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Beyond the First Offer: Decoding Negotiation Openings and Their Impact on Economic and Subjective Outcomes

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Abstract

First offers play a significant role in negotiations as they anchor negotiators' perceptions and influence negotiation outcomes in favor of the first-offer proposer. However, negotiation is a joint decision-making process in which a first offer is typically succeeded by a counteroffer. The impact of a counteroffer has not yet been systematically researched. We propose that a counteroffer influences negotiation outcomes like a first offer. In addition, we conceptualize the "anchor zone" as the distance between the first offer and the counteroffer. We theorize that the anchor zone influences negotiation outcomes because it captures additional information compared to a single offer. To test our hypotheses, we conducted two studies: Study 1 was a vignette study (n = 190) in which participants reacted to a counteroffer that they received based on their first offer as part of a simulated negotiation. Study 2 was an online experiment (n = 212) in which participants negotiated by exchanging offers with no further communication. Our analysis suggests that the counteroffer is a significant predictor of economic outcomes. Thus, it works like a first offer, but with a lower impact. In addition, the anchor zone predicted how far the final agreement was from the first offer. Furthermore, we found that the third offer, the average concessions, and the number of offers mediated the effects of the counteroffer and anchor zone on economic outcomes. Finally, we discovered that a more aggressive counteroffer reduced the subjective value of both negotiators.

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1 Introduction

Negotiations are complex interpersonal decision-making processes, and their outcome depends on a plurality of factors that range from individual differences to the setting in which a negotiation takes place, be it face-to-face or through computer-mediated communication. This complexity makes it difficult to give universal advice to negotiators on how to improve their negotiation performance. However, one effect has been demonstrated to be highly robust and relevant to negotiators: the first-offer effect.

There is a broad agreement among researchers that the first offer significantly predicts negotiation outcomes and that making the first offer is therefore beneficial for the party proposing it. The importance of the first offer is attributed to the so-called "anchoring effect," which describes the relationship between a numeric value (sometimes randomly generated) put forward at the beginning of the decision-making process and the subsequent decision (Tversky and Kahneman 1974). In their famous experiment, Tversky and Kahneman (1974) asked participants to estimate different percentages (e.g., the percentage of African countries in the United Nations). The authors then generated a random number on a wheel of fortune and asked the participants if the percentage was above or below that number, and then to estimate the percentage. The random number influenced the participants' judgment significantly: If the random number was 10 (vs. 65), the final judgment was 25 (vs. 45).

This anchoring effect also translates to negotiations and in statistical means, the first offer is a significant predictor of the final agreement. The currently predominant view of the mechanism behind anchoring is the *selective accessibility* model (Furnham and Boo 2011). According to the selective accessibility model, semantic knowledge is generated consistently with the value of the anchor (selectivity); this information is then used to form the final judgment (accessibility) as part of a two-step process (Chapman and Johnson 1999; Mussweiler and Strack 1999, 2001; Strack and Mussweiler 1997). In other words, knowledge that is consistent with the anchor is stronger and thus preferred for decision-making.

The first-offer effect has been confirmed in a meta study (Orr and Guthrie 2005) and several other studies (Chertkoff and Conley 1967; Galinsky and Mussweiler 2001; Kristensen and Gärling 1997; Ritov 1996; Yukl 1974). In addition, the first-offer effect has been found to be stable across culture, power, and negotiation issues (Gunia et al. 2013). Therefore, the first offer-effect is an important determinant of negotiation success.

A body of literature has developed around this phenomenon, improving the understanding of the antecedents of first offers (Magee et al. 2007; Neville and Fisk 2019), of boundary conditions and limitations of the first-offer effect (Liebert et al. 1968; Maaravi and Levy 2017; Orr and Guthrie 2005), of subjective value as a result of first offers (Maaravi et al. 2011), and distinguishing between different types of first offers (Burger 1986; Leonardelli et al. 2019; Loschelder et al. 2014; Mason et al. 2013).

In most of the above-mentioned studies, the first-offer effect has been investigated singularly. Negotiation, however, is a joint decision-making process that involves at least two parties that attempt to reach an agreement by influencing each other's decisions throughout the negotiation process, and starts with their opening offers (Raiffa 2007). Raiffa emphasized this dyadic perspective in his seminal book (Raiffa 1982) and defined the dyadic concepts of the *reservation price* and the *zone of agreement* between the negotiator's reservation prices as important reference points that determine negotiation outcomes. In addition, Raiffa asserted that there is an ongoing process of adjusting initial estimates of reservation prices and making offers throughout the negotiation. Raiffa referred to this process as a *negotiation dance*.

We contend that to improve our understanding of the dynamics and the implications of the anchoring effect in the context of negotiation, we need to consider the interactive character of negotiation openings. This view requires us to investigate not only the first offer, but also the counteroffer of the other party in reaction to the first offer, and the consequences of these opening offers. We believe that, just as a first offer undoubtedly influences the final outcome of a negotiation, a counteroffer might similarly affect negotiator judgments and lead to adjustments in the perception of reference points, as well as changes in the negotiation process. This means that a counteroffer could correct the estimation of the counterpart's reservation prices, which in turn leads to adjusted offers and altered outcomes. This impact of the counteroffer, if validated, would give the responder an opportunity to act strategically, influence the counterpart's judgment, and have an impact on the final outcome of the negotiation. This interactive character of opening offers has largely been ignored in the literature and is the main focus of this paper.

The negotiation opening consisting of first offer and counteroffer is comparable to a chess opening. After the first figure is moved (first offer), the other player needs to react to it (counteroffer). This is a very strategic process and the opening can determine the course of the following game. In our point of view, this is a stronger analogy compared to a negotiation dance as a dance is a coordinated movement with the same goal while a chess game (or a negotiation) is a strategic decision-making context with often opposing interests of the players. After the first move is made, the move needs to be interpreted by the other player and a reaction needs to be made. It is important to note that these opposing interests do typically persist in distributive negotiation situations. Contrary, in integrative or mixed-motive negotiations, an integrative negotiations approach (like a dance) could lead to better results.

In chess, there are many books that describe common openings and the best responses to them, but in negotiations, there are only few insights into this topic.

We propose that both first offers and counteroffers function as an anchor in similar ways, and that they both predict the process and outcomes. This would mean that if a first offer predicts the outcome, a counteroffer would equally do so. Further, we propose that first offers and counteroffers together form the "anchor zone" (the distance between the first offer and counteroffer) and that this anchor zone influences the subsequent negotiation process, as well as economic and subjective outcomes.

Based on a review of the literature, we developed hypotheses to (1) explore the role of opening offers in predicting negotiation outcomes; (2) test if the

aggressiveness of the counteroffer—measured as the anchor zone—impacts the negotiation in the counteroffer proposer's favor; and (3) uncover the mechanics (mediators) of this process. To test our hypotheses, we carried out two studies. In Study 1, we conducted a vignette study in which participants formulated first offers, received programmed counteroffers, and formulated a reply to the counteroffer. The goal of Study 1 was to understand if a counteroffer influences subsequent behaviors, and also to test our manipulation magnitude (the size of the counteroffer). In Study 2, we extended the setting to a full negotiation between two individuals in an online experiment. The study was highly controlled and allowed for an alternating exchange of offers without any additional communication between the parties.

The key contribution of this paper is to shift the fundamental understanding of the opening of negotiations away from a unipolar view of first offers to a more comprehensive understanding of the anchor zone and its role in shaping negotiators' further judgment and behavior. We point to the relevance of counteroffers and provide empirical support for the impact of these counteroffers. In addition, we introduce a new concept—the anchor zone—, which extends our grasp of negotiation openings. We conclude that negotiation openings seem to be more complex than suggested by current research.

2 The Role of Reference Points in Negotiation Openings

Negotiators are required to gather and process multiple pieces of information to be able to negotiate efficiently (White et al. 1994). A discussed above, the first offer is an important reference point for judgment. However, there are additional reference points that play a critical role in negotiations and that could potentially influence each other. Van Poucke and Buelens (2002) mentioned three important reference points: (a) the reservation price, (b) the aspiration price, and (c) opening offers. In this study, we focused on the reference points, which need to be estimated to efficiently negotiate or which are openly communicated at the negotiation opening: the reservation price and opening offers.

2.1 The Troublesome Search for a Reservation Price

A *reservation price* is an "indifference point, the point where the negotiator principally should be indifferent between accepting the offer or ending the negotiation (the walk away price)" (Van Poucke and Buelens 2002, p. 68). Knowledge about the reservation price is highly relevant to negotiators but typically, only one's own reservation price is known. In addition, one's own reservation price might not be absolutely firm, and negotiators might only have a rough idea of their reservation price. In order to form an understanding of the counterpart's reservation price, Raiffa (1982) recommended probabilistically assessing the reservation price and reassessing it informally. However, Raiffa also warned that the counterpart might wish to deceive the other party regarding the real reservation price.

The reservation price of the buyer and seller form the so-called "zone of agreement" in which an agreement is possible (Raiffa 1982). It is important to note that this concept is only suitable for distributive bargaining situations.

White et al. (1994) demonstrated that the reservation price was the most relevant predictor of negotiation success. However, the reservation price is also influenced by the first offers of the other party. Kristensen and Gärling (2000a) indicated that the first offer of a seller influenced the reservation price of the buyer. This could also explain the analysis of Van Poucke and Buelens (2002), who showed that reservation prices did not influence negotiation outcomes. However, Van Poucke and Buelens (2002) added reservation prices after first offers in a step-wise regression model, and the addition of the first offer in the first step had likely assumed most of the effect already.

