turning adversarial market relationships into more cooperative ones. This could result in creating additional value on the direct customers' market stage while decreasing possible market resistance (Kleinaltenkamp et al. 2012, pp. 146 and pp. 160).

Yet the results of Hillebrand and Biemans's exploratory study show that "all respondents were well aware of the importance of downstream customers, but this awareness did not always cause them to pay special attention to them" (Hillebrand and Biemans 2011, p. 74). This is in line with Kleinaltenkamp et al. (2011a). In their study (for a description, see section 1.1), the authors find that only half of the interviewed companies approach their downstream customers systematically (p. 43). Firms seem to have problems involving downstream customers "because of several barriers related to gathering information from and providing information to downstream customers" (Hillebrand and Biemans 2011, p. 74). Barriers that prevent firms from extending market orientation toward downstream customers are "either related to downstream customers (the degree to which downstream customers recognize the value of upstream products), to the immediate customers (the degree to which immediate customers are unsupportive to the firm), or to the firm itself (capabilities needed for a downstream customer orientation). This emphasizes that, unlike the traditional market orientation, an orientation toward downstream customers requires a multi-actor perspective. A firm's ability to effectively work with downstream customers largely depends on the immediate customers' willingness to cooperate" (Hillebrand and Biemans 2011, p. 77; see also Kleinaltenkamp et al. 2011a, pp. 43).

Responding to Hillebrand and Biemans's (2011) findings and managerial implications (pp. 76), the present study provides an important contribution to management practice. Composed of a multitude of different non-MSM and MSM measures, the scenarios of the MSM experiment represent each of the generic types of MSM. Therefore, the present study offers practitioners a guideline about how they can translate an extended market orientation into action-oriented (multi-stage) marketing plans. Knowledge about the differences I have described and the resulting effects of different types of MSM (i.e., non-collaborative and

collaborative MSM strategies) allow practitioners to balance between different MSM strategies and be more sensitive to "dependence" as a key factor in understanding supply chain relationships (Hillebrand and Biemans 2011, p. 77, and literature cited therein; for the relation between power and dependence, see El-Ansary and Stern 1972; Emerson 1962). Similar to the concept of loyalty, Moorman et al. define "commitment to relationship" as "an enduring desire to maintain a valued relationship" (Moorman et al. 1992, p. 316, referring to Dwyer et al. 1987; Leik and Leik 1977). Relationship commitment and trust are the central variables of "relationship marketing" and are part of the "network paradigm" prevailing in marketing literature. This concept recognizes that global competition occurs increasingly between networks of firms (Morgan and Hunt 1994, p. 20, referring to Thorelli 1986, p. 47). As with loyalty, relationship literature claims that manufacturers and distributors who work together enjoy higher performance levels than those who operate independently: "Because of mutual commitment, independent channel members work together to serve customer needs better, enhancing mutual profitability" (Anderson and Weitz 1992, p. 18, referring to Anonymous 1986; Stern and El-Ansary 1990). The role of collaborative MSM is especially important in this context.

In addition to its various valuable findings, the present study comes with some limitations. The following section contains a description of these, as well as an outlook on possible further research in the area of MSM.

6.4   Limitations and further research

It was possible to demonstrate important effects of MSM. However, the present study has some limitations that call for additional research on MSM. In principal, these limitations concern a couple of hypotheses which were not found to be significant by the obtained results and which I therefore could not confirm. The hypothesized effect strengths of the influence of non-collaborative MSM on willingness-to-pay (hypothesis H_{1a}), the influence of the power structure on the association between non-collaborative MSM and willingness-to-pay (hypothesis H_{3a}) as well as the influence of component importance on the association between MSM and willingness-to-pay (hypothesis H_2), the influence of MSM in a wider sense on all endogenous constructs (hypotheses H_{1c}, H_{4c}, and H_{5c}), and the influence of collaborative MSM on customer satisfaction (hypothesis H_{4b}) remain unsupported even

though the observed effect directions corresponded to the anticipated direction in most of the cases (except the influence of collaborative MSM on the direct customers' loyalty as reflected in hypothesis H_{5b}).

The negative influence of non-collaborative MSM on direct customers' willingness-to-pay—as proposed by **hypothesis H_{1a}**—was not found to be significant. With regard to the design of the scenarios, it was an experimental necessity to present the basic measures to the control group but also to every treatment group. Only with this design could there be proved a higher willingness-to-pay when applying collaborative MSM (see section 4.1.4). However, despite the successful manipulation, it can be assumed that repeatedly presenting (appreciated) non-MSM measures compensated the negative perception of non-collaborative MSM measures. This may have avoided stronger responses from my subjects and I might have found significant negative effects for non-collaborative MSM on direct customers' willingness-to-pay (see section 6.1). Further research—including different operationalizations of the treatment—would be necessary to analyze this or similar assumptions. For instance, it would be worthwhile to present exclusively non-collaborative or collaborative MSM measures to further analyze the effects resulting from different MSM types and their respective strengths.

Also the relationship between non-collaborative MSM and direct customers' willingness-to-pay is not significantly influenced by the direct customers' market power toward their indirect customers—as proposed by **hypothesis H_{3a}**. Opposed to a decreasing relevance of collaborative MSM and MSM in a wider sense, the relevance of non-collaborative MSM seems to increase in case of an increasing market power of the direct customers. A possible explanation is that the direct customers' intention to penalize suppliers' non-collaborative MSM activities becomes stronger with increasing market power of direct customers (see section 6.1). However, as in the case of the non-significant result found for the association between non-collaborative MSM and willingness-to-pay, the design of the scenarios might have caused a compensation of the negative perception of non-collaborative MSM measures by appreciated non-MSM measures. Non-collaborative MSM becomes less relevant, even for direct customers with a higher market power. In contrast, presenting only non-collaborative MSM measures would have

caused a higher (negative) relevance and consequently a stronger (and possibly significant) influence of the direct customers' power position on the relationship between non-collaborative MSM and direct customers' willingness-to-pay. The assumption further argues in support of additional research including different operationalizations of the treatment.

The present sample is concerned with only one industry and contains a limited range of sub-segments. Furthermore, it exclusively includes adhesives industry customers that mainly produce consumer-good applications. It is therefore quite specific, so the representativeness of the obtained results and the external validity are restricted to similar industries of entering goods such as raw materials and similar final applications and products. This restriction is also reflected in the results of the MSM experiment, which have been found for the second moderator component importance. Similar to Ghosh and John (2009, p. 606)—who found that their obtained sample reflected low variance with respect to component importance and thus that their empirical results did not reveal the assumed influence of component importance on contract choices (see section 3.2.3.1)—I found results that do not support the proposal of **hypothesis H_2**: The relationship between MSM and willingness-to-pay is not significantly affected by the importance of the component (which in the present study is adhesives). In other words, no matter how valuable the adhesives are for the final product, this importance does not moderate the relationship. Nonetheless, the findings convey that MSM is relevant and meaningful, regardless of the component's importance in the final product. Either the invalidity of the assumption or the utilized measure could have caused this non-significant result. Presumably, it is possible to conclude that adhesives in general are not a meaningful component of this surveyed sample, but they might be to others (e.g., specialized adhesives for the medical industry). Therefore, because of this rather homogenous industry sample, I found no effect. If, instead of adhesives, I had used a more meaningful and valuable product component, the tested moderator effect might have been different. To expand the conclusions to other industries and segments, further research is necessary. Researchers could increase the external validity of the findings, which could possibly further validate developed constructs and measurements in other contexts.

The associations between MSM in a wider sense and all endogenous constructs, namley direct customers' willingness-to-pay (**hypothesis H_{1c}**), satisfaction (**hypothesis H_{4c}**), and loyalty (**hypothesis H_{5c}**) were not found to be significant. Activities included in MSM in a wider sense aim to create relationship value only on the direct customers' market stage, but with the indirect customers in mind. But it seems that MSM in a wider sense is not necessarily considered something special anymore (see section 6.1). It could be assumed, that an extended market orientation, considering not only direct customers but also subsequent market stages, is already well established in common marketing practice. MSM in a wider sense corresponds to Vedel et al.'s (2012) "multi-stage awareness" (see section 3.1.3) and has appeared in extant literature so far. Consequently, further research might focus on the MSM typology applied in the present study. Alternative MSM types could be determined and extend the current classifications. Furthermore, even if providing a successful manipulation, my experimental design incorporated only one out of many possible operationalizations of MSM in a wider sense as well as other MSM types. Further research should consider different configurations of the treatment scenarios which possibly could have caused stronger responses from my subjects.

