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# **TO BE OR NOT TO BE PRICE-CONSCIOUS**

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## **A SEGMENT-BASED ANALYSIS OF COMPROMISE EFFECTS IN MARKET-LIKE FRAMINGS**

**Holger Müller**

### **ABSTRACT**

Numerous researchers have investigated the compromise effect, according to which a middle option of a consideration set is assumed to be perceived more attractive by consumers, thus becoming more likely to be chosen than the extreme options. However, a closer examination of the experimental designs that were used in previous studies on compromise effects clearly reveals a lack of realism in terms of forced choices between fictitious options in hypothetical choice settings of student samples. In two consecutive studies, this article demonstrates that the compromise effect is robust even in an enhanced design that incorporates basic conditions of real purchase decisions in lab-based experiments. Specifically, the relative share of the middle option increases significantly in an overall analysis when experienced consumers make unforced decisions between real brands in a binding choice context. However, segmented analysis indicates substantial differences, meaning that (1) the compromise effect is strong and significant among quality-seeking consumers; whereas (2) the compromise effect is weak and insignificant among price-conscious subjects.

### **KEYWORDS**

Compromise Effect, Experimental Designs, Price Consciousness, Purchase Decisions

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## THEORETICAL BACKGROUND

### Compromise Effects

In contrast to main assumptions of the theory of rational choice, numerous empirical studies suggest that consumers often construct their preferences at the time of decisions rather than rely on predefined stable underlying preference structures (Bettmann, Luce, & Payne, 1998; Drolet, 2002). Hence, subjects' choice is assumed to be context-dependent, and several so called the context effects have been identified by researchers in the past. Specifically, researchers confirmed that consumers' preferences are substantially influenced by the relative positions of options in the perceptual product space and that compromise alternatives in terms of options that are positioned between other non-dominating alternatives are more preferred than extreme options (see e.g. Huber, Payne, & Puto, 1982; Huber & Puto, 1983; Kivetz, Netzer, & Srinivasan, 2004; Pan & Lehmann, 1993; Ratneshwar, Shocker, & Stewart, 1987; Sheng, Parker, & Nakamoto, 2005; Sinn et al. 2007; Simonson, 1989). As an example, adding a high-price/quality alternative H to a choice set that consists of a middle (M) and a low-price/quality option (L) is expected to increase the choice share of the medium option that is the compromise alternative M. This particular context effect was termed the compromise effect.

Research on compromise effects has a long tradition in marketing literature. While numerous empirical studies have shown that the compromise effect is common and not exceptional, there is still no comprehensive theory that allows for predictions of the occurrence and strength (Kivetz, Netzer, & Srinivasan, 2004). However, researchers agree on the point that value shifts and value added processes are governing compromise effects (Park & Kim, 2005; Pechtl, 2009). As for explanations of these processes, several theories on decision making were developed. Specifically, researchers distinguish two types in terms of complex rules of decision making or simple choice heuristics (for an overview, see e.g.: Gierl & Stieglmayr, 2010; Kivetz, Netzer, & Srinivasan, 2004). As for complex decision rules, literature provides regret-based theories such as the expected-loss-minimization (Sheng, Parker & Nakamoto, 2005) and the extremeness aversion principle as explanations for the compromise effect (Simonson, 1989; Simonson, 1999). Extremeness aversion extends the basic principle of loss aversion to advantages and disadvantages of options in the choice set provided that options are evaluated with respect to attributes with diminishing marginal values and perceived losses loom larger than corresponding gains in terms of an endowment effect (Tversky & Kahneman, 1991). As a result, the addition of the extreme option H is assumed to increase the choice share of the compromise option M, because M has only small advantages and disadvantages with respect to option L and H, whereas both options L and H have larger advantages and disadvantages with respect to each other (Chernev, 2005; Kivetz, Netzer, & Srinivasan, 2004; Sheng, Parker, & Nakamoto, 2005; Simonson & Tversky, 1992). As for particular choice heuristics that account for the compromise effect, literature provides the distance-density theory (Dhar & Glazer, 1996; Simonson & Tversky, 1992) and the elimination-by-aspects theory according to which subjects sequentially eliminate weak options in a lexicographic decision process (Bettmann, 1979; Bettmann, Luce, & Payne, 1998; Tversky, 1972). In addition, Simonson (1989) proposed that the compromise effect occurs because subjects tend to search for reasons in terms of finding sufficient justification for their own choices. As a result, subjects prefer the middle compromise option M because it has advantages with respect to two attributes, whereas the extreme options L and H only provide advantages on one of the two relevant attributes. Hence, choosing the compromise option is perceived to be more easily justified to others.

While this article does not aim at validating existing theories proposed in literature, it contributes to the generalization of the compromise effect in terms of the widely accepted paradigm of replication with extensions (Hubbard & Armstrong, 1994; Pechtl, 2009). Hence, two fundamental research questions are examined in the present studies: first, will the compromise effect generalize to design settings that incorporate basic conditions of real purchases and can therefore be reasonably considered a kind of "market-like" decisions, and second, are there significant differences in the magnitude of the compromise effect among price- and quality-conscious buyer segments?