As stated above, the reservation price of the counterpart is typically not available to negotiators and thus, the reservation price needs to be estimated. This estimation is an iterative process and the estimation gets better over time (Bottom and Paese 1999). Bottom and Paese (1999) also reported that the costs of an erroneous judgment are asymmetric: In the case of an overestimation of the concession ability of the counterpart (optimistic bias), negotiators yielded better outcomes than when pessimistically biased.

Another asymmetry in the estimation of reservation prices is the *asymmetric disconfirmation* (Larrick and Wu 2007). Larrick and Wu (2007) found that negotiators differently adjust their initial estimates of the counterpart's reservation price. If the estimate lies outside the bargaining zone, disconfirming evidence leads to an adjustment of the estimate. If the estimate lies inside the bargaining zone, the negotiators behave in line with the estimation, and the estimate becomes a "self-fulfilling prophecy." Thus, economic results are better if the estimate is outside the bargaining zone as the negotiators approach the bargaining zone from the ambitious "outside point."

As noted above, the reservation price is typically not known by the counterpart and needs to be estimated. However, there is another reference point that is known to both negotiators: the first offer made. In the following, we introduce the impact of the first offer in negotiations.

2.2 The Importance of the First Offer

In the introduction, we discussed the strong support for the first-offer effect on negotiation outcomes. Research on first offers in negotiation, however, goes beyond the mere effects on negotiation outcomes. In the following, we briefly introduce the most relevant findings on top of the first-offer effect on economic outcomes, and also relate them to the issue of negotiator judgment.

First, previous studies have shown that the structure of information availability among the negotiators influences the first-offer effect. A high level of information asymmetry leads to more effective first offers (Liebert et al. 1968). It could even be beneficial for a negotiator not to make the first offer if information happens to be distributed asymmetrically (Maaravi and Levy 2017). This relates well to the

estimation of reference points since if information is absent, the first offer is one of the few data points to draw upon.

Second, different types of first offers impact negotiation processes and outcomes. Several authors have investigated the issue of precise offers versus round offers and found that precise anchors (e.g., 1437 EUR) work better than round anchors (e.g., 1400 EUR) (Loschelder et al. 2014; Mason et al. 2013). This precision effect is related to an attribution of higher competence for the party proposing the precise anchor; thus, the value is deemed to be of higher value as a reference point. In addition, an anchoring value could be unrelated to the negotiation at hand but still influence outcomes significantly (Kristensen and Gärling 2000b; Whyte and Sebenius 1997). In their research, the authors provided unrelated anchors (either an arbitrary price example or an error from an employee stating the wrong value) that also worked as powerful anchors.

Moreover, it seems that negotiators use non-numeric variables to judge reference values. A strategic flinch in response to a first offer could improve results at the expense of a worse relationship (Fassina and Whyte 2014). But also non-verbal cues, like displayed wealth, influence the first offers: Maaravi and Hameiri (2019) found that if wealth cues are present, first offers were higher than without wealth cues. This impact of non-verbal cues indicates that negotiators use a multitude of variables to evaluate the negotiation situation and to infer reservation prices or the ability to concede.

Another body of literature has provided some evidence that the first offer is also expected to influence subsequent negotiation behaviors. Initially, the first offer may have already affected whether a negotiation takes place at all. The initial offer could lead to a barrier to entry when the counterpart is perceived to be too aggressive (Lee et al. 2018). When a negotiation takes place, the negotiators could use the initial offer to draw conclusions about the appropriateness of their own aspirations (Liebert et al. 1968). As such, negotiators might change their assessment of the situation. In terms of negotiation behaviors, extreme first offers lead to higher concession-making (Bateman 1980), more favorable offers, lower aspirations, and a higher perceived toughness of the counterpart (Yukl 1974). Moreover, Jeong et al. (2020) found that if buyers made higher first bids on a classified ad, sellers more often shared unfavorable information like defects even though this information-sharing behavior weakened their negotiation position.

Fourth, in addition to the economic outcomes and the negotiation behaviors, first offers impact subjective value. Curhan et al. (2006) developed a commonly used scale of subjective value: the subjective value inventory (SVI). This inventory captures four outcome categories: instrumental, self, process, and relationship. Several authors have investigated subjective value with regard to first offers: Maaravi et al. (2014) found that people assess their own results as worse if a strong anchor is used by the counterpart. This also leads to less willingness to negotiate with the counterpart in the future. Further, there is some evidence that anxious negotiators are less satisfied after making first offers, even if these lead to superior negotiation outcomes (Rosette et al. 2014).

Fifth, several moderators and boundary conditions influence the first-offer effect in negotiation. One of them is gender stereotype confirmation: Kray et al. (2001) have

shown that women make lower first offers if gender stereotypes are activated. The authors manipulated the purpose of the negotiations by telling participants that the negotiation was used to diagnose their negotiation abilities. This led to lower first offers for female participants while there was no difference between female and male participants, if no diagnosis was introduced.

Lastly, there are downsides to anchoring in negotiations. Extreme first offers can increase the chances of an impasse in negotiations (Schweinsberg et al. 2012; Wang et al. 2008), and this risk of an impasse limits the usefulness of the anchoring strategy, or at least the possible extremity of the first offer. A potential explanation for this is that an extreme first offer can signal to the counterpart that there is no zone of agreement.

According to our proposal above, we expect that a second offer would influence negotiation results in a manner comparable to the first offer. The second offer is not independent of the first offer. First offers influence counteroffers, together with reservation prices (Kristensen and Gärling 1997, 2000a). Moreover, first offers and counteroffers are mutually correlated (Moran and Ritov 2002; Ritov 1996; Van Poucke and Buelens 2002). This effect has been witnessed as more pronounced for extreme first offers for which more extreme counteroffers result (Benton et al. 1972).

2.3 The Impact of the Negotiation Type

Most of the above findings are based on the investigation of distributive negotiations. A negotiation is distributive if negotiators have almost strictly opposed interests on one issue (Raiffa 1982) and need to distribute the value amongst them. Distributive negotiation is often described with the analogy of "splitting a pie."

In addition to distributive negotiations, there are also integrative negotiations. In integrative negotiations, there are shared interests, and value can be created by discovering and meeting these interests (Mannix et al. 1989). The integrative win-win potential is often described with the analogy of "expanding the pie." However, even an enlarged pie usually has to be distributed. In most negotiations, therefore, negotiators have an incentive to claim and create value simultaneously. Mannix et al. (1989) speak of mixed-motive negotiations in this context.

These integrative and mixed motive negotiations have a potential to significantly change the role of reference points and first offers compared to a distributive negotiation. For example, in an integrative negotiation, multiple first offers are possible. Due to the novelty of the counteroffer aspect, however, this study—as most of the extant research—focuses on a single-issue distributive negotiation."

3 The Proposed Effects of the Counteroffer

Research on first offers is primarily concerned with single first offers or anchors and their impact on decision-making and outcomes. However, negotiations are at least dyadic in nature and after the first offer (anchor), a counteroffer is typically made by the negotiation partner. We propose that both opening offers work together as two anchors. This is because both convey essential information and form a basis for an

assessment of the situation (like reservation points and the zone of agreement) and further negotiating behaviors. Raiffa (1982) referred to the first moves and the following exchange of offers as a "negotiation dance" and, in a sense, first offers define the "available dance floor".

In the following paragraphs, we explain our hypotheses regarding the counteroffer based on the existing literature and theoretical considerations. We begin with the effect of the counteroffer on negotiation outcomes.

As described above, the most widely accepted theory at present is the selective accessibility model (Chapman and Johnson 1999), according to which, any strategy that provides an additional point of reference or distorts the anchor should help to de-bias the second negotiator and transform a single point into a range of points. Following this, a negotiator now has more leeway to selectively assess values, which will then serve as reference points in the negotiation. Chapman and Johnson (1999) argued that anything that would make people pay attention to unique features diminishes the anchoring effect. Mussweiler (2002) found in an experiment that contradicting evidence could reduce the effect of anchoring. Focusing on one's own goals can also reduce the impact of an initial offer (Galinsky and Mussweiler 2001). The counteroffer could therefore draw attention away from the first offer toward the value of a counteroffer, and provide a first disconfirmation of initial beliefs. Galinsky and Mussweiler (2001) found that thinking about the opponent's alternatives and the reservation price could further reduce the effect of the first offer. The counteroffer could also serve to facilitate this behavior by introducing a contrary reference point.

Another theory that supports the effect of a counteroffer is the "scale distortion theory" (Frederick and Mochon 2012). This scale distortion theory was tested by the authors and shows that an initial stimulus (e.g., asking to estimate the weight of a dog) distorts the reference scale for any additional estimate (e.g., the weight of a giraffe), making its value lower than without the initial stimulus. A subsequent study on scale distortion of anchoring by Bahnik et al. (2019) revealed that two initial stimuli in opposite directions also had an effect on a subsequent judgment, and that the second stimulus seemed to have an even greater influence. Even though the author's results were not statistically significant at the 5% level, this could provide clues about the effect of a second anchor. In this line, Schaerer et al. (2016) also found that several lower alternatives to an agreement had a negative impact on the first offer and the negotiation outcomes. Thus, a counteroffer could have an augmenting (in the case of a counteroffer in line) or contrasting (in the case of a lower counteroffer) effect in regard to the first offer. The counteroffer is therefore expected to work in a way that is comparable to that of the first offer, and to influence negotiation outcomes by means of the described mechanisms. Formally:

Hypothesis 1 (H1) The counteroffer is positively associated with the economic negotiation outcome (agreed settlement price of the dyad).