In general, the power of hypothesis testing is closely linked to sample size (Slater and Narver 2000, p. 71). Supporting the objective of my study, the obtained sample can be considered representative (see section 5.1.1). Yet, with regard to the complexity of the study design, a larger sample seems desirable. According to common thresholds (e.g., Hair et al. 2010), the obtained sample size for each experimental treatment group hardly exceeds the absolute minimum. Hence, the statistical power of my experiment is rather low. By increasing the sample size some insignificant parameter values could have been possibly turned significant. The negative influence of non-collaborative MSM on direct customers' willingness-to-pay (as proposed by **hypothesis H_{1a}**), the positive influence of collaborative MSM on direct customers' satisfaction (as proposed by **hypothesis H_{4b}**), as well as other findings might have been found supported.

I have applied different methods to generate empirical data. In particular, I applied a limit conjoint analysis to measure possible changes of direct customers' willingness-to-pay when applying different types of MSM. In contrast, I used five-point rating scales to measure

possible changes of all other endogenous constructs (i.e., direct customers' satisfaction and loyalty). Whereas collaborative MSM significantly increased direct customers' willingness-to-pay, the same type of MSM significantly decreased direct customers' loyalty regarded as a favorable behavioral intention (opposed to the predictions of **hypothesis H_{5b}**). As I have shown, the different results can be explained by the applied measurement methods. In a situation in which he or she does not know about different existing offers and is thus unable to compare them, a respondent's evaluation of several services with different levels of appreciation by means of five-point rating scales leads to an averaged and consequently a lower integrated evaluation, whereas their evaluation by means of a limit conjoint analysis leads to an accumulation of the quantified appreciation levels and consequently a higher integrated evaluation (see section 6.1). The effects of collaborative MSM on direct customers' loyalty are inconsistent with the effects of collaborative MSM on direct customers' willingness-to-pay. Consequently, the applied measures lead to contradictory results which are difficult to interpret. To get more consistent and evident results and to derive further implications for research and practice, it would be worthwile to repeat the analysis of additional effects. Alternative measurement methods could be applied. For instance, researchers could evaluate the appreciation of services by asking respondents to compare different suppliers' offers composed of several services.

Another major limitation of the present study relates to a demand pull potentially resulting from MSM. I introduced value creation as a central cornerstone of MSM. Relationships established with indirect customers might result in positive relational outcomes for a supplier. This is especially relevant for the construct of loyalty. In the present study, I conceptualized it as the direct customers' repurchase intention (see section 2.2.2.2). Applying non-collaborative MSM decreases the direct customers' repurchase intention. However, applying marketing and sales-related measures on indirect market stages influences the buying behavior on the direct customers' market stage and aims to create a pull effect. If a supplier is able to force its direct customers to demand the supplier's products, the direct customers' (actual) behavior might be positively affected by non-collaborative MSM (Kleinaltenkamp et al. 2011c, pp. 61; Lam et al. 2004, p. 297; Webster 1991, p. 221). Consequently, conceptualizing loyalty by the (actual) behavior (versus behavioral intention) of the direct customers, requires an opposed definition of **hypothesis H_{5a}**;

non-collaborative MSM would be supposed to positively affect direct customers' loyalty (in terms of the actual behavior of the direct customer albeit forced by its customers). Otherwise, the application of non-collaborative MSM would not make sense.

But the MSM experiment itself focused on the value creation potential of MSM on the direct customers' market stage only. It did not include indirect customers into the perspective of this study. Furthermore, it only focused on the repurchase intention of direct customers. Consequently, I did neither consider a possible demand pull on the direct customers' market stage nor the actual behavior of these customers. Negative effects on the direct customers' repurchase intention resulting from non-collaborative MSM might be compensated for or even over-compensated for by positive effects resulting from marketing and sales-related measures applied on indirect market stages. Owing to the design of the MSM experiments, I could not measure these or similar effects. A focus on downstream customers to further analyze the relevance of MSM represents a worthwhile subject for further research. It includes a consideration of possible impacts on a (upstream) supplier's business performance in perspective with potential market resistances (for an evaluation of market resistances in the context of pull effects, see section 3.2.3.2). "As multistage marketing… [might aim] at successfully moving market actors on downstream market stages toward a certain buying behavior (and doing so by activating certain other market actors), market resistance can often be the result. Overcoming the resistance is a core challenge in a multistage strategy" (Kleinaltenkamp et al. 2012, p. 160). Furthermore, it would be important to consider that a non-collaborative MSM strategy can evolve into a collaborative MSM strategy over time (Kleinaltenkamp et al. 2012, p. 146). This calls for a more dynamic view and research on MSM.

In this context, it would be valuable to consider that the presentation and communication of non-collaborative MSM measures on the direct customers' market stage represent an experimental necessity to evaluate potential negative effects resulting from them. However, in practice a supplier would not necessarily inform direct customers proactively about its activities on downstream market stages, as the MSM experiment simulates. Therefore, it is possible to improve the external validity of the MSM experiment results as well as conclusions about the relevance of non-collaborative MSM by focusing on research of

downstream customers' market stages and subsequently deriving conclusions about (indirect) effects of MSM on the direct customers' market stage.

A further limitation of the present study relates to the conceptualization of MSM as the behavioral perspective of an extended market orientation. It is the concept of an extended market orientation itself that has not received much analysis yet. Most contributions in the area of market orientation continuously focus on direct customers only, but it is becoming more obvious that a supplier's market orientation must extend toward downstream customers. Hillebrand and Biemans (2011), especially, are a noteworthy exception, but there should be more research in this area. For example, it is important to test whether the focus on downstream customers and third-party influencers constitutes additional dimensions of the construct of market orientation. More practically, it is also important to examine which measures companies must take in accordance with the prevailing marketing concept, so they can better ascertain and meet the needs of their target markets (Hillebrand and Biemans 2011, pp. 77). The results of the present study argue in favor of the relevance of an extended market orientation as well as in favor of further research in this area.

From a methodological point of view, it is possible to improve the construct validity of the MSM experiment by including further indicators in the measurement models (Bohrnstedt 1971, pp. 92). The present study focuses on analyzing main effects by means of a limit conjoint analysis to measure possible changes of direct customers' willingness-to-pay. To avoid overwhelming respondents, I refrained from applying more complex measurement models to analyze additional effects. However, additional constructs provided meaningful indications about the relevance of MSM, and it would be worthwhile to further analyze the relevance of MSM to these and similar concepts. With respect to the conjoint analysis, I computed direct customers' willingness-to-pay for the attribute levels of standard product quality and standard product availability. I refrained from analyzing the relevance of different MSM types for direct customers' willingness-to-pay as a function of different combinations of attribute levels. It would also be valuable to test alternative scenarios composed of different MSM measures and to analyze the relevance of applying combinations of different MSM scenarios as well. The design of the scenarios of the MSM experiment did not allow for analyzing the influence of single MSM measures. I presented all of the measures of the

respective scenario together, though it would be valuable to further analyze the relevance of single measures—for example, cluster MSM measures according to their impacts. Given that the variables and the model relevant to the MSM experiment were less specified and parameterized, but only based on non-mathematical arguments and causal predictions, a reduced form approach was the predetermined type of data analysis for the MSM experiment (see section 4.1.1). However, structural estimation methods would be an interesting avenue for further research on MSM as well.

One might also argue that a customers' willingness-to-pay can differ depending on the type of supplier. Most likely the nature of willingness-to-pay highly depends on the size and reputation of the selling company. Customers might be willing to pay higher prices to Dax 30 or Fortune Global 500 companies because they might associate positive attributes such as higher quality standards, security of product availability and delivery, and state-of-the art technology with this designation. It would be worthwhile to extend the research by altering attributes of suppliers—for example, their respective market power to analyze the relevance of differences with respect to the applied MSM measures. Finally, owing to the sample's profile, it is possible to draw only limited conclusions about international and cross-cultural validity of the results. Because the sample includes European data only, further study could extend to other regions to clarify the robustness and generalizability of the findings and eventually allow global implications.