## Hypotheses Development

Academic research on compromise effects has most often been conducted in laboratory-based experiments (see e.g. Chang & Liu, 2008; Chernev, 2004; Drolet, 2002; Gierl & Stieglmayr, 2010; Simonson, 1989; Sinn et al., 2007). This approach provides several advantages such as ensuring a sufficient response among participants, lowering the total cost of survey, and controlling other factors that might significantly influence subjects' choice behavior. However, a closer examination of the designs that were used in the previous experimental studies clearly reveals a lack of realism. Specifically, researchers most often observed forced choices of subjects between fictitious product profiles in non-binding choice contexts, hence excluding no-choice options, and eliciting subjects' preferences and attitudes towards the profiles by means of hypothetical choices. In contrast, in real every day purchase decisions, experienced consumers choose between real branded products in a binding choice context.

This failure to incorporate basic conditions of real purchases in the experimental settings of lab-based studies is surprising because researchers explicitly stressed the need for replicating research on compromise effects in more market-like decisions, and natural consumer environments, respectively (Simonson, 1989; Simonson & Tversky, 1992; Sinn et al., 2007). Hence, an experimental design described in the next section was applied in the present studies, incorporating basic conditions of real purchases with respect to habitual buying decisions in several fast moving consumer good categories. Since the compromise effect has been supported across many categories in previous studies using artificial designs (see e.g. Sheng, Parker, & Nakamoto, 2005; Simonson, 1989; Simonson & Tversky, 1992; Sinn et al., 2007), it is assumed to occur even in the enhanced experimental design setting.

*H1: The compromise effect occurs when experienced consumers make unforced decisions between real brands in a binding choice context.*

Researchers explicitly stressed the need for a segmented analysis based on psychographic characteristics of respondents in order to gain deeper insights into the behavioral mechanisms that induce or even promote the compromise effect (Pechtl, 2009). Specifically, Sheng, Parker, & Nakamoto (2005) invited to investigate the influence of individual differences and characteristics of the choice task as well as the product such as the availability or the quantity of given information about options on the compromise effect. Therefore, a second aim of the present studies is to investigate the moderating role of a particular psychographic characteristic in terms of the consumers' quality and price consciousness on the magnitude of the compromise effect in the enhanced design.

In general, prices, brands, and brand-associated qualities are considered extrinsic information chunks that subjects tend to use in habitual buying decisions to reduce cognitive efforts and facilitate decision-making (Zeithaml, 1988). As for price-conscious or even deal-prone consumers, subjects are assumed to be strongly focused on the prices of preferred brands relative to their internal reference points, hence being likely to neglect to some extent the quality values of the brands under consideration (Winer, 1995). In contrast, since the price of an option must be considered a sacrifice in terms of an attribute that has a negative part worth and correlates negatively with the perceived net utility of alternatives, it can reasonably be assumed that prices are essential even in decisions of quality-seeking subjects. Therefore, regardless of whether subjects use complex decision rules or simple choice heuristics, the compromise effect is expected to be weaker among price-conscious subjects. As an example, according to the extremeness aversion principle, the tendency for losses to be more unpleasant than equivalent gains appears to be greater for quality than price (Heath & Chatterjee, 1995; Simonson & Tversky, 1992). Hence, the magnitude of the compromise effect should be larger among quality-seeking subjects. In addition, according to the heuristic of choice justification, only subjects who evaluate options with respect to both relevant attributes are assumed to be affected by compromise effects. Therefore, it is hypothesized:

*H2: Compared to choices of deal-prone consumers, the compromise effect is stronger among quality-conscious subjects.*

### General Discussion of the Enhanced Experimental Design

To investigate the robustness of the compromise effect and the efficacy of subjects' price and quality consciousness as a moderating factor, two experiments using student samples were conducted in computer laboratories. It has to be pointed out that the use of students as participants has its drawbacks, and that the propriety of this approach has been subjected to empirical studies for some time. Generally, it is argued in literature that further replication studies are required before any generalization with respect to the behavior of nonstudent subjects (e.g. regular consumers) can be inferred due to differing response patterns and variability in data (Peterson, 2001). However, student samples are considered appropriate for basic effect application research such as the research on a particular moderating factor of the compromise effect conducted in this investigation (Calder et al., 1981). In addition, it has to be pointed out that the undergraduates selected in the present studies can be reasonably considered a regular buyer segment with respect to general target groups in the categories under test (fast moving consumer goods). The recruitment of adequate participants as well as the payment of an obligatory show-up-fee (see e.g. Simonson, 1989) were executed two weeks before the laboratory-based experiments took place in order to evade biasing effects such as the house money effect, which is often induced when cash incentives are provided in experiments (Thaler & Johnson, 1990).