In addition to the proposed base effect of the counteroffer, we propose that the size of the counteroffer makes a difference. The literature on negotiations indicates that extreme anchors do work (Chertkoff and Conley 1967), but that overdoing it

could result in higher impasse rates (Maaravi et al. 2014; Schweinsberg et al. 2012; Wang et al. 2008). We expect the same logic for the counteroffer in that a longer distance from the first offer should have a stronger impact on the process and the outcome of negotiations. As discussed above, the first offer and the counteroffer create a range in which agreements are possible. We define this zone as the anchor zone. A larger anchor zone suggests a more aggressive counteroffer.

The anchor zone differs from the zone of agreement specified by Raiffa (1982) in that the former is determined by the first offers and the latter by reservation prices. They are only congruent if the first offers correspond exactly to the reservation prices, which is more of an exception.

Van Poucke and Buelens (2002) introduced a concept called the "offer zone" and defined it as the difference between the aspiration price and the initial offer. This offer zone significantly predicted the negotiation outcomes. Even though the offer zone comes from two values of one negotiator and not two negotiators, it highlights the importance of the idea of a zone, as it captures more information than single values.

In addition to the zones mentioned in prior literature, Raiffa (1982) provided evidence for another reference point: the midpoint between first offers. According to Raiffa, the midpoint is the best predictor of the final contract if it falls within the zone of agreement. However, the midpoint fails to fully cover the information of both first offers as different distances yield the same midpoint. For example:

- First offer 13, counteroffer 17 → midpoint of 15, range of 4
- First offer 5, counteroffer 25 → midpoint of 15, range of 20

Thus, we used the richer concept of the anchor zone as it captures additional information. We expected the anchor zone to predict negotiation outcomes due to the fact that it sets the "dance floor" for negotiation and potential outcomes. Notwithstanding, the anchor zone is not ideal when it comes to predicting economic outcomes since the same anchor zone could lead to different (higher or lower) negotiation outcomes. For example:

- First offer 20, counteroffer 15, anchor zone 5, outcome 17
- First offer 40, counteroffer 35, anchor zone 5, outcome 37.5

We therefore needed to focus on another outcome variable to measure the effect of the anchor zone on the success of negotiations. We argue that the distance between the first offer and the final outcome is suitable for gauging this effect and we termed this variable "outcome distance". This variable allows us to judge how much the counteroffer proposer has changed the outcome in a favorable direction. Thus, we posited the following:

Hypothesis 2 (H2): The size of the anchor zone is positively associated with the distance between the first offer and the final agreement (outcome distance).

In addition to their direct impact on the economic outcome, we propose that concession-making strategies following the opening offers also mediate the effect of the

second offer on the subjective outcome. The first element in the sequence of concessions is the third offer. We propose that this third offer is influenced by the counteroffer, and that such a change influences the economic outcome. In the case of a buyer making a second offer, a lower second offer and the signaled pushback should lead to a lower third offer by the first offer proposer occupying the role of seller and vice versa in the case of buyers.

Hypothesis 3 (H3): The effect of the counteroffer on the economic outcome is mediated by the third offer.

The second element in the sequence of concessions is the subsequent concession-making behavior of the negotiators. Overall, we expected that a larger anchor zone would lead to a higher number of concessions overall as a larger gap needs to be bridged to reach a deal. The more offers made should then lead to greater adjustments from the first offer to the final deal (outcome distance).

Hypothesis 4a (H4a): The effect of the anchor zone on the distance between the first offer and the final agreement (outcome distance) is mediated by the number of concessions made in the negotiation process.[1]

In addition to the number of concessions, the size of the concessions matters. We expected that the concession size for both negotiators would mediate the effect of the anchor zone on the final outcome. We first theorized that the counteroffer proposer would change the concession making behavior. By focusing on information that conflicts with the initial anchor, the counteroffer proposer is expected to make lower average concessions if the anchor zone is large. The first offer would typically require higher concessions to reach a deal in order to "bridge the gap." The counteroffer introduces a point for which lower concessions are required. This is expected to reduce the average concession size made by the counteroffer proposer. This altered concession size is in turn expected to mediate the relationship between anchor zone and negotiation outcomes.

Hypothesis 4b (H4b): The effect of the anchor zone on the distance between the first offer and the final agreement (outcome distance) is mediated by the average concession size of the counteroffer proposer.

In addition to the effects on the counteroffer proposer, we also expected an effect on the first offer proposer. There are two potential explanations for this: On the one hand, the counteroffer is expected to function as a reference point for the first offer proposer. This assertion is based on the different effects of self-generated versus other generated anchors. Comparative studies have demonstrated that self-generated anchors are more strongly adapted than anchors generated by counterparts (Epley and Gilovich 2001, 2005). Epley et al. argue that proposers know

[1] We did not formulate a hypothesis for each role since the offers were made in an alternating way and thus always differ by 1.

that a self-generated anchor is highly subjective and potentially too optimistic, and thus adjust it more. For an externally generated anchor, this adjustment is less pronounced. In our case, the counteroffer is an externally provided anchor that should thus be more powerful in the mind of the first offer proposer and, in return, we propose that the first-offer maker would be biased by the counteroffer. On the other hand, if more aggressive push-back in the form of the counteroffer happens, we would expect the first offer proposer to also adjust their concession-making strategy to higher concessions.

Moreover, the findings of Frech et al. (2019) offer a possible explanation. The authors found that scale granularity leads to smaller adjustment steps from an anchor due to the fact that their mental scale is more fine-grained. If a large anchor zone creates a very wide scale for further adjustments, this could lead to higher average concessions by the first offer proposer, which in turn leads to changed quantitative outcomes.

Hypothesis 4c (H4c): The effect of the anchor zone on the distance between the first offer and the final agreement (outcome distance) is mediated by the average concession size of the first offer proposer.

In addition, we expected that the effect of the counteroffer or the anchor zone would apply, regardless of whether the participant is a buyer or a seller. Although there is some evidence that a first offer has a distinct effect on buyers and sellers (Weingart et al. 1990), we had no reason to assume that the base effect of the counteroffer should differ across roles.

Hypothesis 5 (H5): The effect of the counteroffer on quantitative negotiation outcomes is role-independent.

Finally, we expected that the counteroffer would influence subjective negotiation outcomes: Maaravi et al. (2014) found that the use of anchors led to a deterioration in the perception of the substantial outcome for the counterparts and reduced willingness to negotiate for the future. Extreme offers can also offend negotiators and lead to an impasse (Schweinsberg et al. 2012). We expected comparable effects for the counteroffer and the resulting anchor zone governed by two mechanisms: (1) A dissatisfaction with the first offer leads to a lower counteroffer and/or (2) The anchor zone size leads to dissatisfaction due to more effort required to reach a deal, as the initial offers are further away from each other. This increased effort is expected to reduce satisfaction with the negotiation in general since it is more 'painful.'

Hypothesis 6 (H6): The size of the anchor zone is negatively associated with the satisfaction level of both negotiators.

4 Study 1: Vignette Study

We carried out a vignette study to test the feasibility of the experimental design and to conduct a test of the first hypotheses. The main goal of the vignette study was to confirm that a counteroffer alters the behavior of the other (first-offer making) negotiator, as this is key to changing negotiation outcomes. In this vignette study, we asked the participants to make a first offer to either the buyer or the seller of a car. After the first offer, the participants received an automatically calculated counteroffer; they were asked to react to the counteroffer with another offer and to assess their satisfaction, as well as to rate their counterpart.

4.1 Method

4.1.1 Participants and Design

An a priori estimation of the target sample size using G*Power software (Faul et al. 2009) yielded 103 participants with a target power of .8 at a medium effect size (f^2 .15), 7 predictors, and .05 α error probability. We recruited participants via the Amazon Mechanical Turk marketplace. This recruitment method is also used by other authors in the field of negotiation (e.g., Ames and Mason 2015) and has the advantage of providing access to a diverse population. We only recruited participants from the US to generate a culturally homogeneous sample; 236 participants took part and we paid 1 USD as compensation for an expected time investment of 5 minutes; this was in order to reach 12 USD/hour compensation, which is above the minimum wage of 7.25 USD/hour. Of the participants, most were in the age group of 25–34 (41%) and 35–44 (33%); 60 (32%) participants were female. Most of the participants had more than 10 years of work experience (66%) and only 2 participants had no work experience. A full table of the demographic data is in included in "Appendix 2".

We structured the experiment as a 2 (role: buyer, seller) × 3 (counteroffer: extreme, medium, accommodating) between-subjects design. We randomly assigned participants to one of the experiment cells using the experiment software. Due to random assignment, we achieved an almost equal split of participants per treatment, ranging from 29 to 34 per cell.

4.1.2 Task

We used a slightly adapted version of the car sale case (Ames and Mason 2015, study 2) in which a participant either had a car for sale or wanted to buy a car (see the Appendix for case instructions). This task represents a distributive, single-issue negotiation. Depending on their role (buyer, seller), the instructions differed. The participants were free to choose their first offer. According to the experiment conditions, counteroffers were automatically computed in each condition: extreme, medium, and accommodating. In the extreme condition, − 50% (in case the participant was the seller) versus + 50% (in case the participant was

the buyer) of the initial offer was subtracted or added to the initial offer. In the medium condition, the factors were − 20% versus + 20%, and in the accommodating condition, − 5% versus + 5% respectively. The case instructions can be found in the "Appendix 1".