In conclusion, the present study has demonstrated the potential for creating competitive advantages through the application of MSM. If applied in the right way, MSM does pay! Depending on the applied type of MSM, it has—either positive or negative—relevance for direct customers' willingness-to-pay, satisfaction, and loyalty. This study therefore calls for further research on MSM, as well as its much stronger consideration in practice.

Appendices

Appendix 1:   Final questionnaire (German version)

Page 0 (Introduction)

LEISTUNGS-DIMENSIONEN IN B2B-MÄRKTEN

Die folgende Umfrage untersucht den Einsatz verschiedener Marketing- und Service-Aktivitäten der Klebstoff-Industrie sowie dessen Relevanz für produzierende Unternehmen.

- Die Teilnahme dauert 16-19 Minuten.
- Es gibt keine richtigen oder falschen Antworten.
- Alle Informationen werden lediglich zu wissenschaftlichen Zwecken genutzt.
- Alle Informationen werden anonym ausgewertet. Rückschlüsse auf die Person und das Unternehmen sind nicht möglich.
- Wenn Sie eine Zusammenfassung der Ergebnisse zugesendet bekommen möchten, können Sie am Ende der Umfrage Ihre E-Mail-Adresse angeben.

Für Ihre Teilnahme bedanken wir uns im Voraus sehr!

Herzliche Grüße,

Ioana Minculescu &
Prof. Dr. Michael Kleinaltenkamp

Marketing Department der Freien Universität Berlin
E-Mail: marketing@wiwiss.fu-berlin.de

Page 1 (Evaluation component importance)

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Bitte beurteilen Sie die folgenden 5 Aussagen:

Allgemein, wie bedeutend ist Klebstoff aus der Sicht Ihres Unternehmens?

	1	2	3	4	5	
Die Klebstoff-Ausgaben haben einen hohen Anteil an den gesamten Materialkosten	○	○	○	○	○	Die Klebstoff-Ausgaben haben einen kleinen Anteil an den gesamten Materialkosten

	1	2	3	4	5	
Der Klebstoff ist sehr entscheidend für die Qualität des End-Produkts	○	○	○	○	○	Der Klebstoff ist kaum entscheidend für die Qualität des End-Produkts

	1	2	3	4	5	
Für meine Industrie gibt es eine geringe Anzahl relevanter Klebstoff-Lieferanten	○	○	○	○	○	Für meine Industrie gibt es eine große Anzahl relevanter Klebstoff-Lieferanten

	1	2	3	4	5	
Ein Wechsel zwischen verschiedenen Klebstoff-Lieferanten verursacht hohe Wechselkosten (Monetär, Aufwand, Zeit, Risiko)	○	○	○	○	○	Ein Wechsel zwischen verschiedenen Klebstoff-Lieferanten verursacht geringe Wechselkosten (Monetär, Aufwand, Zeit, Risiko)

	1	2	3	4	5	
Zum Einsatz von Klebstoffen gibt es wenige alternative Produktions-Technologien	○	○	○	○	○	Zur Nutzung von Klebstoffen gibt es viele alternative Produktions-Technologien

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Page 2 (Introductory scenario)

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Bitte stellen Sie sich folgende Situation vor:

- Ihr Unternehmen nutzt industrielle Klebstoffe (z.B. thermoplastische Klebstoffe (Hotmelts), Dispersionen oder andere Klebstoff-Technologien) zur Herstellung der eigenen Produkte.
  —> Sie sind für den Einkauf von Klebstoffen verantwortlich.
- Ihnen werden verschiedene Klebstoff-Lieferanten vorgestellt.
- Es ist wichtig zu wissen, dass alle Klebstoff-Lieferanten dieselbe Klebstoff-Technologie anbieten.
- Außerdem bieten Ihnen alle Klebstoff-Lieferanten dieselben Zusatzleistungen. Diese sind auf der folgenden Seite beschrieben:

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Page 3 (Scenario and assessment of satisfaction and loyalty)

3a) Non-collaborative MSM

3b) Collaborative MSM

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Alle Klebstoff-Lieferanten bieten Ihrem Unternehmen folgende Leistungen:

- Hohes Maß an kommerzieller und verkäuferischer Unterstützung
- Breites Produkt-Portfolio
- Hohes Maß an Produkt- und Service-Innovationen
- Hohes Maß an technischer und prozessorientierter Unterstützung

Die Klebstoff-Lieferanten haben umfangreiche Kenntnisse über Ihre Industrie und gute Beziehungen zum Markt, auch zu Ihren kaufenden und potentiellen Kunden.

Klebstoff-Lieferanten → **Ihr Unternehmen** → Ihre Kunden
1 2

1 Zusätzliche Leistungen, welche die Klebstoff-Lieferanten <u>Ihrem Unternehmen</u> anbieten:

- Ständiger Zugang zu neuen Märkten und Absatzwegen
- Jährliches Symposium (1-3 Tage) bei dem Branchen-Zugehörige eingeladen werden (z.B. Ihre Maschinen-Hersteller, Ihre Wettbewerber, Ihre Kunden, Ihre potentiellen Kunden, etc.). Während dieser Veranstaltung informieren die Klebstoff-Lieferanten über Markt-Entwicklungen, neue Technologien und bieten Ihnen einen passenden Rahmen um sich mit Kunden und potentiellen Kunden auszutauschen und Kontakte zu knüpfen.

2 Zusatzleistungen welche die Klebstoff-Lieferanten <u>Ihren Kunden</u> bieten:

- Einladung Ihrer Kunden zum jährlichen Symposium

Erfüllen die genannten Leistungen der Klebstoff-Lieferanten Ihre Erwartungen?
Bitte beurteilen Sie die folgenden Aussagen:

	1	2	3	4	5	
Die Klebstoff-Lieferanten bieten weniger Leistungen als ich erwarte	○	○	○	○	○	Die Klebstoff-Lieferanten bieten mehr Leistungen als ich erwarte
Die genannten Leistungen liegen unter meinen Erwartungen	○	○	○	○	○	Die genannten Leistungen übertreffen meine Erwartungen

Wie bewerten Sie die beschriebenen Leistungen der Klebstoff-Lieferanten <u>aus der Sicht Ihres Unternehmens?</u>

|	Stimme überhaupt nicht zu				Stimme vollkommen zu
	1	2	3	4	5
Die genannten Leistungen empfinde ich als kooperativ	○	○	○	○	○
Ich würde mich über die genannten Leistungen freuen	○	○	○	○	○
Solche Leistungen sind wertvoll für mein Unternehmen	○	○	○	○	○
Mein Unternehmen zieht Klebstoff-Lieferanten mit solchen Leistungen als erste Wahl in Betracht	○	○	○	○	○
Mein Unternehmen wird in den kommenden Jahren vermehrt bei Klebstoff-Lieferanten mit solchen Leistungen kaufen	○	○	○	○	○

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3c) MSM in a wider sense

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Alle Klebstoff-Lieferanten bieten Ihrem Unternehmen folgende Leistungen:

- Hohes Maß an kommerzieller und verkäuferischer Unterstützung
- Breites Produkt-Portfolio
- Hohes Maß an Produkt- und Service-Innovationen
- Hohes Maß an technischer und prozessorientierter Unterstützung

Die Klebstoff-Lieferanten haben umfangreiche Kenntnisse über Ihre Industrie und gute Beziehungen zum Markt, auch zu Ihren kaufenden und potentiellen Kunden.