To enhance the experimental design in the present study, several basic conditions of real purchases were deliberately incorporated in the choice settings. First, subjects faced unforced choices similar to regular buying decisions at the point of sale in which consumers always have the option of not buying any of the products under consideration, for instance due to overly expensive offerings. Moreover, the importance of this issue is stressed by experimental results confirming that excluding no-choice options tends to artificially promote the occurrence of a compromise effect (Dhar, 1997; Dhar & Simonson, 2003).

Second, in some of the studies on compromise effects, prices were excluded deliberately or subjects were told that options were equally priced to avoid price quality inferences (Chernev, 2005). Moreover, researchers pointed out, that compromise effect-inducing differences in evaluation of perceived advantages and disadvantages of options may not exist for certain attributes such as prices, and that the extremeness aversion principle holds primarily for quality attributes (Sheng, Parker & Nakamoto, 2005; Simonson & Tversky, 1992). However, extrinsic information cues such as prices, brands, and brand-associated qualities are considered essential information chunks that are relevant in real purchase decisions of consumers especially in fast moving consumer good categories (McIntyre & Miller, 1999; Sinn et al., 2007). Therefore, real brands and realistic price levels were selected as stimuli in both studies instead of fictitious options (e.g. labeled with letters or numbers) or artificial product profiles that only consist of two manipulated intrinsic attribute values and exclude prices of options.

Moreover, recent research confirmed that when some options of a choice set are less familiar than others or even unknown, consumers' decisions are substantially affected by the brand familiarity rather than the relative position of options in terms of combinations of attribute values in the particular choice set (Sinn et al., 2007). Because consideration sets of experienced consumers in fast moving consumer good categories typically consist of up to six known and relevant brands, only subjects with sufficient buying experience and brand familiarity with respect to each of the test products were recruited in the present studies.

As for the experimental conditions, following one of the paradigm designs in research on compromise effect, a high-price/premium quality brand (H) was added to a core set of a low- and a medium-price/quality brand (L, M) (Simonson, 1989). Hence, participants were presented with choice sets consisting of either two (pair set: CS2) or three options in the triplet CS3 in a between-subjects design. While several researchers criticized the adequacy of between-subjects designs by pointing out that no single subject exhibited the hypothesized behavior, it was deliberately applied in the present studies similar to most of prior research in the field to avoid memory-based response as well as possible biasing effects during intervals between different sections of the survey such as variety seeking and others (Heath & Chatterjee, 1995; Ratneshwar, Shocker, & Stewart, 1987). As an example, Heath & Chatterjee (1995) deliberately excluded Huber, Payne, & Puto's (1982) within-subjects data from a meta analysis on context effects because in that particular study, three-brand choice sets were presented prior to two-brand sets, hence possibly inducing a carryover of perceptual biases.

As for the experimental procedure, purchase decisions of participants were observed in multistage choice scenarios between real products that explicitly included a no-buy option. Hence, participants had to indicate in several purchase decisions which brand, if any, they would buy, given varying price levels of the

brands (price scenarios). The price scenarios contained a systematic trade-off in terms of an increasing price of option L and a decreasing price of the compromise option M, whereas the expensive option H varied at random around its market price (see Figure 1). Thus, the set of different trade-off lines covered a particular trade-off range in the product space in which the compromise option M is always located between the two extreme options L and H in accordance with the paradigm research design described above (Chang & Liu, 2008). It should be noted that the concept of trade-off lines is well established in research on compromise effects, and it must be distinguished from individual indifference curves as discussed in detail in recent literature (Drolet, Simonson, & Tversky, 2000; Gierl & Stieglemayr, 2010; Sheng, Parker, & Nakamoto, 2005).

– *INSERT FIGURE 1 ABOUT HERE* –

In order to introduce choice consequences for subjects, several researchers proposed to inform participants that some of them, drawn at random, would receive a particular item they selected during experiments, hence providing subjects with free gifts (see e.g. Simonson & Tversky, 1992). In contrast, to introduce market-like consequences in terms of paying prices in return and avoid a hypothetical bias, a random payoff mechanism (RPM), known from elicitation of individual preferences in research on decision making under risk, was applied in the present studies (Grether & Plott, 1979). Subjects were instructed at the start of the experiment that each participant had to draw a ball from a box containing numbered balls at the end of the survey. The number on the ball indicated one of subject's choices during the experiment that became binding. That means that participants either were obliged to buy (i.e. spend private pocket money to pay the price of a chosen product for receiving it) or not buy any of the products in case of having chosen the no-buy option in that particular scenario. There is empirical evidence that the RPM can be considered incentive compatible (Braga, Humphrey, & Starmer 2009). Hence, it provides a substantial motivation for subjects to truthfully state their preferences between options. Moreover, it induces independence of each decision of a subject, thus avoiding portfolio effects which are assumed to bias choice behavior in multistage decision settings (Grether & Plott, 1979).