4.1.3 Procedure and Materials

We performed the experiment using an online survey software. Participants searched for the task on Mechanical Turk and were redirected to the survey software after accepting the task. After the participants started the experiment and accepted the information producing informed consent, the instructions for the assigned roles were displayed. The participants were then asked to provide a target price (which we defined as the aspiration value) and the first offer they wanted to make to their counterpart. Based on the offer, an automatically calculated counteroffer was proposed on the next page. The counteroffer was displayed and the participant was asked to provide a subsequent offer. After answering a satisfaction question ("How satisfied are you with the negotiation so far?" on a 7-point Likert scale, which ranged from "extremely dissatisfied" to "extremely satisfied"), the participants were asked "What kind of 'overall' impression did the counterpart make on you?" (rated on a 7-point Likert scale, ranging from "extremely negative" to "extremely positive"). At the end of the survey, demographic questions were asked. The survey also included two comprehension/attention checks that were used to identify participants who had not paid attention to the survey questions. One attention check question asked for the mileage of the car in the experiment, and the other asked for two boxes to be checked for a particular question.

4.1.4 Variables

The dependent variables of this experiment were: the third offer, the satisfaction of the participant, and the impression of the (simulated) counterpart.[2] The independent variables were: the participant's first offer, the programmed counteroffer (+/− 5%, +/− 20%, and +/− 50%, coded as a dummy variable with 5% as the baseline value), and the participant's role (either the buyer or seller, coded as a dummy variable). We also obtained a measurement of aspiration. The demographic variables were: age, ethnicity, gender, highest education level, occupational status, and work experience.

4.2 Results

Of the 236 participants, we had to remove 46 due to failed attention checks or inconsistent or illogical answers or offers; thus, we ended up with 190 valid data points. We analyzed the data using R version 4.1.0 (R Core Team 2020) with the standard

[2] We carried out a first run of the experiment, resulting in 19 valid responses, to test the experimental setup. After this first run, we recruited the remaining participants. For these participants, we added the item of satisfaction. The impact of group membership was not significant; we thus included both samples in the models.

Table 1 Means and standard deviations per treatment group study 1

	Buyers						Test statistics
	+ 5%		+ 20%		+ 50%		
	M	SD	M	SD	M	SD	
First offer	6448.3[a]	656.4	6190.0[a]	648.5	6263.2[a]	613.4	$H(2) = 2.20, p = .33$
Third offer	6626.7[a]	733.7	6595.0[a]	640.1	6985.3[a]	1252.2	$H(2) = 0.34, p = .84$
Satisfaction	5.3[a]	1.3	4.3[b]	1.4	2.6[c]	1.4	$F(2, 94) = 52.11, p < .001$
Impression	5.2[a]	1.5	4.1[b]	1.5	2.6[c]	1.2	$H(2) = 33.86, p < .001$
	Sellers						Test statistics
	− 5%		− 20%		− 50%		
	M	SD	M	SD	M	SD	
First offer	7218.2[a]	511.9	7325.0[a]	542.1	7268.8[a]	644.9	$H(2) = 0.85, p = .65$
Third offer	7009.8[a]	458.3	6929.7[a]	555.2	6687.5[a]	975.3	$H(2) = 0.90, p = .64$
Satisfaction	5.6[a]	1.3	3.9[b]	1.6	2.1[c]	1.2	$H(2) = 50.34, p < .001$
Impression	5.3[a]	1.2	3.7[b]	1.7	2.1[c]	1.6	$H(2) = 37.45, p < .001$

Means with different superscripted letters are significantly different at $p < .05$. Group differences were tested with a Kruskal–Wallis test due to the non-normality of the data. A Wilcox test was carried out as post-hoc test. An exception is the Satisfaction variable for buyers. This was tested with a one-way analysis of variance (ANOVA) as the data were normally distributed

package, as well as the olsrr package (Hebbali 2017) and the stargazer package (Hlavac 2015).

Table 1 summarizes the descriptive results for each experimental condition. The first offers of the participants did not differ significantly in the experimental conditions. Also, the third offers did not significantly differ. The satisfaction and impression of the counterparts differed significantly across the experimental conditions and decreased by increasing the aggressiveness of the counteroffer.

We tested our hypotheses using a linear model per outcome variable. As described in Hypothesis 3, we expected the counteroffer to influence the third offer. This hypothesis has been confirmed using a regression analysis (Table 2, Column 1). In the model, we included the first offer and the counteroffer conditions. Furthermore, we included an interaction term of the experimental conditions and the role, since we expected the effects for the buyer and seller to point in different directions. We also included an interaction term for the first offer and role to account for differences in the impact of the first offer. The model emerged as significant ($F(7,182) = 54.04$, $p < .001$), with an R^2 of .68, and the counteroffer was a significant predictor of the third offer with $b = 281.51$, $t(182) = 2.21$, $p = .03$ for the +/− 20% counteroffer and with $b = 582.99$, $t(182) = 4.75$, $p < .001$ for the +/− 50% condition. A post-hoc power analysis yielded a power of 100%. A larger distance of the counteroffer from the first offer led to a greater adjustment of the third offer, as observed via the higher coefficient for the +/− 50% dummy. With the help of the interaction term using the "role" variable, we found that sellers made lower adjustments than

Table 2 Linear regression model study 1

	Dependent variable		
	Third offer	Satisfaction	Impression
	(1)	(2)	(3)
First offer	1.21***	− 0.00***	− 0.00***
	(0.08)	(0.00)	(0.00)
Role = seller	1243.55		
	(822.55)		
Counteroffer +/− 20%	281.51**	− 1.35***	− 1.40***
	(127.18)	(0.24)	(0.27)
Counteroffer +/− 50%	582.99***	− 3.12***	− 2.93***
	(122.70)	(0.24)	(0.26)
First offer*role = seller	− 0.25**		
	(0.12)		
Role = seller * counteroffer +/− 20%	− 464.64***		
	(174.81)		
Role = seller * counteroffer +/− 50%	− 954.06***		
	(171.39)		
Constant	− 1193.68**	7.71***	7.97***
	(520.89)	(0.88)	(0.97)
Observations	190	190	171
R^2	0.68	0.49	0.44
Adjusted R^2	0.66	0.48	0.43
Residual std. error	481.93	1.35	1.40
	(*df* = 182)	(*df* = 186)	(*df* = 167)
F statistic	54.04***	2.34***	42.80***
	(*df* = 7; 182)	(*df* = 3; 186)	(*df* = 3; 167)

*p<.1; **p<.05; ***p<.01

buyers (and also in the other direction, which we expected). Thus, Hypothesis 5 was rejected. In addition, we noted that the first offer was a significant predictor of the third offer. The demographic variables did not reveal any significant correlations and were therefore excluded from the model.

Further, we expected the counteroffer to influence satisfaction with outcomes (Hypothesis 6) and performed a regression analysis (Table 2, Column 2) to validate this hypothesis. In the model, we included the first offer and the counteroffer dummy variables. The resulting model was significant ($F(3,186) = 59.77$, $p < .001$, R^2 of .49). A post-hoc power analysis also confirmed the high power (100%) of this test. As shown in Table 2, Column 2, satisfaction decreased with more extreme counteroffers with $b = -1.35$, $t(186) = -5.62$, $p < .001$ for the +/− 20% dummy and with $b = -3.12$, $t(186) = -13.19$, $p < .001$ for the +/− 50% dummy respectively. These

results confirm Hypothesis 6. In addition, we found that regardless of the role, the size of the first offer had a small but negative effect for predicting satisfaction.

Finally, we investigated the role of the counteroffer in the evaluation of the counterpart. We estimated the regression model (Table 2, Column 3) according to Model 2; it was also significant ($F(3,167) = 42.80$, $p < .001$, R^2 of .44) and with high power (100%) according to a post-hoc test. There were fewer participants, as we only added the impression item after the first run of the experiment.[3] Our regression analysis verified our expectation that a more aggressive counteroffer would lead to a lower rating of the counterpart, with effects of $b = -1.40$, $t(167) = -5.27$, $p < .001$ for the +/− 20% dummy and with $b = -2.93$, $t(167) = -11.11$, $p < .001$ for the +/− 50% dummy.

For models 2 and 3, the demographic variables did not have any significant predictive quality and were thus excluded from the model.

4.3 Discussion

We designed Study 1 to gain initial insight into the mechanics of the counteroffer in negotiations, and to understand whether the counteroffer influences negotiation behaviors and subjective evaluation. The above results indicate that the counteroffer has an impact on the following negotiation behaviors and assessment of the situation: The more extreme a counteroffer, the higher the adjustment of the third offer (sellers adjust down, buyers adjust up). In addition, an increasing extremity of the counteroffer leads to a reduction of the satisfaction and impression of the counterpart. However, a counteroffer has a substantially weaker effect on the third offer compared to the first offer (as first offers were in the range of 6190 and 7325, with a coefficient of 1.21, this led to an impact of 7489–8863 on the third offer, with the coefficients of the counteroffer being 282 and 583, respectively). Hence, the first offer still exerts the strongest effect on the third offer. Therefore, the stronger the counteroffer, the more adjustments by the counterpart that can be facilitated. However, this had the disadvantage of a poorer relationship and a reduced level of satisfaction. This provides support for hypotheses 3 and 6.