Klebstoff-Lieferanten → **Ihr Unternehmen** → Ihre Kunden

1

① Zusätzliche Leistungen, welche die Klebstoff-Lieferanten <u>Ihrem Unternehmen</u> anbieten:

- Rat und Expertise hinsichtlich von Markt- und Technologie-Entwicklungen
- Analyse und Optimierung Ihrer eigenen Preis-Politik zu Ihren Kunden
- Entwicklung von Klebstoff-Technologien und Zusatzleistungen entsprechend Ihrer Bedürfnisse
- Begleitendes Informationsmaterial (wie Broschüren) um Ihre Kunden über diese Entwicklungen zu informieren

Erfüllen die genannten Leistungen der Klebstoff-Lieferanten Ihre Erwartungen?
Bitte beurteilen Sie die folgenden Aussagen:

	1	2	3	4	5	
Die Klebstoff-Lieferanten bieten weniger Leistungen als ich erwarte	○	○	○	○	○	Die Klebstoff-Lieferanten bieten mehr Leistungen als ich erwarte
Die genannten Leistungen liegen unter meinen Erwartungen	○	○	○	○	○	Die genannten Leistungen übertreffen meine Erwartungen

Wie bewerten Sie die beschriebenen Leistungen der Klebstoff-Lieferanten <u>aus der Sicht Ihres Unternehmens?</u>

	Stimme überhaupt nicht zu				Stimme vollkommen zu
	1	2	3	4	5
Die genannten Leistungen empfinde ich als kooperativ	○	○	○	○	○
Ich würde mich über die genannten Leistungen freuen	○	○	○	○	○
Solche Leistungen sind wertvoll für mein Unternehmen	○	○	○	○	○
Mein Unternehmen zieht Klebstoff-Lieferanten mit solchen Leistungen als erste Wahl in Betracht	○	○	○	○	○
Mein Unternehmen wird in den kommenden Jahren vermehrt bei Klebstoff-Lieferanten mit solchen Leistungen kaufen	○	○	○	○	○

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3d) Control group (no MSM)

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Alle Klebstoff-Lieferanten bieten Ihrem Unternehmen folgende Leistungen:

- Hohes Maß an kommerzieller und verkäuferischer Unterstützung
- Breites Produkt-Portfolio
- Hohes Maß an Produkt- und Service-Innovationen
- Hohes Maß an technischer und prozessorientierter Unterstützung

Erfüllen die genannten Leistungen der Klebstoff-Lieferanten Ihre Erwartungen?
Bitte beurteilen Sie die folgenden Aussagen:

	1	2	3	4	5	
Die Klebstoff-Lieferanten bieten weniger Leistungen als ich erwarte	○	○	○	○	○	Die Klebstoff-Lieferanten bieten mehr Leistungen als ich erwarte
Die genannten Leistungen liegen unter meinen Erwartungen	○	○	○	○	○	Die genannten Leistungen übertreffen meine Erwartungen

Wie bewerten Sie die beschriebenen Leistungen der Klebstoff-Lieferanten aus der Sicht Ihres Unternehmens?

	Stimme überhaupt nicht zu				Stimme vollkommen zu
	1	2	3	4	5
Die genannten Leistungen empfinde ich als kooperativ	○	○	○	○	○
Ich würde mich über die genannten Leistungen freuen	○	○	○	○	○
Solche Leistungen sind wertvoll für mein Unternehmen	○	○	○	○	○
Mein Unternehmen zieht Klebstoff-Lieferanten mit solchen Leistungen als erste Wahl in Betracht	○	○	○	○	○
Mein Unternehmen wird in den kommenden Jahren vermehrt bei Klebstoff-Lieferanten mit solchen Leistungen kaufen	○	○	○	○	○

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Page 4 (Conjoint experiment, ranking)

Page 5 (Conjoint experiment, placing limit card)

Page 6 (Evaluation market power)

Freie Universität Berlin

Bitte beurteilen Sie die folgenden 4 Aussagen:

Wie beurteilen Sie die Marktstellung Ihres Unternehmens?

	1	2	3	4	5	
Mein Unternehmen hat eine geringe Anzahl an Wettbewerbern						Mein Unternehmen hat eine hohe Anzahl an Wettbewerbern

	1	2	3	4	5	
Mein Unternehmen hat einen hohen Marktanteil						Mein Unternehmen hat einen geringen Marktanteil

	1	2	3	4	5	
Mein Unternehmen bietet einzigartige Produkte und Leistungen						Mein Unternehmen bietet gewöhnliche Produkte und Leistungen

	1	2	3	4	5	
Ein Wechsel zwischen unseren Produkten und denen unseres Wettbewerbs verursacht hohe Wechselkosten für unsere Kunden (Monetär, Aufwand, Zeit, Risiko)						Ein Wechsel zwischen unseren Produkten und denen unseres Wettbewerbs verursacht geringe Wechselkosten für unsere Kunden (Monetär, Aufwand, Zeit, Risiko)

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Page 7 (Sociodemographic information)

Freie Universität Berlin

Bitte beantworten Sie abschließend folgende Fragen zu statistischen Zwecken:

Zu welcher Industrie gehört Ihr Unternehmen?

Bitte wählen

Sonstige:

Seit wieviel Jahren arbeiten Sie in Ihrem jetzigen Unternehmen?

- < 3 Jahre
- 3 - 5 Jahre
- 5 - 10 Jahre
- 10 - 20 Jahre
- > 20 Jahre

Seit wieviel Jahren arbeiten Sie in dieser Industrie?

- < 3 Jahre
- 3 - 5 Jahre
- 5 - 10 Jahre
- 10 - 20 Jahre
- > 20 Jahre

In welcher Abteilung arbeiten Sie?

Bitte wählen

Sonstige:

Wieviel Jahre Berufserfahrung haben Sie in Ihrer derzeitigen Position?

- < 3 Jahre
- 3 - 5 Jahre
- 5 - 10 Jahre
- 10 - 20 Jahre
- > 20 Jahre

In welchem Land sind Sie beschäftigt?

Bitte wählen

Sind Sie männlich / weiblich?

- männlich
- weiblich

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Page 8 (Retrieval of respondents' email addresses)

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Ihre Daten wurden erfolgreich übermittelt.

Vielen Dank für Ihre Teilnahme!

Wenn Sie eine Zusammenfassung der Studienergebnisse wünschen, können Sie hier Ihre E-Mail Adresse angeben. Sie wird lediglich für den Versand der Ergebnisse verwendet.

Ihre E-Mail Adresse:

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Page 9 (Finalization)

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Die Daten wurden gespeichert. Sie können das Fenster jetzt schließen.

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Appendix 2:   Pretest of manipulation and realism

Page 0 (Introduction)

Page 1 (Introductory scenario)

Page 2 (Scenario as well as manipulation and realism check, example Scenario 3)

Alle Klebstoff-Lieferanten bieten Ihrem Unternehmen folgende Leistungen:

- Hohes Maß an kommerzieller und verkäuferischer Unterstützung
- Breites Produkt-Portfolio
- Hohes Maß an Produkt- und Service-Innovationen
- Hohes Maß an technischer und prozessorientierter Unterstützung

Die Klebstoff-Lieferanten haben umfangreiche Kenntnisse über Ihre Industrie und gute Beziehungen zum Markt, auch zu Ihren kaufenden und potentiellen Kunden.

Klebstoff-Lieferanten → **Ihr Unternehmen** → Ihre Kunden

1

2

1 Zusätzliche Leistungen, welche die Klebstoff-Lieferanten <u>Ihrem Unternehmen</u> anbieten:

- Ständiger Zugang zu neuen Märkten und Absatzwegen
- Jährliches Symposium (1-3 Tage) bei dem Branchen-Zugehörige eingeladen werden (z.B. Ihre Maschinen-Hersteller, Ihre Wettbewerber, Ihre Kunden, Ihre potentiellen Kunden, etc.). Während dieser Veranstaltung informieren die Klebstoff-Lieferanten über Markt-Entwicklungen, neue Technologien und bieten Ihnen einen passenden Rahmen um sich mit Kunden und potentiellen Kunden auszutauschen und Kontakte zu knüpfen.