Overall, the setting of the buying decisions in the present studies can reasonably be classified as an enhanced laboratory-based experiment that contains, in fact, a touch of realism (McIntyre & Miller, 1999). Similar to some of the basic conditions of regular purchases, experienced consumers faced unforced buying decisions between real brands in a binding choice context.

## STUDY ONE

### Experimental Design

Participants of Study One were 233 female undergraduates from different fields of study at a German University. Based on information gathered in numerous preliminary interviews of matched pretest samples, two periodically purchased fast moving consumer goods (toothpaste, shampoo) were selected. As for specific product attribute values, first-in-mind-statements about main drivers of purchase decisions confirmed a focus in both categories on the whole bundle of quality-related attributes that subjects associate with a brand and the price as general extrinsic information cues. Hence, pretest samples' price estimations and quality rankings (beginning with the least) of frequently purchased brands were used to select adequately positioned choice options (see Table 1). Accordingly, two standard items of brands offered nationally at low- and medium-price and quality levels served as option L (Dentagard, Herbal Essences) and M (Colgate, Elvital) of the core sets, whereas a differentiated unit represented the expensive premium option H (Sensodyne, P. Mitchell) in the triplet. In a between-subjects design, participants were randomly assigned to the experimental conditions CS2 (L, M) and CS3 (L, M, H).

– *INSERT TABLE 1 ABOUT HERE* –

As for the procedure, computer-aided interviews (CAI) were conducted. After formal instructions, subjects' willingness to buy was determined in multistage choices in the first section of the survey. Placed into cabins with virtual shelves on a computer screen, subjects had to indicate in a total of fourteen purchase

decisions (i.e. seven price scenarios in each category) which brand, if any, they would buy, given particular price levels of the brands. Six of the category-specific decisions contained the systematic price trade-off between the brands of the core set as described above. Additionally, the price scenario presented in the second decision in each category was replicated at the end of this section in order to check choice consistency at an individual level. Both the brand positions in the virtual shelf on the computer screen as well as the price scenario orders were determined at random to avoid biasing influences such as the starting point bias or positioning effects (Chang & Liu, 2008; Mitchell & Carson, 1989; Pechtl, 2009). In the second section, demographic and psychographic characteristics of subjects were gathered (e.g. age, faculty, purchase frequencies). Specifically, subjects had to indicate in a self-assessing direct measurement on a nominal scale whether their point-of-sale purchases in the categories under test are generally quality- or price-driven. To introduce real consequences for participants, the random payoff mechanism (RPM) was applied at the end of this section. Each interview did not last longer than 15 minutes.

## Results

According to contingency analysis of demographic and psychographic information, there are no significant differences between the experimental conditions CS2, CS3, and the pretest samples (each  $\chi^2 < 5.1$ , n.s.). Of the subjects in the experimental conditions, 27% are price-conscious in the category shampoo and 46% with respect to toothpastes, hence indicating a segment of 73% quality-oriented subjects in the category shampoo (toothpaste: 54%).

In accordance with previous research, the measurement of the compromise effect focuses on aggregated choices of subjects in each experimental condition (Pechtl, 2009). Accordingly, Table 2 shows the absolute percentage of total purchase decisions for each option in the overall sample and the segments under both experimental conditions. At first glance, two particularities become salient. First, the choice share of the compromise option M consistently turns out to be higher among quality-conscious subjects under both experimental conditions in each category. Moreover, the absolute share of the expensive premium option H is considerably low in Study One. Therefore, it can be reasonably considered an irrelevant alternative in the particular setting of this study. While literature mainly focuses on adjusted relative choice shares when compromise effects are investigated (e.g. Simonson, 1989; Simonson & Tversky, 1992), the irrelevance of the premium option H allows for direct comparisons of the absolute shift in preferences in terms of differing choice shares of the core set brands (L, M) under both experimental conditions.

- INSERT TABLE 2 ABOUT HERE -

As for hypothesis H1, the overall analysis clearly supports the occurrence of a compromise effect in the enhanced experimental design. The addition of the premium option to the core set brands in CS3 induces a significant shift of preferences towards the compromise alternative in both categories. As an example, the choice share of the extreme low-price/quality toothpaste Dentagard decreases by 13%, whereas the middle option Colgate increases its choice share by 12% when the premium option Sensodyne is included in the choice set. Therefore, the compromise effect persists even in unforced binding buying decisions of experienced consumers between real brands.

However, a segmented analysis reveals that this overall shift in preferences is primarily induced by decisions of quality-conscious consumers. The larger absolute gain in choice share of the compromise brand as well as the fact that the compromise effect turns out to be significant only for quality-conscious subjects in the test categories both support hypothesis H2. For instance, as for the toothpaste category, the compromise brand's share among price-sensitive consumers increases by 3% from 15% to 18%, whereas it gains a 17% increase in share from 33% to 50% among quality-conscious subjects when the premium option H is added to the choice set in experimental condition CS3. Hence, the compromise effect is more likely to obtain among quality-conscious consumers.