In addition, Hypothesis 5 was rejected based on the above results. The coefficient for sellers was smaller compared to the buyers, so it seems that the sellers defended their first offer more strongly. This does tie in to the results of Weingart et al. (1990), who showed that a seller's first offer is a stronger prediction of the outcome than a buyer's first offer.

In sum, Study 1 confirmed that a counteroffer can potentially influence negotiation behaviors, outcomes, and satisfaction. In addition, it verified the soundness of our research design. Therefore, we decided to conduct a laboratory study that included more process and outcome variables in a person-to-person negotiation experiment.

[3] As described above, we added the impression variable after the first run. We tested if the group membership (first run or second run) made a significant difference, but no such influence was confirmed; thus, we used the full sample for the first two models.

5 Study 2: Laboratory Study

In Study 2, we expanded the setting of the experiment to include a full negotiation with two participants negotiating with each other. We did so to test the remaining hypotheses and to replicate the findings of Study 1. We performed a controlled laboratory experiment in which two negotiators (a buyer and a seller) exchanged offers in a distributive sequential bargaining situation. This was to last until a deal was reached or time ran out.

5.1 Method

5.1.1 Participants and Design

Before the experiment, we conducted an a priori analysis of the target sample size using G*Power software (Faul et al. 2009). We used an effect size estimate $f^2 = .15$, an α error probability of .05, and a .8 power with 7 predictors. Our analysis yielded a target of 103 for the sample size (given the dyadic interaction, this means 103 dyads or 206 participants). Given the possibility of dropouts due to data quality or a non-finalized experiment, we aimed to recruit 350 participants; 363 (thereof 200 female and 153 male) participants from the participant pool of the behavioral economics laboratory of a large university took part in the experiment. Most participants were in the age range of 18–24 years (244, 69%), while the minority were in the ranges of 25–35 (110, 30%), and 35–44 (4, 1%). All of their demographic details can be found in the "Appendix 5". The participants were compensated with a fixed amount of EUR 3, although it was announced that it was possible for them to earn up to EUR 1 as a bonus, depending on their performance during the negotiations. We used this bonus structure to create an incentive for good negotiating performance by providing a financial incentive.

We randomly assigned the participants to one experimental treatment in our 2 (role: buyer, seller) × 3 (first offer size: accommodating, medium, aggressive) design.

5.1.2 Task

For this experiment, we used an adapted version of the "Pharmaceutical Plant" negotiation simulation (Galinsky and Mussweiler 2001). This simulation is also a single-issue distributive negotiation as the price is the only negotiation item and one party can only gain, if the other party concedes. We chose this simulation as it featured a negotiation issue that is uncommon for the majority of people, which means that they would not have reference values (which could have confounded the experiment) in mind. If we used an iPhone for example, the participants could have developed an idea about the price of an iPhone. This was most likely not the case for a chemical plant. Thus, no existing information or anchor points were available for the negotiators. In the simulation, a buyer and a seller of a pharmaceutical plant

negotiate the selling price of the plant. Both negotiators have some public information (the previous buying price [EUR 15m], an appraisal value [EUR 19m], the price of a comparable factory [EUR 27m], as well as the average reduction in price in the real estate market [− 5%]). The instructions included private Best Alternative to Negotiated Agreement (BATNA) information for the buyer (the construction of a new plant would cost EUR 25m) and the seller (stripping down the plant and selling its components parts would produce a revenue of EUR 17m). This led to a Zone of Possible Agreement (ZOPA) between EUR 17m and EUR 25m. Detailed instructions can be found in the "Appendix 3".

We adapted the original simulation in two ways: First, we adjusted the case to be parallel for the buyer and the seller. This means that all values had an equal distance from the midpoint (EUR 21m) between the buyer and the seller. We did so to eliminate any influence of non-linearity. This also required adding a second appraisal value at EUR 23m, as the original case only included one appraisal value close to the BATNA of the buyer at EUR 19m. Second, we defined the manipulation of the first offer. We defined three values of first offers as manipulation: an accommodating offer, which was below/above the BATNA and in the ZOPA (buyer: EUR 19m; seller: EUR 23m); a medium offer, which was below/above the BATNA with the same distance (buyer: EUR 15m; seller: EUR 27m); and an extreme offer further below/above the BATNA (buyer: EUR 11m; seller: EUR 31m). We decided to manipulate the first offer to control for this element and to reduce potential collinearity issues between the first and second offers. We structured the distances of the first offer from the midpoint (EUR 21m) to be comparable to Study 1 (Study 2: 9%, 29%, and 52% vs. Study 1: 5%, 30%, and 50%). Details can be found in the "Appendix 4".

5.1.3 Procedure and Materials

We carried out the experiment online at the behavioral economics laboratory of a large university. We invited participants using the ORSEE software application (Greiner 2015). Participants registered for a session that started with a 5-min briefing in which the experiment was introduced. The participants then opened the starting link of the experiment in their browser. We programmed the experiment itself with oTree (Chen et al. 2016). The players started with the case instructions and then proceeded to the negotiation page, which featured a number entry box and a send button for making offers. Further, the negotiation page contained a summary of the role and reference points, as well as an offer history. Making offers was only possible in an alternating manner, so that the other player had to wait for the counterpart's offer to make a new offer. Only one player had the option of making the first offer. There was a strict time limit of 10 min; however, the number of offers was unlimited. After reaching the time limit, the negotiation ended and participants were forwarded to the next page. Participants also had the option of ending the negotiation by offering 999, which needed to be confirmed by the other party. After the negotiation, participants answered the subjective value inventory (SVI) (Curhan et al. 2006) and the demographic questions. We removed four items from the subjective value

inventory (items 9, 12, 14, and 15), as we deemed them irrelevant for a negotiation limited to a mere exchange of offers and no other interactions.

5.1.4 Variables

Due to the dyadic structure of this study, the unit of analysis is the dyad. We took the viewpoint of the counteroffer proposer to analyze the data. For example, SVI_own refers to the counteroffer proposer, and SVI_other to the first offer proposer.

The variables that we manipulated include the size of the first offer, which we dummy-coded as aggressive, medium, and accommodating. A direct use of the variable as a continuous variable was not possible since the experiment featured three levels of first offers as per the experimental conditions. Also, we dummy-coded the role of the first offer maker as Buyer/Seller.

As dependent variables, we measured the contract value in million EUR and the subjective value (SVI) on a scale of 1 to 5. Further, we computed the variable outcome distance as the difference between the first offer and the final agreement. This variable thus measures how far the agreement is from the first anchor, or how far it is adjusted in favor of the counteroffer proposer.

As independent variables, we defined the second offer of the dyad as the counteroffer and then calculated the anchor zone as the absolute difference between the first offer and the counteroffer.

The mediating variables consisted of the third offer of the dyad (or the reaction to the counteroffer), the negotiators' average concession size, and the offer count of the dyad. The offer count variable was not used at the player level, as the offer count is essentially the same for both negotiators since offers were made in an alternating way.

5.2 Results

From the total of 363 participants, we removed 81 due to an impasse or not reaching an agreement due to the time limit. We removed another 76 as the first offer was not made according to the instructions. This led to a final sample of 206 participants or 103 dyads.

The data on the impasse is reported in the "Appendix 6" as per the suggestions of Schweinsberg et al. (2022) on how to report impasse data. The frequencies indicate a higher impasse rate for the aggressive opening offer condition, but a statistical test was not meaningful due to the low number of impasses.

We analyzed the data using R version 4.1.0 (R Core Team 2020) and the standard package, as well as the olsrr package (Hebbali 2017) and the stargazer package (Hlavac 2015).

Table 3 outlines the means and standard deviations of the main variables measured. Because the data are dyadic in nature, one data point summarizes a dyad. We carried out the analysis from the standpoint of the party making the counteroffer (either the buyer or the seller).

Table 3 Means and standard deviations per treatment group study 2

	Buyers making first offer						Test statistic
	Aggressive		Medium		Accommodating		
	n = 16		n = 20		n = 18		
Counteroffer	20.8[a]	3.8	20.7[a]	5.6	19.8[a]	2.5	$F(1, 52) = 0.41$, $p = .52$
Anchor zone	10.2[a]	3.8	7.2[b]	4.3	3.4 [c]	2.8	$F(2, 51) = 16.01$, $p < .001$
Concession average self	.5[a]	.3	.4[a]	.3	.2[b]	.2	$H(2) = 8.31$, $p = .02$
Concession average other	.7[a]	.6	.6[a]	.9	.3[b]	.3	$H(2) = 7.65$, $p = .02$
Offer count	13.7[a]	14.3	9.9[a]	8.4	10.7[a]	15.1	$H(2) = 1.15$, $p = .56$
Outcome	25.3[a]	2.6	24.4[a]	3.1	21.4[b]	1.2	$H(2) = 22.93$, $p < .001$
Outcome distance	5.7[a]	2.6	3.5[b]	2.1	1.8[c]	1.5	$H(2) = 19.56$, $p < .001$
SVI self	3.7[a]	1.0	3.7[a]	.5	4.0[a]	.6	$H(2) = 2.23$, $p = .33$
SVI other	3.6[a]	.7	3.9[a]	.8	3.7[a]	.6	$H(2) = 1.23$, $p = .54$
	Sellers						Test statistic
	Agressive		Medium		Accomodating		
	n = 17		n = 22		n = 17		
Counteroffer	25.9[a]	3.0	25.3[a]	1.8	25.8[a]	2.5	$F(1, 50) = 0.09$, $p = .76$
Anchor zone	14.2[a]	2.9	10.0[b]	2.0	7.0[c]	2.8	$F(2, 49) = 36.91$, $p < .001$
Concession average self	.6[a]	.5	.6[a]	.4	.3[a]	.2	$H(2) = 5.90$, $p = .05$
Concession average other	.9[a]	1.0	1.1[a]	1.6	.3[b]	.2	$H(2) = 9.90$, $p = .01$
Offer count	15.9[a]	12.0	12.3[a]	12.7	14.1 [a]	8.3	$H(2) = 2.38$, $p = .30$
Outcome	20.3[a]	4.1	21.6[a]	2.3	22.5[b]	1.6	$H(2) = 7.92$, $p = .02$
Outcome distance	8.6[a]	3.9	6.2[b]	2.4	3.8[c]	1.9	$H(2) = 18.22$, $p < .001$
SVI self	3.6[a]	.7	3.8[a]	.5	3.8[a]	.5	$H(2) = 4.56$, $p = .10$
SVI other	3.8[a]	.6	3.7[a]	.7	3.9[a]	.6	$H(2) = 0.70$, $p = .70$