2 Zusatzleistungen welche die Klebstoff-Lieferanten <u>Ihren Kunden</u> bieten:

- Einladung Ihrer Kunden zum jährlichen Symposium

Bitte beschreiben Sie die Leistungen und/oder Zusatzleistungen der Klebstofflieferanten anhand der folgenden Aussagen:

	Trifft überhaupt nicht zu						Trifft vollkommen zu
	1	2	3	4	5	6	7
Alle genannten Leistungen der Klebstofflieferanten richten sich nur an mich als direkten Kunden. Anhand der beschriebenen Leistungen ist nicht erkennbar, dass die Klebstofflieferanten meine Kunden und deren Bedürfnisse in die Betrachtung einbeziehen. *(Die Klebstofflieferanten bieten 4 genannte Leistungen aber keine weiteren Zusatzleistungen)*	○	○	○	○	○	○	○
Zusätzlich zu den 4 zu Beginn genannten Leistungen bieten die Klebstofflieferanten weitere <u>Zusatzleistungen</u>. Diese richten sich an meine Kunden. Sie beziehen mich als direkten Kunden nicht in die Betrachtung ein. *(Hinsichtlich der Zusatzleistungen besteht ausschließlich direkter Kontakt zwischen den Klebstofflieferanten und meinen Kunden)*	○	○	○	○	○	○	○
Zusätzlich zu den 4 zu Beginn genannten Leistungen bieten die Klebstofflieferanten weitere <u>Zusatzleistungen</u>. Diese richten sich sowohl an mich als direkten Kunden als auch an meine Kunden. Sie beziehen mich als direkten Kunden in die Betrachtung ein. *(Hinsichtlich der Zusatzleistungen besteht sowohl direkter Kontakt zwischen den Klebstofflieferanten und meinem Unternehmen als auch zwischen den Klebstofflieferanten und meinen Kunden)*	○	○	○	○	○	○	○
Zusätzlich zu den 4 zu Beginn genannten Leistungen bieten die Klebstofflieferanten weitere <u>Zusatzleistungen</u>. Diese richten sich nur an mich als direkten Kunden. Anhand der beschriebenen Zusatzleistungen ist erkennbar, dass die Klebstofflieferanten durch ihre Marktkenntnis meine Kunden und deren Bedürfnisse in die Betrachtung einbeziehen. *(Hinsichtlich der Zusatzleistungen besteht ausschließlich direkter Kontakt zwischen den Klebstofflieferanten und meinem Unternehmen)*	○	○	○	○	○	○	○
Die beschriebene Situation ist realistisch.	○	○	○	○	○	○	○
Ich habe keine Schwierigkeiten, mich in diese Situation hineinzuversetzen.	○	○	○	○	○	○	○

Page 3 (Finalization)

Appendix 3:   Personalized contact form (*XING*) asking for contact details

Neue Nachricht

Und per E-Mail an ⌄

Name Ihres Kontakts

Hilfe bei Suche eines Ansprechpartners

Sehr geehrter Herr [Name des Kontaktes],

Ich bin Wissenschaftler im Bereich Marketing an der Freien Universität Berlin. Aktuell beschäftige ich mich mit der Wirkung und Relevanz verschiedener Leistungs-Dimensionen für Unternehmen im B2B-Bereich.

Durch die Suchfunktion bei XING konnte ich Sie als Kontaktperson Ihrer Firma identifizieren. Setzt Ihre Firma auch Klebstoffe oder Leime zur Herstellung der Produkte oder für die Etikettierung / Verpackung oder für andere Anwendungen ein?

Für mein aktuelles Forschungsprojekt habe ich eine kleine Online-Umfrage erstellt. Dabei geht es um die Betrachtung des Einsatzes von Marketing- und Service-Maßnahmen bestimmter Zulieferer und dessen Bedeutsamkeit für sie als produzierendes Unternehmen.

Ich würde mich sehr freuen, wenn Sie mir den für den Einkauf von Klebstoffen zuständigen Ansprechpartner in Ihrem Unternehmen nennen können. Ich würde versuchen, sie oder ihn für die Teilnahme an der Online-Umfrage (ca. 15 Minuten) als Experte zu gewinnen.

Herzlichen Dank für Ihre Mithilfe und viele Grüße.

⌀ Datei anhängen

Bitte beachten Sie die Hinweise zum Versand von Nachrichten ⓘ

Abbrechen   **Absenden**

Appendix 4:   Personalized contact form (e-mail) asking for participation

An	
	Cc hinzufügen Bcc hinzufügen
Betreff	Teilnahme an wissenschaftlicher Studie – Ihre Expertise
	Datei anhängen Einfügen: Einladung

B *I* U T ▾ ᴛᴛ ▾ A ▾ T ▾ ☺ ∞ ⌗ ≔ ⇥ ⇤ 〞 ≣ ≡ ≡ *Iₓ* « Ohne Formatierung   Rechtschreibung prüfen ▾

Sehr geehrter Herr [*Name des Kontaktes*],

Ich bin Wissenschaftler im Bereich Marketing an der Freien Universität Berlin. Aktuell beschäftige ich mich mit der Wirkung und Relevanz verschiedener Leistungs-Dimensionen für Unternehmen im B2B-Bereich.

Auf der Suche nach Ansprechpartnern, die für ihr Unternehmen für die Disposition von Klebstoffen zuständig sind, habe ich Ihre Kontaktdaten von Herrn [*Name des XING Kontaktes*] bekommen. Mit Ihrer Expertise könnten Sie mir sehr helfen.

Ich habe einen spannenden Fragebogen vorbereitet, der etwa 16-19 Minuten dauert. Heutzutage ist das viel Zeit, darüber bin ich mir bewusst. Ihre Hilfe wüsste ich jedoch sehr zu schätzen, so bin ich doch auf Experten aus der Industrie angewiesen. Es geht um Fragen über die Klebstoff-Industrie, insb. wie bedeutend dessen Service-Leistungen für Sie als produzierendes Unternehmen sind.

Nachfolgend der Link zu meinem Fragebogen:

http://www3.netzumfrage.com/b2b-supplier-performance/de?iv=ing

Alle Informationen werden anonym ausgewertet. Es können keine Rückschlüsse auf einzelne Personen oder die Firma hergestellt werden.

Es ist möglich eine Zusammenfassung der Ergebnisse meiner zu Studie zu bekommen (ca. Ende Juli 2012). Wenn Sie dies wünschen, tragen Sie bitte am Ende des Fragebogens Ihre E-Mail-Adresse ein, ich schicke Ihnen dann gerne die entsprechenden Informationen.

Für weitere Fragen stehe ich Ihnen natürlich jederzeit zur Verfügung.

Vielen Dank und herzliche Grüße.

Appendix 5:   Syntax for the applied limit conjoint analysis

```
1  ▶  TITLE "MSM - Conjoint Measurement".
2
3     SUBTITLE "Impact of multi-stage marketing on WTP - score 19.08.12"
4
5     CONJOINT
6     PLAN="C:\Users\Administrator\Documents\Finale_Auswertung_MSM\120601_ORTHO_final_mod.sav"
7     /DATA="C:\Users\Administrator\Documents\Finale_Auswertung_MSM\120818_database_score_133.sav"
8     /SCORE=SCORE1 TO SCORE9
9     /SUBJECT=ID
10    /FACTORS=quality(LINEAR LESS) availability(LINEAR LESS) price(LINEAR LESS)
11    /PRINT=ALL
12    /PLOT=SUBJECT SUMMARY
13    /UTILITY="C:\Users\Administrator\Documents\Finale_Auswertung_MSM\120819_output_conjoint_133.sav".
14
15    SUBTITLE "Auflistung der Gesamtnutzenwerte".
16
17    get FILE "C:\Users\Administrator\Documents\Finale_Auswertung_MSM\120819_output_conjoint_133.sav".
18
19    LIST.
20
21
22
23
24
```

Appendix 6:   SPSS output of conjoint analysis for participant 13

Utilities		Utility Estimate	Std. Error
quality	high product quality	-1,833	,778
	standard product quality	-3,667	1,556
	low product quality	-5,500	2,335
availability	high product availability	-,500	,778
	standard product availability	-1,000	1,556
	low product availability	-1,500	2,335
price	pay 15% less than today	-1,833	,778
	pay same as today (+/- 0%)	-3,667	1,556
	pay 15% more than today	-5,500	2,335
(Constant)		7,833	2,770