## STUDY TWO

### Experimental Design

In Study Two, the general composition of the sample as well as the range of categories under test was deliberately extended. As for the experimental conditions, participants were 36 female and 45 male undergraduates who proved to be experienced consumers of the test products in preliminary recruitment interviews. In addition, a matched control condition of 86 experienced consumers was simultaneously interviewed to check options' position in the product space in terms of price/quality perceptions similar to other studies in the field (see e.g. Sinn et al., 2007). Five frequently purchased fast moving consumer goods (toothpaste, hair repair shampoo, hazelnut spread, candy bar, margarine) were preselected as categories (see Table 3). In each category, the two top selling low- and medium-price/quality brands offered nationally were included in the core set CS2 (L, M), whereas a very expensive premium quality brand with a smaller market share was added to this core set in condition CS3 (L, M, H).

Analogously to Study One, subjects' willingness to buy was determined in the first section of the survey. Subjects were presented with a total of 25 numbered purchase scenarios (i.e. four systematic price trade-offs plus one replication of the second choice scenario in each category) and had to indicate which product, if any, they would buy. Again, the order of the systematic price trade-off scenarios and the positions of options varied at random in each category. In the second part of the experiment, demographic and psychographic characteristics of respondents such as the price and quality consciousness were elicited in direct statements. At the end of the experiment, the random payoff-mechanism (RPM) was applied.

In the control condition, psychographic characteristics and product evaluations were elicited. Specifically, participants were asked to assess either the two alternatives of the core set (L, M) or the three triplet options (L, M, H) to validate the perceived price/quality position of the test brands under both experimental conditions. Hence, subjects had to rank the options of the choice set of the concerned experimental condition by price and quality beginning with the lowest.

### Results

According to contingency analysis of demographic and psychographic information, there are no significant differences between the experimental conditions CS2, CS3, and the control condition (each  $\chi^2 < 4.82$  n.s.). Moreover, manipulation of positions of options in the product space in terms of perceived price and quality levels worked as expected (see Table 3). Except for the assessment of candy bars in the control condition CS3, mean price and quality rankings of the preselected extreme low-value options consistently turn out to be lower than middle and premium options in each category in the control condition. As for a segmented analysis, there are no significant differences in the mean rankings of options across price- and quality-conscious subjects.

- INSERT TABLE 3 ABOUT HERE -

Since the premium options H gained somewhat higher absolute choice shares than in Study One, adjusted relative shares were determined for the brands of the core set to analyze the compromise effect in Study Two (Simonson, 1989; Simonson & Tversky 1992). In accordance with previous research in the field, this relative share of an option in a choice set is defined as the ratio of decisions for the compromise option (M) to the total number of decisions for the two options of the core set (L, M) under each of the experimental conditions CS2 and CS3 (see e.g. Pechtl, 2009). Table 4 shows the results of the overall and the segment-based analysis in each category by means of two particular indicators: the gain in the adjusted choice share of the compromise brand M (Gain%) and a rate of increase (RI) in terms of the ratio of the adjusted choice share of the compromise option M in CS3 divided by the adjusted share in CS2.

In an overall analysis, the compromise effect turns out to be significant in each category in the enhanced experimental design of Study Two. The average increase in the adjusted share of the compromise option M is 16% over the range of all categories with a 1.31 mean rate of increase. However, in accordance with the results of Study One, the segmented analysis confirms that the compromise effect is substantial and statistically significant only among quality-oriented subjects in each category. Hence, the mean gain in adjusted choice share is about 24%, whereas the average rate of increase is 1.45. In sharp contrast, the addition of a premium option to the core set induces non-significant weaker compromise effects among price-conscious consumers. Except for the margarine category, there is no significant shift in relative preferences

from the low-price/quality product L to the compromise option M. Specifically, the mean gain in adjusted choice share of M is below 10% with a 1.21 rate of increase.

The observed differences in the RI and Gain% indicators of deal-prone and quality-seeking subjects turn out to be significant in a Kolmogorov-Smirnow-Test ( $Z=1.58$ ,  $p<0.05$ ). Therefore, hypothesis H1 as well as H2 are strongly supported by the results of Study Two.

- INSERT TABLE 4 ABOUT HERE -

As for a validation of participants' decisions in the present studies, several indicators are tested. At first, more than nine out of ten participants (92%) fulfilled their buying obligation in both of the studies. As a result of this high compliance rate, the majority of subjects can reasonably be assumed to be fully aware of the consequences of their buying decisions during the interview. Moreover, according to participants' statements after the experiment, more than 98% of the subjects are satisfied with the outcome of the decision in the drawn binding scenario. Hence, there is no indication of substantial regret of subjects who were obliged to purchase products with their private money or participants who could not buy any of the products because they chose the no-buy option in the binding scenario. In addition, the overall analysis of the replicated check scenarios confirms a high level of decision consistency even at an individual level (>95%). Specifically, no significant differences across experimental conditions are found. Thus, it can reasonably be concluded that the compromise effect is not induced by a cognitive mental overload or an increased choice error due to a somewhat higher degree of complexity of the decision environment in condition CS3 in which three (triplet) instead of only two options (core set) are simultaneously offered to the participants.