Means with different superscripted letters are significantly different at $p < .05$. We tested group differences with a Kruskal–Wallis test due to the non-normality of the data. We carried out a Wilcox test as a post-hoc test. Exceptions include the counteroffer and anchor zone variables, which we tested with a one-way analysis of variance (ANOVA) as the data were normally distributed

The statistics in Table 3 provide insight with respect to previous findings, even though these have not been formulated as hypotheses: The different levels of first offers did not result in different counteroffers. This is in contrast to the findings of some authors who reported a correlation (Moran and Ritov 2002; Ritov 1996; Van Poucke and Buelens 2002). On the other hand, the outcomes differed significantly between the accommodating and the medium/aggressive conditions, and thus replicated the effect of the first offer. However, there was no significant difference between the aggressive and the medium offers.

In the following paragraphs, we proceed to explain how we tested our hypotheses: To test Hypothesis 1, we computed a multiple linear regression predicting the contract value of the dyad; this was based on the counteroffer, the first offer,

Table 4 Linear regression model agreement

	Contract value
Counteroffer	0.76*** (0.11)
Aggressive first offer	10.05*** (2.89)
Medium first offer	7.94*** (2.68)
Role = Seller	−11.63*** (3.48)
Counteroffer*aggressive first offer	−0.41*** (0.12)
Counteroffer*medium first offer	−0.31*** (0.12)
Counteroffer*role = Seller	0.26* (0.14)
Constant	7.10*** (2.42)
Observations	106
R2	0.60
Adjusted R2	0.57
Residual std. error	1.97 ($df = 98$)
F Statistic	20.99*** ($df = 7; 98$)

***$p < .01$; **$p < .05$; *$p < .1$

and the player role. The results can be found in Table 4. We included the first offer as a dummy variable to assess the moderating effect of the first offer. The model obtained was significant ($F(7,98) = 20.99$, $p < .01$), with an R^2 of .60. A post hoc test for the power achieved yielded high power of this test at 100%. The counteroffer was a significant predictor of the contract value, $b = .76$, $t(98) = 6.79$, $p < .01$. The effect of the counteroffer was moderated by the size of the first offer. In the case of the extreme first offer, the counteroffer effect was reduced by − .41, and in the case of the medium first offer, the effect was reduced by − .31. Finally, the counteroffers of the sellers had a greater impact as per the interaction term. We checked the potential co-linearity of the first offer and the counteroffer using the variance inflation factor. We did not observe any problematic co-linearity. Hypothesis 1 is therefore confirmed.

In addition to our hypothesis test, we were also able to replicate Raiffa's midpoint prediction (Raiffa 1982) with a separate linear model[4] (see the "Appendix 7").

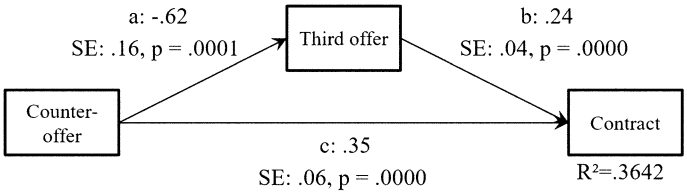
Furthermore, Hypothesis 1 could be formulated as a mediation hypothesis. We did not develop a mediation hypothesis since we expected the counteroffer to have an independent impact. However, in a mediation model, we would then expect the counteroffer to mediate the relationship between the first offer and the contract. In order to investigate this relationship, we estimated a mediation model using the Hayes Process Macro for R (Hayes, 2017) with 5000 bootstrap draws and a 95% confidence interval. This methodology has been used by other authors in the field of negotiations to investigate mediation effects (Geiger and Hüffmeier 2020). The mediation model can be found in the "Appendix 8". The mediation model confirmed the findings of the above linear model and of the descriptive statistics. In addition, it shows that there was a full mediation for the seller's role.

[4] Due to collinearity issues, we were not able to include the midpoint as a variable in the existing model.

Table 5 Linear regression model outcome distance

	Outcome distance
Anchor zone	0.45*** (0.05)
Role = seller	− 1.80*** (0.83)
Anchor zone * role = seller	0.28*** (0.09)
Constant	0.54 (0.43)
Observations	106
R2	0.70
Adjusted R2	0.69
Residual std. error	1.75 ($df = 102$)
F statistic	80.43*** ($df = 3; 102$)

***$p < .01$; **$p < .05$; *$p < .1$



Indirect effect ab: -.15, SE: .05, 95%-CI [-.2636; -.0699]

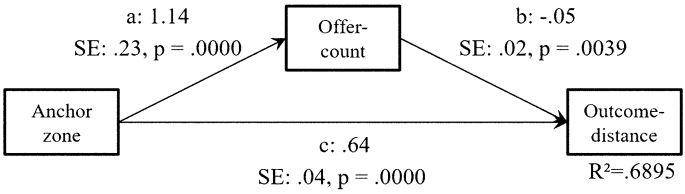
Fig. 1 Mediation test third offer

However, for the buyer's role, there was no mediation since the first offer did not predict the counteroffer. This is contrary to previous findings (Moran and Ritov 2002; Ritov 1996; Van Poucke and Buelens 2002). We suspect that our design, with a limited number of first offers and many reference points, could be the reason for this observation.

Hypothesis 2 posited that the distance between the first offer and the counteroffer—the anchor zone—would predict how far the final agreement would be from the first offer. To test this hypothesis, we computed a multiple linear regression predicting the variable of "outcome distance" from the absolute value of the anchor zone and the role of the player. We added an interaction of the counteroffer and the role to examine role differences. The results of the model can be seen in Table 5. The model was significant ($F(3,102) = 80.426$, $p < .01$), with an R^2 of .70. Also, this test is powered at 100%. The anchor zone was a significant predictor of the outcome distance with $b = .45$, $t(102) = 8.41$, $p < .01$. Hence, Hypothesis 2 was confirmed.

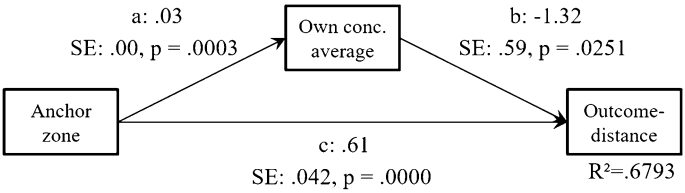
In the following, we explain how we tested the mediation hypotheses H3 and H4. We tested each hypothesis with a separate mediation model.

For Hypothesis 3, we expected the counteroffer to influence the third offer, which would then lead to a change in contract terms. The results of the mediation model can be seen in Fig. 1. The model indicates that the third offer mediated the relationship between the counteroffer and the contract terms, as the confidence



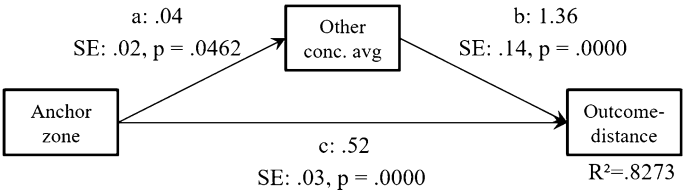
Indirect effect ab: -.06, SE: .02, 95%-CI [-.1071; -.0172]

Fig. 2 Mediation test offer count



Indirect effect ab: -.03, SE: .02, 95%-CI [-.709; .0050]

Fig. 3 Mediation test own concession average



Indirect effect ab: .06, SE: .02, 95%-CI [.0135; .1103]

Fig. 4 Mediation test other concession average

interval of the indirect path did not contain zero (CI 95% [− .2636; − .0699]). Therefore, Hypothesis 3 was confirmed.

In Hypothesis 4a, we expected the offer count to mediate the relationship between the anchor zone and the outcome distance. Figure 2 displays the outcomes of the mediation analysis. The results show that the anchor zone increased the number of offers and that the offer count mediated the relationship. The indirect effect was also significant at the 95% level (CI 95% [− .1071; − .0172]).We therefore confirmed Hypothesis 4a.