Importance Values

quality	44,000
availability	12,000
price	44,000

Coefficients

	B Coefficient	
	Estimate	Std. Error
quality	-1,833	,778
availability	-,500	,778
price	-1,833	,778

Correlations[a]

	Value	Sig.
Pearson's R	,835	,003
Kendall's tau	,667	,006

a. Correlations between observed and estimated preferences

Appendix 7:   PCA (endogenous constructs)

a) Customer satisfaction

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,500
Bartlett's Test of Sphericity	Approx. Chi-Square	33,582
	df	1
	Sig.	,000

Anti-image Matrices

		mehr_weniger_leistungen_als_erwartet	leistungen_unter_ueber_erwartungen
Anti-image Covariance	mehr_weniger_leistungen_als_erwartet	,718	-,381
	leistungen_unter_ueber_erwartungen	-,381	,718
Anti-image Correlation	mehr_weniger_leistungen_als_erwartet	,500[a]	-,531
	leistungen_unter_ueber_erwartungen	-,531	,500[a]

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
mehr_weniger_leistungen_als_erwartet	1,000	,765
leistungen_unter_ueber_erwartungen	1,000	,765

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
mehr_weniger_leistungen_als_erwartet	,875
leistungen_unter_ueber_erwartungen	,875

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,531	76,537	76,537	1,531	76,537	76,537
2	,469	23,463	100,000			

Extraction Method: Principal Component Analysis.

b) Customer loyalty

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,500
Bartlett's Test of Sphericity	Approx. Chi-Square	120,412
	df	1
	Sig.	,000

Anti-image Matrices

		klebstofflieferanten_erste_wahl	klebstoff_lieferanten_in_kommenden_jammenden_ja hren_vermehr t
Anti-image Covariance	klebstofflieferanten_erste _wahl	,305	-,254
	klebstoff_lieferanten_in_k ommenden_jahren_verm ehrt	-,254	,305
Anti-image Correlation	klebstofflieferanten_erste _wahl	,500[a]	-,833
	klebstoff_lieferanten_in_k ommenden_jahren_verm ehrt	-,833	,500[a]

a. Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
klebstofflieferanten_erste _wahl	1,000	,917
klebstoff_lieferanten_in_k ommenden_jahren_verm ehrt	1,000	,917

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component
	1
klebstofflieferanten_erste _wahl	,957
klebstoff_lieferanten_in_k ommenden_jahren_verm ehrt	,957

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1,833	91,673	91,673	1,833	91,673	91,673
2	,167	8,327	100,000			

Extraction Method: Principal Component Analysis.

Appendix 8:   Cronbach's α & item-to-total-correlation (endogenous constructs)

a) Customer satisfaction

Reliability Statistics	
Cronbach's Alpha	N of Items
,690	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
mehr_weniger_leistungen_als_erwartet	3,30	,794	,531	.
leistungen_unter_ueber_erwartungen	3,44	,618	,531	.

b) Customer loyalty

Reliability Statistics	
Cronbach's Alpha	N of Items
,908	2

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
klebstofflieferanten_erste_wahl	3,38	1,288	,833	.
klebstoff_lieferanten_in_kommenden_jahren_vermehrt	3,53	1,514	,833	.

Appendix 9:   Correlation matrices (moderator constructs)

a) Component importance

Correlations

		adhesive_expenses	adhesive_essential_pq	available_adhesive_suppliers	adhesive_suppliers_switching_costs	alternative_technologies
adhesive_expenses	Pearson Correlation	1	,352**	,223*	,195*	,042
	Sig. (2-tailed)		,000	,023	,047	,669
	N	104	104	104	104	104
adhesive_essential_pq	Pearson Correlation	,352**	1	,192	,321**	,078
	Sig. (2-tailed)	,000		,051	,001	,431
	N	104	104	104	104	104
available_adhesive_suppliers	Pearson Correlation	,223*	,192	1	,175	,287**
	Sig. (2-tailed)	,023	,051		,075	,003
	N	104	104	104	104	104
adhesive_suppliers_switching_costs	Pearson Correlation	,195*	,321**	,175	1	,040
	Sig. (2-tailed)	,047	,001	,075		,688
	N	104	104	104	104	104
alternative_technologies	Pearson Correlation	,042	,078	,287**	,040	1
	Sig. (2-tailed)	,669	,431	,003	,688	
	N	104	104	104	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

b) Power structure

Correlations

		company_no_competitors	company_relative_market_share	company_differentiation	company_switching_costs
company_no_competitors	Pearson Correlation	1	,294**	,234*	,139
	Sig. (2-tailed)		,002	,017	,161
	N	104	104	104	104
company_relative_market_share	Pearson Correlation	,294**	1	,218*	,142
	Sig. (2-tailed)	,002		,026	,152
	N	104	104	104	104
company_differentiation	Pearson Correlation	,234*	,218*	1	,348**
	Sig. (2-tailed)	,017	,026		,000
	N	104	104	104	104
company_switching_costs	Pearson Correlation	,139	,142	,348**	1
	Sig. (2-tailed)	,161	,152	,000	
	N	104	104	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 10: Collinearity diagnostics (Tolerance & VIF) (moderator constructs)

a) Component importance

Coefficients[a]		Collinearity Statistics	
Model		Tolerance	VIF
1	adhesive_essential_pq	,877	1,140
	available_adhesive_suppliers	,875	1,142
	adhesive_suppliers_switching_costs	,883	1,132
	alternative_technologies	,917	1,091
a. Dependent Variable: adhesive_expenses			

Coefficients[a]		Collinearity Statistics	
Model		Tolerance	VIF
1	available_adhesive_suppliers	,857	1,166
	adhesive_suppliers_switching_costs	,944	1,060
	alternative_technologies	,917	1,091
	adhesive_expenses	,925	1,081
a. Dependent Variable: adhesive_essential_pq			

Coefficients[a]		Collinearity Statistics	
Model		Tolerance	VIF
1	adhesive_suppliers_switching_costs	,889	1,125
	alternative_technologies	,993	1,007
	adhesive_expenses	,869	1,151
	adhesive_essential_pq	,807	1,239
a. Dependent Variable: available_adhesive_suppliers			

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	alternative_technologies	,916	1,092
	adhesive_expenses	,850	1,176
	adhesive_essential_pq	,862	1,160
	available_adhesive_suppliers	,863	1,159

a. Dependent Variable:
   adhesive_suppliers_switching_costs

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	adhesive_expenses	,847	1,181
	adhesive_essential_pq	,804	1,245
	available_adhesive_suppliers	,925	1,081
	adhesive_suppliers_switching_costs	,879	1,138

a. Dependent Variable: alternative_technologies

b) Power structure

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	company_relative_market_share	,948	1,055
	company_differentiation	,850	1,177
	company_switching_costs	,874	1,144

a. Dependent Variable: company_no_competitors

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	company_differentiation	,844	1,185
	company_switching_costs	,875	1,142
	company_no_competitors	,942	1,062

a. Dependent Variable: company_relative_market_share

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	company_switching_costs	,970	1,031
	company_no_competitors	,904	1,106
	company_relative_market_share	,903	1,107

a. Dependent Variable: company_differentiation

Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	company_no_competitors	,883	1,132
	company_relative_market_share	,890	1,124
	company_differentiation	,921	1,086

a. Dependent Variable: company_switching_costs

Appendix 11: Paired t-test comparisons (endogenous constructs)

a) Willingness-to-pay

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
POG_SQ_SA	sc1_base	26	-15,5401%	44,33535%	8,69488%
	sc4_noncol	25	-19,3234%	29,62464%	5,92493%

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
POG_SQ_SA	Equal variances assumed	1,959	,168	,357	49	,723	3,78332%	10,60253%	-17,52326%	25,08991%	
	Equal variances not assumed			,360	43,776	,721	3,78332%	10,52168%	-17,42479%	24,99144%	

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
POG_SQ_SA	sc1_base	26	-15,5401%	44,33535%	8,69488%
	sc3_col	26	17,8571%	66,39550%	13,02123%

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
POG_SQ_SA	Equal variances assumed	1,505	,226	-2,133	50	,038	-33,39717%	15,65737%	-64,84592%	-1,94841%	
	Equal variances not assumed			-2,133	43,597	,039	-33,39717%	15,65737%	-64,96077%	-1,83357%	