## GENERAL DISCUSSION

While the experimental investigation of compromise effects has a long tradition in marketing literature, the results of the present studies provide some new insights into this field of research. Specifically, according to a long-established paradigm in the academic research, the need for applying enhanced experimental designs in laboratory-based replications with extensions is stressed to generalize the major findings of recent studies on the compromise effect. Moreover, results indicate detailed re-examinations of the robustness of the compromise effect among particular buyer segments with respect to psychographic characteristics.

Empirical studies on context-dependent choice behavior are often based on the assumption of homogenous samples (Pechtl, 2009). In contrast, there are only a few studies that systematically investigated occurrence and magnitude of context effects across heterogeneous subpopulations such as high- vs. low-involved subjects or experienced vs. non-experienced consumers (see e.g. Herrmann et al., 2009; Pettibone & Wedell, 2007; Ratneshwar, Shocker, & Stewart, 1987). More specifically, in a recently published study, Sinn et al. (2007) examined the moderating role of brand familiarity on the compromise effect. The investigation of segment-specific differences can provide valuable information to both academics as well as to marketing practitioners. As for the former, segmented analysis allows for detailed investigations of underlying conditions under which compromise effects are likely to obtain to validate existing theories that account for the compromise effect. As an example, according to the results of both present studies, significant compromise effects occur in each category under test in an unspecified overall analysis of the whole samples. However, as shown in the previous sections, this increase in choice share of the compromise brand is primarily induced by significant preference shifts and changes in choices of quality-conscious subjects, but not by price-oriented consumers. While not explicitly examined in the present studies, this finding suggests a greater loss aversion for the quality attribute than for price, hence facilitating the compromise effect among quality-seeking subjects in accordance with other studies in the field (see e.g. Heath & Chatterjee, 1995, Simonson & Tversky, 1992).

As for managerial implications, empirical results are supposed to facilitate assortment planning, for instance in terms of organizing in-store displays or designing advertising flyers. However, neglecting segment-specific differences, a general suggestion of including and promoting premium products in product lines of a particular retail chain could be misleading, especially when this retailer is positioned as a hard line-discounter that mainly attracts deal-prone, price-conscious or to some extent even thrifty buyers. As such,

consumers' choices and preference structures may remain unchanged or become highly unlikely to be affected by the inclusion of expensive products that are of premium quality.

As for the enhanced experimental design used in this replication with extensions, the compromise effect persists in the present studies on binding choices. This is rather a new finding, since researchers most often only conducted hypothetical studies, hence examining the compromise effect in choice settings that must be considered artificial to some extent. Therefore, the more general question arises as to what extent the magnitude and the efficacy of moderating factors of the compromise effect might have been overrated in previous investigations. This requires further research on the robustness of the compromise effect both in laboratory-based studies as well as in field experiments at the point of purchase.

Moreover, according to the results of the present studies, the compromise effect persists in unforced decisions. In sharp contrast, previous studies on the topic found the compromise effect to be substantially reduced or even avoided when subjects' choices are unforced in terms of including no-choice options in the framing of decisions (Dhar, 1997; Dhar & Simonson, 2003). As a possible explanation, it is argued in literature that the included no-choice options might substitute the compromise alternative as the option that is perceived the "safest choice", especially when consumers lack sufficient cognitive resources or are not familiar with the products (Chang & Liu, 2008; Dhar, Nowlis, & Sherman, 2000; Sheng, Parker, & Nakamoto, 2005). Again, further research should address this issue in replicated studies to examine the moderating role of the presence of no-buy options and the preference uncertainty on the occurrence of the compromise effect in enhanced experimental designs.

While the present studies deliberately incorporate basic conditions of real purchases and can be reasonably considered an initial step in research on compromise effects in more natural consumer environments, there are still some constraints and limitations of the applied experimental framing that should be discussed briefly. In keeping with a main paradigm design in the field, the present studies use product spaces that consist of two or three alternatives that are described by two attributes. In contrast, as recently pointed out by other researchers, consumers often make choices between many options that may diverge in far more than two attributes in real buying decisions (Chang & Liu, 2008). As for the attributes, recent research confirmed that the alignability of options in terms of the degree of comparability of attribute values may influence consumers' choices (Herrmann et al., 2009). Specifically, when product assortments consist of alignable variants, there is a tendency to choose middle or average items. In the present studies, the options of the choice sets differed in alignable attributes in terms of perceived prices and brand-associated qualities (see Table 1 and Table 3). Additionally, as for the relative position of options in the product space, the compromise effect should be investigated in broader set of configurations, because previous research confirmed that compromise effects become more likely to occur when an extreme premium option H instead of an opposite extreme basic alternative L is added to a pair of options (Simonson, 1989; Simonson & Tversky, 1992).