In Hypothesis 4b, we expected a larger anchor zone to lead to smaller average concessions for the counteroffer proposer, which in turn would lead to an agreement in favor of the counteroffer proposer. The results of the mediation model can be found in Fig. 3. Even though paths a and b were significant, the indirect effect was not significant as zero falls into the confidence interval (CI 95% [− .709;

Table 6 Linear regression model SVI

	SVI_own (1)	*SVI_other (2)*
Anchor zone	− 0.05*** (0.02)	− 0.04** (0.01)
Player = seller	− 3.04*** (1.04)	3.99*** (0.96)
Outcome (score)	− 0.11*** (0.03)	0.061** (0.03)
Player = seller * outcome	0.14*** (0.05)	− 0.17*** (0.04)
Constant	6.66*** (0.75)	2.55*** (0.69)
Observations	106	106
R2	0.19	0.20
Adjusted R2	0.16	0.17
Residual std. error ($df = 101$)	0.66	0.61
F statistic ($df = 4; 101$)	6.00***	6.27***

***$p < .01$; **$p < .05$; *$p < .1$

.0050]). We therefore rejected Hypothesis 4b. However, the significant c path replicated the effect of the linear regression for Hypothesis 2.

According to Hypothesis 4c, the concession-making behavior of the first offer proposer would mediate the relationship between the anchor zone and the outcome distance. Figure 4 presents the results of this mediation analysis. The indirect effect was significant at the 95% level (CI 95% [.0135; .1103]). These findings confirmed Hypothesis 4c. The effect size might seem small, but since the anchor zone is measured in millions of EUR, the effect is substantial. As above, the significant c path replicated the regression outcomes in the above analysis.

Hypothesis 5 was concerned with negotiators' roles. We expected that the effect of the counteroffer would be role-independent. The regression results (Tables 4, 5) reveal a difference across roles and thus, Hypothesis 5 was rejected. The interaction terms indicate that the counteroffer had a stronger effect if the seller made it.

The last hypothesis, Hypothesis 6, was concerned with the subjective value for both parties, which we captured using the SVI. We performed a multiple regression analysis including the anchor zone, the player's role, and the negotiation outcome (see Table 6).

Model 1 predicts the subjective value of the counteroffer proposer and has been found to be significant ($F(4,101) = 6.00$, $p < .01$), with an R^2 of .19. A post-hoc test for the achieved power yielded a high power of this test at 99%. The anchor zone was a significant predictor of the contract value, $b = -.05$, $t(101) = -3.25$, $p < .01$. In addition, the outcome significantly predicted the subjective value, depending on the role (higher outcome and lower satisfaction for the buyer and vice versa).

Model 2 predicts the subjective value of the other player (the first offer proposer). The outcomes were similar but differed in terms of the coefficients. The model was significant ($F(4,101) = 6.27$, $p < .01$, $R^2 = .20$) and had a power of 99% as per the post-hoc test carried out with G*Power. Also in this model, the anchor zone predicted the subjective value with $b = -.04$, $t(101) = -2.45$, $p < .05$).

A larger anchor zone thus predicts a lower subjective value, and the analysis provides support for Hypothesis 6 for both negotiators. In addition, we found that the negotiation outcome significantly influenced the subjective value of the negotiation (depending on the role, as per the interaction term).

5.3 Discussion

The goal of Study 2 was threefold: We sought to understand the role of opening offers in predicting negotiation outcomes, to grasp the impact of the anchor zone, and to reveal the underlying mechanisms. The strength of Study 2 lies in the highly controlled experimental design in which possible confounding variables were reduced by the offer-only set up of the study.

Our results are in line with previous research on the anchoring effect in negotiations and replicated the effect of the first offer on negotiation outcomes. However, there was no significant difference in the moderate and extreme first offers (see Table 3). Our data suggest that there is a decreasing utility of extreme first offers and that "overdoing" it does not add additional value. We were unable to replicate the effect of the first offer on the counteroffer, which has been found in several studies (Benton et al. 1972; Kristensen and Gärling 2000a; Moran and Ritov 2002). This may have been caused by the different nature of the negotiation cases: The studies that observed the effect on the counteroffer did not provide any BATNA information. Our case, in turn, featured a BATNA and other reference points, so that these points would likely be used to formulate the counteroffer.

Our first hypothesis—the impact of the counteroffer on negotiation outcomes—was confirmed. The counteroffer is an additional predictor of the economic outcome, although the magnitude of the effect is lower than that of the first offer. In addition, the power of the counteroffer decreases with more aggressive first offers.

We also devised the concept of the anchor zone (i.e., the distance between the first offer and the counteroffer). We confirmed that a larger anchor zone leads to a greater adjustment of the final outcome towards the counteroffer (Hypothesis 2). This finding is novel, as we both conceptualized the anchor zone and proved its validity empirically. This confirms the intuitive assumption that "pushing harder against the first offer" works. Further, it seems that for sellers, the effect is greater than for buyers.

We also investigated some mechanisms that contribute to the effect. In our first mediation analysis, we showed that the third offer mediates the relationship between the counteroffer and the final outcome. The counteroffer led to a reduction of the third offer. As the third offer positively predicted outcomes with a lower coefficient, the indirect effect of the counteroffer on the outcome was negative. This replicates the findings of Study 1 and extends them toward the results of the process. These findings indicate that the counteroffer does influence the negotiation process and

therefore opens the black box of "how" opening offers influence the negotiation process.

Furthermore, our mediation analyses revealed which factors mediate the relationship between the anchor zone and the outcome distance. First, the offer count emerged as a mediator of the outcome distance. A larger anchor zone led to more offers which in turn increased the outcome distance. Thus, a "larger gap" leads to more "negotiation work" but does indeed pay off. The average size of the concessions plays a role, but the effect is different for the negotiators. For the counteroffer proposer, we expected that the counteroffer proposers would de-bias themselves with the counteroffer and thus change any concessions they made in the direction of a better outcome. It seems, however, that this effect only works for the first offer proposer: The average concession size of the first offer proposer mediated the relationship between the anchor zone and the outcome distance. This is remarkable as the anchor zone can alter the behavior of the first offer proposer. We suspect that a modified evaluation of the "dance floor" led to this effect.

Finally, we found that the larger the anchor zone, the lower the satisfaction with the negotiation process. This finding is intuitive, as a large anchor zone leads to a more intense negotiation process and more offers are needed. This is in line with the first-offer literature in which extreme first offers have negative effects on subjective outcomes (Maaravi et al. 2014; Moran and Ritov 2002; Schweinsberg et al. 2012).

6 General Discussion

6.1 Contributions

The goal of this study was threefold. We aimed to (1) explore the role of opening offers (the first offer and the counteroffer in reaction to the first offer) in predicting negotiation outcomes; (2) introduce and scrutinize the role of the anchor zone in predicting negotiation outcomes; and (3) investigate the effects of the opening offers and the resulting anchor zone on the negotiation process. In the two studies, we found significant results that contribute to the literature on anchoring and negotiation.

We found that the counteroffer has a significant influence on negotiation outcomes. This is a new finding as most of the literature has focused on a single reference point, while the counteroffer has mostly been neglected in negotiation research. This brings us back to the chess analogy: Both opening offers define the negotiation situation and thus determine the subsequent game and its results. We argue that a comprehensive analysis of the anchoring process and its impact on the negotiation process needs to include both parties' initial offers. Our results show that even though the counteroffer might be influenced by the first offer, it significantly influences the rest of the negotiation process and its outcomes. This interplay between the initial offers calls for a considerable modification of the standard interpretation

of the anchoring effect in negotiations as compared to individual decision-making scenarios. Due to the fact that they are at least dyadic in nature, negotiation is essentially a joint decision-making process in which the anchoring process is clearly bilateral.

These results also add to the findings of de-biasing the anchoring effect (Galinsky and Mussweiler 2001) and suggest how to reduce the impact of a first offer, if we cannot make it ourselves. This study also provides initial empirical evidence in an area in which—despite existing advice on how to make a counteroffer (e.g., Gunia 2017a, b)— empirical substantiation has been lacking.

Further, we introduced and confirmed the relevance of the concept of the anchor zone. The anchor zone captures an additional element of the negotiation opening: the extremity of the counteroffer. This underlines the fact even more that we need to move from a single reference point used as an anchor to an entire range that determines subsequent negotiation behaviors. This is highly relevant, because different reactions (counteroffers) to the same first offer might yield completely different results, which the concept of the anchor zone helps us to better understand these dependencies.

We also contribute to the literature on the subject of negotiation openings by uncovering the mechanisms of how counteroffers affect negotiation behaviors, as well as economic and subjective outcomes. Most studies are concerned with an initial activity (e.g., a first offer) and the related results. The intermediate processes and knowledge of how the opening phase of the negotiation affects outcomes are important contributions made by this paper. Due to our highly controlled setting, we focused on just a few aspects of the negotiation process, although the complex negotiation process paves the way for a major field of inquiry.

Finally, we extend our findings beyond the economic outcomes by showing how subjective value is impacted negatively by the anchor zone. The tradeoff between optimizing negotiation outcomes and subjective value has been discussed in the negotiation literature Benton et al. (1972) and Schweinsberg et al. (2012). We have broadened this conversation by adding the anchor zone as another variable influencing the subjective values experienced by negotiators.

6.2 Limitations and Future Research Topics

Due to the pioneering nature of our research on counteroffers and their effects, our work has some limitations and leaves aside more unanswered questions for future research. We start with reviewing the limitations and then examine future research avenues.