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
POG_SQ_SA	sc1_base	26	-15,5401%	44,33535%	8,69488%
	sc2_iws	27	-13,7816%	22,00928%	4,23569%

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper	
POG_SQ_SA	Equal variances assumed	6,174	,016	-,184	51	,855	-1,75848%	9,55984%	-20,95066%	17,43370%	
	Equal variances not assumed			-,182	36,307	,857	-1,75848%	9,67171%	-21,36785%	17,85089%	

b) Customer satisfaction

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACsat	sc1_base	26	,128707	,7429844	,1457112
	sc4_noncol	25	-,499087	,9219132	,1843826

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
FACsat	Equal variances assumed	,555	,460	2,683	49	,010	,6277942	,2340108		,1575319	1,0980565
	Equal variances not assumed			2,671	46,083	,010	,6277942	,2350079		,1547708	1,1008176

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACsat	sc1_base	26	,128707	,7429844	,1457112
	sc3_col	26	,168183	1,2148902	,2382596

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
FACsat	Equal variances assumed	6,770	,012	-,141	50	,888	-,0394757	,2792837		-,6004335	,5214821
	Equal variances not assumed			-,141	41,406	,888	-,0394757	,2792837		-,6033328	,5243814

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACsat	sc1_base	26	,128707	,7429844	,1457112
	sc2_iws	27	,176224	,9541495	,1836262

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
FACsat	Equal variances assumed	,994	,323	-,202	51	,841	-,0475172	,2355225		-,5203484	,4253139
	Equal variances not assumed			-,203	48,891	,840	-,0475172	,2344149		-,5186180	,4235835

c) Customer loyalty

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACloy	sc1_base	26	,375615	,8794032	,1724652
	sc4_noncol	25	-,312295	1,1672068	,2334414

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
FACloy	Equal variances assumed	3,376	,072	2,383	49	,021	,6879100	,2886424	,1078614	1,2679585
	Equal variances not assumed			2,370	44,595	,022	,6879100	,2902397	,1031906	1,2726293

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACloy	sc1_base	26	,375615	,8794032	,1724652
	sc3_col	26	-,080296	,9653268	,1893162

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
FACloy	Equal variances assumed	,495	,485	1,780	50	,081	,4559105	,2560954	-,0584722	,9702932
	Equal variances not assumed			1,780	49,572	,081	,4559105	,2560954	-,0585823	,9704033

Group Statistics

	Scenario	N	Mean	Std. Deviation	Std. Error Mean
FACloy	sc1_base	26	,375615	,8794032	,1724652
	sc2_iws	27	,004781	,9071980	,1745903

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
FACloy	Equal variances assumed	,013	,910	1,510	51	,137	,3708340	,2455568	-,1221419	,8638098
	Equal variances not assumed			1,511	50,997	,137	,3708340	,2454099	-,1218476	,8635155

Appendix 12: UNIANOVA (main effects)

Between-Subjects Factors

		N
Scenario	1	26
	2	27
	3	26
	4	25

Tests of Between-Subjects Effects

Dependent Variable: POG_SQ_SA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	22956,299ª	3	7652,100	3,965	,010	,106
Intercept	6156,782	1	6156,782	3,190	,077	,031
Scenario	22956,299	3	7652,100	3,965	,010	,106
Error	193007,107	100	1930,071			
Total	222039,733	104				
Corrected Total	215963,406	103				

a. R Squared = ,106 (Adjusted R Squared = ,079)

Appendix 13: Syntax for linear regression with HCSE[54]

```
1  ▶▽ HCREG dv = POG_SQ_SA
2     /iv = sc3_col sc4_noncol sc2_iws
3     /const = 1
4     /method = 3
5     /covmat = 1
6  △  /test = 1
7
8
9
```

[54] Guideline of syntax obtained from http://how2stats.blogspot.de/2011/09/heteroskedasticity-adjusted-standard.html on 16th of January 2013.

Appendix 14: Linear regression analysis (moderator effects)

a) Component importance

```
Run MATRIX procedure:

HC Method
 3

Criterion Variable
 POG_SQ_S

Model Fit:
      R-sq         F         df1       df2          p
      ,1184     1,3136     7,0000    96,0000      ,2522

Heteroscedasticity-Consistent Regression Results
             Coeff    SE(HC)        t      P>|t|
Constant  -24,7665   14,9025   -1,6619     ,0998
sc3_col    44,3911   19,3212    2,2975     ,0238
sc4_nonc    6,0342   16,6113     ,3633     ,7172
sc2_iws    11,3664   15,5165     ,7325     ,4656
SUMcomp   -15,9924   16,5719    -,9650     ,3370
SUMc_sc3   21,0986   22,9352     ,9199     ,3599
SUMc_sc4   17,3359   19,6263     ,8833     ,3793
SUMc_sc2   17,1630   17,4776     ,9820     ,3286

Covariance Matrix of Parameter Estimates
           Constant   sc3_col   sc4_nonc    sc2_iws    SUMcomp    SUMc_sc3   SUMc_sc4   SUMc_sc2
Constant   222,0859  -222,0859  -222,0859  -222,0859   200,5235  -200,5235  -200,5235  -200,5235
sc3_col   -222,0859   373,3098   222,0859   222,0859  -200,5235   193,9737   200,5235   200,5235
sc4_nonc  -222,0859   222,0859   275,9352   222,0859  -200,5235   200,5235   240,7304   200,5235
sc2_iws   -222,0859   222,0859   222,0859   240,7615  -200,5235   200,5235   200,5235   204,3424
SUMcomp    200,5235  -200,5235  -200,5235  -200,5235   274,6295  -274,6295  -274,6295  -274,6295
SUMc_sc3  -200,5235   193,9737   200,5235   200,5235  -274,6295   526,0231   274,6295   274,6295
SUMc_sc4  -200,5235   200,5235   240,7304   200,5235  -274,6295   274,6295   385,1905   274,6295
SUMc_sc2  -200,5235   200,5235   200,5235   204,3424  -274,6295   274,6295   274,6295   305,4657

Setwise Hypothesis Test
      F         df1       df2          p
    ,9643     1,0000    96,0000      ,3286

Variables in Set:
 SUMc_sc2

------ END MATRIX -----
```

b) Power structure

```
Run MATRIX procedure:

HC Method
 3

Criterion Variable
 POG_SQ_S

Model Fit:
       R-sq           F         df1          df2           p
      ,2262      3,6986      7,0000      96,0000       ,0014

Heteroscedasticity-Consistent Regression Results
            Coeff     SE(HC)           t      P>|t|
Constant  -17,1378    8,1367     -2,1062      ,0378
sc3_col    32,9070   16,3724      2,0099      ,0472
sc4_nonc   -5,8247    9,9607      -,5848      ,5601
sc2_iws     2,9077    9,3618       ,3106      ,7568
SUMpower  -33,2324   11,8608     -2,8019      ,0061
SUMp_sc3   57,3594   25,9402      2,2112      ,0294
SUMp_sc4   16,6913   13,6385      1,2238      ,2240
SUMp_sc2   38,0758   12,7815      2,9790      ,0037

Covariance Matrix of Parameter Estimates
          Constant    sc3_col    sc4_nonc     sc2_iws    SUMpower    SUMp_sc3    SUMp_sc4    SUMp_sc2
Constant   66,2054   -66,2054    -66,2054    -66,2054     53,7097    -53,7097    -53,7097    -53,7097
sc3_col   -66,2054   268,0568     66,2054     66,2054    -53,7097    -75,2879     53,7097     53,7097
sc4_nonc  -66,2054    66,2054     99,2156     66,2054    -53,7097     53,7097     61,0993     53,7097
sc2_iws   -66,2054    66,2054     66,2054     87,6438    -53,7097     53,7097     53,7097     39,8148
SUMpower   53,7097   -53,7097    -53,7097    -53,7097    140,6777   -140,6777   -140,6777   -140,6777
SUMp_sc3  -53,7097   -75,2879     53,7097     53,7097   -140,6777    672,8921    140,6777    140,6777
SUMp_sc4  -53,7097    53,7097     61,0993     53,7097   -140,6777    140,6777    186,0085    140,6777
SUMp_sc2  -53,7097    53,7097     53,7097     39,8148   -140,6777    140,6777    140,6777    163,3678

Setwise Hypothesis Test
        F        df1         df2           p
   8,8743     1,0000     96,0000       ,0037

Variables in Set:
 SUMp_sc2

------ END MATRIX -----
```