Moreover, this article focuses on consumers' choices across fast moving consumer goods, hence observing choices in low-involvement non-durable categories. However, empirical research confirms that consumers use differing strategies of information processing and decision making, depending on their individual involvement (Pettibone & Wedell, 2007). Specifically, Laurent & Karpferer (1985) confirmed that subjects tend to use complex decision rules in expensive durable categories such as household appliances and garments, whereas the use of choice heuristics is more likely across non-durable products such as toothpaste and detergents. While previous research did not find significant support for stronger compromise effects across durable categories, this issue should be subject to further research (Heath & Chatterjee, 1995).

Finally, while participants of both present studies can reasonably be considered experienced consumers of the test products, the use of student samples in general should be reconsidered due to empirically proven differing response patterns (Peterson, 2001). In addition, there is empirical evidence that subjects' familiarity, experience, and knowledge of brands and products have an influence on subjects' decision making due to a differing degree of preference uncertainty (Herrmann et al., 2009; Sinn et al., 2007). Specifically, recent research confirmed that individuals, who are less familiar with products and thus experience a higher decision uncertainty are more likely to choose a compromise option (Sheng, Parker, & Nakamoto, 2005). To sum up these constraints, in order to generalize experimental findings of the present studies, further research is required to test the robustness of the compromise effect among heterogeneous subpopulations of nonstudent samples both in more complex natural consumer environments as well as across a broader range of categories and configurations in the product space (Pechtl, 2009; Simonson, 1989).

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## Tables

**Table 1. Means of Price Estimations / Quality Rankings of Brands in Study One<sup>a</sup>**

| Category   | Option | Frequently Purchased Brand | Quality Ranking | Price Estimation |
|------------|--------|----------------------------|-----------------|------------------|
| Toothpaste | L      | Dentagard                  | 1.50            | 0.84€            |
|            | M      | Colgate                    | 2.04            | 1.59€            |
|            | H      | Sensodyne                  | 2.46            | 2.92€            |
| Shampoo    | L      | Herbal Essences            | 1.77            | 1.77€            |
|            | M      | Elvital                    | 1.98            | 2.12€            |
|            | H      | Paul Mitchell              | 2.25            | 10.53€           |

<sup>a</sup>Smaller mean quality rankings indicate lower quality perceptions

**Table 2. Overall and Segmental Analysis of Compromise Effects in Study One (n=233)**

| Category   | Option | Overall Sample     |             | Price-conscious subjects |            | Quality-conscious subjects |            |
|------------|--------|--------------------|-------------|--------------------------|------------|----------------------------|------------|
|            |        | CS2 (n=118)        | CS3 (n=115) | CS2 (n=29)               | CS3 (n=34) | CS2 (n=89)                 | CS3 (n=81) |
| Shampoo    | L      | 74.3               | 64.1        | 87.5                     | 80.9       | 69.8                       | 55.8       |
|            | M      | 25.7               | 35.3        | 12.5                     | 19.1       | 30.2                       | 42.9       |
|            | H      | ---                | 0.6         | ---                      | 0.1        | ---                        | 1.3        |
|            |        | $\chi^2 = 16.03^a$ |             | $\chi^2 = 2.65$          |            | $\chi^2 = 14.62^a$         |            |
| Toothpaste | L      | 75.2               | 62.1        | 84.9                     | 81.4       | 66.6                       | 46.7       |
|            | M      | 24.8               | 36.4        | 15.1                     | 18.2       | 33.4                       | 49.7       |
|            | H      | ---                | 1.5         | ---                      | 0.4        | 0.0                        | 3.6        |
|            |        | $\chi^2 = 32.9^a$  |             | $\chi^2 = 1.72$          |            | $\chi^2 = 33.98^a$         |            |

Level of significance: <sup>a</sup>p<0.01

**Table 3. Means of Price / Quality Rankings of Brands in Study Two<sup>a</sup>**

| Category        | Option | CS2 (core set) |         |       | CS3 (triplet) |       |
|-----------------|--------|----------------|---------|-------|---------------|-------|
|                 |        | Brand          | Quality | Price | Quality       | Price |
| Toothpaste      | L      | Signal         | 1.09    | 1.23  | 1.10          | 1.02  |
|                 | M      | Odol           | 1.91    | 1.77  | 2.17          | 2.05  |
|                 | H      | Elmex          | ---     | ---   | 2.73          | 2.93  |
| Hazelnut spread | L      | Nusspli        | 1.09    | 1.20  | 1.50          | 1.36  |
|                 | M      | Nutella        | 1.91    | 1.80  | 1.76          | 1.91  |
|                 | H      | Nudossi        | ---     | ---   | 2.74          | 2.74  |
| Repair shampoo  | L      | Nivea          | 1.07    | 1.12  | 1.51          | 1.21  |
|                 | M      | Elvital        | 1.93    | 1.88  | 2.14          | 1.97  |
|                 | H      | Wella          | ---     | ---   | 2.35          | 2.82  |
| Margarine       | L      | Deli Reform    | 1.02    | 1.03  | 1.20          | 1.19  |
|                 | M      | Lätta          | 1.98    | 1.97  | 2.19          | 1.86  |
|                 | H      | Becel          | ---     | ---   | 2.61          | 2.95  |
| Candy bars      | L      | Nuts           | 1.26    | 1.05  | 1.31          | 1.63  |
|                 | M      | Snickers       | 1.74    | 1.95  | 2.70          | 2.51  |
|                 | H      | NutRageous     | ---     | ---   | 1.99          | 1.85  |

<sup>a</sup>Smaller mean rankings indicate lower prices/quality perceptions

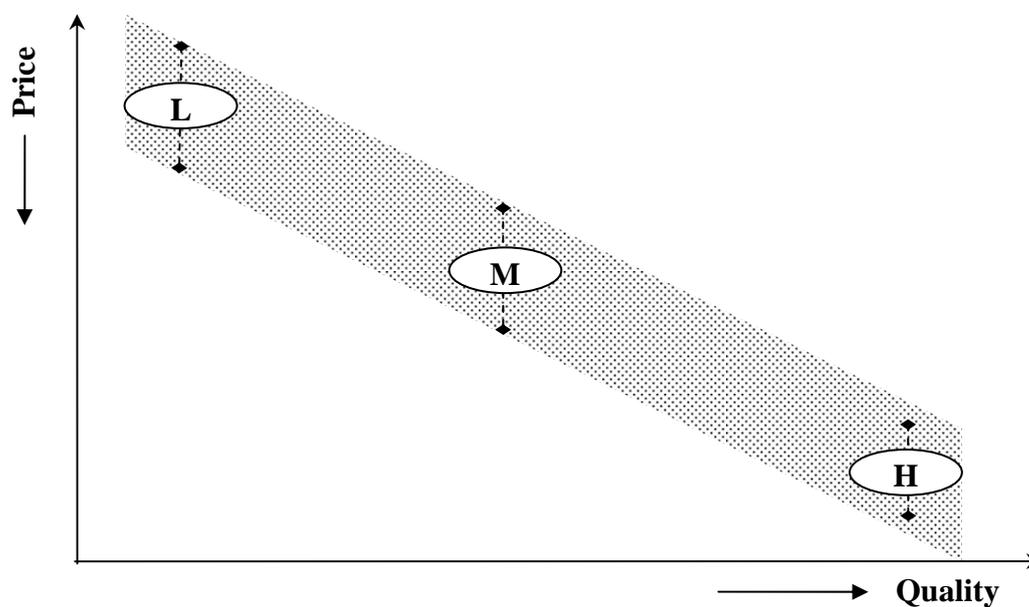
**Table 4. Overall and Segmental Analysis of Compromise Effects in Study Two (n=81)**

| Category        | Overall sample  |      |                     | Price-conscious subjects |      |                     | Quality-conscious subjects |      |                     |
|-----------------|-----------------|------|---------------------|--------------------------|------|---------------------|----------------------------|------|---------------------|
|                 | n               | RI   | Gain%               | n                        | RI   | Gain%               | n                          | RI   | Gain%               |
| Toothpaste      | 81              | 1.45 | +25.16 <sup>a</sup> | 33                       | 1.27 | +11.33              | 48                         | 1.48 | +30.23 <sup>a</sup> |
| Hazelnut spread | 81              | 1.32 | +19.38 <sup>a</sup> | 21                       | 1.26 | +10.11              | 60                         | 1.37 | +24.42 <sup>a</sup> |
| Shampoo         | 81              | 1.24 | + 8.70 <sup>c</sup> | 41                       | 1.17 | + 3.94              | 40                         | 1.65 | +28.54 <sup>a</sup> |
| Margarine       | 79 <sup>d</sup> | 1.26 | +13.73 <sup>b</sup> | 49                       | 1.22 | +10.71 <sup>c</sup> | 30                         | 1.37 | +17.65 <sup>a</sup> |
| Candy Bar       | 79 <sup>d</sup> | 1.26 | +13.16 <sup>b</sup> | 28                       | 1.13 | + 5.58              | 51                         | 1.40 | +21.16 <sup>a</sup> |
| Mean            |                 | 1.31 | +16.02              |                          | 1.21 | + 8.33              |                            | 1.45 | +24.40              |

Level of significance: <sup>a</sup> p<0.01; <sup>b</sup> p<0.05; <sup>c</sup> p<0.10

<sup>d</sup> two participants were excluded from analysis in this category due to incomplete surveys.

## Figures



**Figure 1.** Position of options in the experimental design.



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