Appendix 15: Descriptive statistics (SUMpower)

Statistics		
SUMpower		
N	Valid	104
	Missing	0
Mean		-,0192
Median		,0000
Std. Deviation		,74202
Variance		,551
Range		3,50
Minimum		-1,75
Maximum		1,75
Percentiles	25	-,5000
	50	,0000
	75	,5000

Appendix 16: Correlation matrix for moderator effects (power structure)

		sc3_col	sc4_noncol	sc2_iws	SUMpower	SUMp_sc3	SUMp_sc4	SUMp_sc2
					Correlations			
sc3_col	Pearson Correlation	1	-,325**	-,342**	,083	,105	,081	-,036
	Sig. (2-tailed)		,001	,000	,404	,289	,415	,717
	N	104	104	104	104	104	104	104
sc4_noncol	Pearson Correlation	-,325**	1	-,333**	-,153	-,034	-,249*	-,035
	Sig. (2-tailed)	,001		,001	,121	,731	,011	,724
	N	104	104	104	104	104	104	104
sc2_iws	Pearson Correlation	-,342**	-,333**	1	,090	-,036	,083	,105
	Sig. (2-tailed)	,000	,001		,365	,718	,403	,287
	N	104	104	104	104	104	104	104
SUMpower	Pearson Correlation	,083	-,153	,090	1	,487**	,518**	,525**
	Sig. (2-tailed)	,404	,121	,365		,000	,000	,000
	N	104	104	104	104	104	104	104
SUMp_sc3	Pearson Correlation	,105	-,034	-,036	,487**	1	,008	-,004
	Sig. (2-tailed)	,289	,731	,718	,000		,932	,970
	N	104	104	104	104	104	104	104
SUMp_sc4	Pearson Correlation	,081	-,249*	,083	,518**	,008	1	,009
	Sig. (2-tailed)	,415	,011	,403	,000	,932		,930
	N	104	104	104	104	104	104	104
SUMp_sc2	Pearson Correlation	-,036	-,035	,105	,525**	-,004	,009	1
	Sig. (2-tailed)	,717	,724	,287	,000	,970	,930	
	N	104	104	104	104	104	104	104

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix 17: Collinearity diagnostics (Tolerance & VIF) (power structure)

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	sc3_col	,660	1,515
	sc4_noncol	,641	1,560
	sc2_iws	,656	1,524
	SUMpower	,225	4,447
	SUMp_sc3	,488	2,051
	SUMp_sc4	,449	2,229
	SUMp_sc2	,450	2,222
a. Dependent Variable: POG_SQ_SA			

(Cut off threshold: VIF ≤ 10)

Appendix 18: Descriptive statistics (additional effects)

a) Customer satisfaction

				Report				
FACsat								
Scenario	N	Mean	Median	Std. Deviation	Variance	Range	Minimum	Maximum
sc1_base	26	,128707	-,106503	,7429844	,552	2,7370	-,5128	2,2242
sc2_iws	27	,176224	,128708	,9541495	,910	3,3785	-1,1543	2,2242
sc3_col	26	,168183	-,512772	1,2148902	1,476	4,1055	-1,8813	2,2242
sc4_noncol	25	-,499087	-,512772	,9219132	,850	4,1055	-3,2497	,8557
Total	104	,000000	-,512772	1,0000001	1,000	5,4740	-3,2497	2,2242

b) Customer loyalty

				Report				
FACloy								
Scenario	N	Mean	Median	Std. Deviation	Variance	Range	Minimum	Maximum
sc1_base	26	,375615	,483197	,8794032	,773	3,5387	-2,1708	1,3679
sc2_iws	27	,004781	,022971	,9071980	,823	3,5387	-2,1708	1,3679
sc3_col	26	-,080296	,022971	,9653268	,932	3,5387	-2,1708	1,3679
sc4_noncol	25	-,312295	-,401478	1,1672068	1,362	3,5387	-2,1708	1,3679
Total	104	,000000	,022971	,9999999	1,000	3,5387	-2,1708	1,3679

Appendix 19: Linear regression analysis (additional effects)

a) Customer satisfaction

```
Run MATRIX procedure:

HC Method
 3

Criterion Variable
 FACsat

Model Fit:
        R-sq            F          df1          df2              p
       ,0799       3,0496      3,0000   100,0000          ,0321

Heteroscedasticity-Consistent Regression Results
              Coeff      SE(HC)          t      P>|t|
Constant      ,1287       ,1486       ,8661       ,3885
sc3_col       ,0395       ,2848       ,1386       ,8900
sc4_nonc     -,6278       ,2398    -2,6182       ,0102
sc2_iws       ,0475       ,2389       ,1989       ,8428

Covariance Matrix of Parameter Estimates
           Constant    sc3_col    sc4_nonc     sc2_iws
Constant      ,0221     -,0221      -,0221      -,0221
sc3_col      -,0221      ,0811       ,0221       ,0221
sc4_nonc     -,0221      ,0221       ,0575       ,0221
sc2_iws      -,0221      ,0221       ,0221       ,0571

Setwise Hypothesis Test
        F         df1         df2            p
     ,0395      1,0000    100,0000        ,8428

Variables in Set:
 sc2_iws

------ END MATRIX -----
```

b) Customer loyalty

```
Run MATRIX procedure:


HC Method
 3


Criterion Variable
 FACloy


Model Fit:
       R-sq          F         df1         df2          p
       ,0609     2,0847     3,0000   100,0000       ,1070


Heteroscedasticity-Consistent Regression Results
             Coeff     SE(HC)           t     P>|t|
Constant      ,3756      ,1759      2,1356      ,0352
sc3_col      -,4559      ,2612     -1,7457      ,0839
sc4_nonc     -,6879      ,2961     -2,3229      ,0222
sc2_iws      -,3708      ,2502     -1,4823      ,1414


Covariance Matrix of Parameter Estimates
          Constant    sc3_col    sc4_nonc     sc2_iws
Constant      ,0309     -,0309      -,0309      -,0309
sc3_col      -,0309      ,0682       ,0309       ,0309
sc4_nonc     -,0309      ,0309       ,0877       ,0309
sc2_iws      -,0309      ,0309       ,0309       ,0626


Setwise Hypothesis Test
         F        df1        df2          p
     2,1972     1,0000   100,0000       ,1414


Variables in Set:
 sc2_iws


------ END MATRIX -----
```

Appendix 20: Mann-Whitney-U-tests (customer loyalty)

Ranks				
	Scenario	N	Mean Rank	Sum of Ranks
FACloy	sc1_base	26	30,27	787,00
	sc4_noncol	25	21,56	539,00
	Total	51		

Test Statistics[a]	
	FACloy
Mann-Whitney U	214,000
Wilcoxon W	539,000
Z	-2,132
Asymp. Sig. (2-tailed)	,033
a. Grouping Variable: Scenario	

Ranks				
	Scenario	N	Mean Rank	Sum of Ranks
FACloy	sc1_base	26	30,00	780,00
	sc3_col	26	23,00	598,00
	Total	52		

Test Statistics[a]	
	FACloy
Mann-Whitney U	247,000
Wilcoxon W	598,000
Z	-1,689
Asymp. Sig. (2-tailed)	,091
a. Grouping Variable: Scenario	

Ranks

	Scenario	N	Mean Rank	Sum of Ranks
FACloy	sc1_base	26	30,21	785,50
	sc2_iws	27	23,91	645,50
	Total	53		

Test Statistics[a]

	FACloy
Mann-Whitney U	267,500
Wilcoxon W	645,500
Z	-1,502
Asymp. Sig. (2-tailed)	,133

a. Grouping Variable: Scenario

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