At first, the studies were limited to only an exchange of offers. On the one hand, it is necessary to isolate effects but on the other, this forced us to exclude many variables that are common in real-life negotiations. This includes visual and verbal

communication that might have a significant impact on the negotiation process, which we could not observe.

Second, our experiments focused on distributive negotiations. As mentioned above, the effect of first offers and counteroffers becomes more complex in multi-issue, integrative negotiations. There could be multiple first offers and counteroffers and they potentially determine the total outcome. However, this limitation is also valid for the general field of first offers and anchoring. A recent review of first offers in negotiations Lipp et al. (2022) did only surface one study investigating multi-issue, integrative negotiations, namely the study by O'Connor (1997). O'Connor (1997) found that first offers primarily predicted outcomes in compatible negotiation items but not in integrative items. The authors did not include distributive items.

In addition, the narrative of the simulations could have influenced behaviors and results. We limited the manipulations to observe the most natural behavior of the negotiators, but the reference values of the cases could have already made a difference. Especially if anchoring is investigated, every value could have its own anchoring effect. Hence, we call for replication of the effects in different settings, to substantiate the findings and to achieve robust results.

Furthermore, this study relied on simulations, which were "not existentially 'real' for the participants" (McGrath 1981, p. 185). This caused concerns with extrapolation to the general population (McGrath 1981). Even though most negotiation research is based on simulations, future studies on opening offers could emphasize more field research to determine if the above-described effects are robust across contexts.

Finally, the nature of the participants might induce unwanted effects. In Study 1, we obtained a more experienced sample than in Study 2. Even though we replicated some of the results in both studies, a replication of Study 2 with a professional sample will add robustness. However, the underlying effects (anchoring) should be relevant to all negotiators; we would thus not expect any differences due to age or experience.

As suggested before, due to the novelty of this topic, our research poses a series of intriguing questions. The most important avenues for future research are summarized in the following:

A first step should be to replicate our findings in other cases, information conditions, and richer communication channels (F2F, video, chat). The anchoring effect is very robust (Gunia et al. 2013) and we would expect there to be a similar level of robustness for the counteroffer effect. In particular, the asymmetry of information seems to be significant, as it is one of the most influential factors in the classical first offer paradigm.

In addition, it would be interesting to systematically investigate the underlying processes and mechanisms that lead to behavioral changes; in particular, perceptions of reservation prices and their change over time based on different negotiation openings seems to be a promising area for research. Although we did uncover some

moderators of the negotiation process, we lack an understanding of the cognitive processes explaining why negotiators alter their behaviors.

A more practical avenue for further research involves the values of counteroffers and the associated first offers. Which combinations are the most efficient ones, and what counteroffer should one make given a particular first offer? An identification of a "sweet spot" would certainly be of interest to many negotiation practitioners. The anchor zone should ideally be large enough to lead to a disconfirmation of the other's perception of the reservation price. If this happens, the other will likely adjust the negotiation strategy. This adjustment will likely be dependent on the judgment accuracy, confidence, and bias before and during the negotiation.

The potential "sweet spot" is also related to the issue of the impasse. Aggressive first offers and counteroffers could increase the impasse rate. They could even do so unwanted by negotiators because a counteroffer generated the impression that there is no bargaining zone. A systematic investigation of negotiation openings and impasses seems necessary to better understand the connection between them.

Finally, researchers could investigate most of the findings regarding anchoring in negotiations, including those in the context of counteroffers. One example of this might consist of the arguments used in the counteroffer. Maaravi et al. (2011) showed, for example, that arguments in a first offer are capable of having detrimental effects. It is possible that the situation is completely different for counteroffers and that arguments might help, as they de-bias the negotiation partner. Other first offer effects could be investigated in the same manner. Of great interest for our point of view would be the narrative of the situation, namely, how the counteroffer is presented (e.g., together with information, dismissively), and the availability of information in that situation.

6.3 Implications for Practice

As the findings are novel and not yet based on a track record of replication, any practical advice we can formulate is at best tentative. However, our results have some important implications. Firstly, our results strengthen the recommendation that a first offer should be made in such a way that its effect is stronger than that of the corresponding counteroffer. Although this is clearly true for this scenario, it might not apply to other information scenarios. Further, our findings suggest that the effect of a first offer can be mitigated by proposing a tough counteroffer. This, to our knowledge, is the first empirical proof of a suggestion commonly made in the management literature. Besides effectiveness, a counteroffer has certain disadvantages when compared to an aggressive first offer: It necessitates the creation of a larger overall number of offers and causes the negotiation to be subjectively perceived as having less value (lower subjective value). It might even lead to the counterpart having a worse impression of the counteroffer proposer. Negotiators should certainly be aware of this particular disadvantage. Finally, knowledge of counteroffer strategy use could provide helpful advice for the first offer maker: A third offer should not be

modified following a counteroffer that is more extreme, while concession-making should not be shifted away from whatever tactics were initially planned.

Appendix 1: Role Instructions Study 1

We adopted this case from Ames and Mason (2015).

Buyer instructions

Imagine that *you are shopping for a used car*. You've thought carefully about your options and have concluded that your ideal car would be a Volkswagen Passat that is perhaps six to eight years old. You've done some research and concluded that this kind of car, in good shape with low mileage, typically sells for $6500–$7500. Several cars of this type are typically being sold in your area at any given time. You recently read an ad for a 2015 Volkswagen Passat. Everything looked promising: low mileage (about 50,000), in good shape, nice color. You meet with the seller and take the car for a test drive. Everything looks good about it and you'd like to get this car if possible. You'd also like to pay the least you possibly can for it. If the price is not attractive, you would consider looking elsewhere. After the test drive, you talk with the seller. The ad for the car didn't say anything about price, but you have done a little homework, as noted earlier. You are now preparing your offer to the seller.

Seller instructions

Imagine that *you are selling your used car*. It is a Volkswagen Passat that is seven years old and has about 50,000 of mileage. You've done some research and concluded that this kind of car, in good shape with low mileage, typically sells for $6500–$7500. Several cars of this type are typically being sold in your area at any given time and you decided to put an ad online. One potential buyer showed up for a test drive and seems to be interested in the car. You would like to sell the car to the interested buyer but you also want to get the best price possible. If the price is not attractive, you will consider other potential buyers. As your ad didn't say anything about the prices, the buyer is now asking you for an offer for the car.

Appendix 2: Demographic Data Study 1

See Table 7.

Table 7 Demographic data Study 1

Demographic categories	Number before removal	Number after removal	% of total
Age			
18–24	6	5	3
25–34	100	78	41
35–44	73	63	33
45–54	30	27	14
55–64	18	15	8
65–74	2	2	1
Ethnicity			
Asian/Pacific Islander	15	15	8
Black or African American	21	13	7
Hispanic or Latino	11	9	5
Native American or American Indian	4	1	0
Other	2	2	1
White	176	150	79
Gender			
Male	155	130	68
Female	74	60	32
Education			
Associates or technical degree	21	21	11
Bachelor degree	121	97	51
Graduate or professional degree	28	21	11
High school diploma or GED	18	17	9
Some college, but no degree	39	32	17
Some high school or less	2	2	1
Occupation			
Homemaker	4	4	2
Student	1	1	1
Employed for wages	165	138	73
Military	1	1	1
Other	1	1	1
Out of work and looking for work	9	8	4
Out of work but not currently looking for work	4	2	1
Retired	3	3	2
Self-employed	41	32	17
Work experience			
1–5 years	42	20	11
5–10 years	49	40	21
Below 1 year	6	3	2
More than 10 years	129	125	66
None	3	2	1

Appendix 3: Case Instructions Study 2

Buyer Instructions[5]

You are the Chief Financial Officer (CFO) of Biosphere, a pharmaceutical company, and your company needs a new factory to produce a highly specialized raw material for production. None of your existing factories can produce the raw material, and you cannot convert the existing factories either.

Comptech recently announced the sale of a factory for this very raw material. Comptech bought the factory three years ago for € 15 million. This price was below market value, as the then seller was threatened with bankruptcy. Two years ago the factory was valued at € 19 million. Another appraisal a year ago came to a valuation of € 23 million. The property market has declined − 5% since the purchase, but general trends may not be relevant to these highly specialized factories. A similar factory, albeit a newer one, was sold for € 26 million a few months ago. Alternatively, your company could build a new factory itself. This factory would cost € 25 million and would take a year to complete (including approval by the drug agency).

You have been tasked with negotiating the purchase price of the factory with the Comptech CFO. The negotiation will take place via a computer system in which offers can be exchanged without further communication. <You have agreed with your colleagues that you will make the first offer. In your discussion, you agreed to...

1. ...start with a very low price. The price you agreed on is 11 million EUR
2. ...start with a low price. The price you agreed on is 15 million EUR
3. ...start with a fair offer. The price you agreed on is 19 million EUR

As you agreed on the price with your colleagues, you will start with this price as first offer.>

Seller Instructions[6]

You are the Chief Financial Officer (CFO) of Comptech, a pharmaceutical company. Your company has discontinued a line of products. Since you cannot use the factory for the product line for anything else, your company wants to sell the factory and has asked you to sell it. Recently, Biosphere has expressed an interest in the factory.

Your company bought the factory three years ago for € 15 million. This price was below market value, as the then seller was threatened with bankruptcy. Two years ago the factory was valued at € 19 million. Another appraisal a year ago came to a valuation of € 23 million. The property market has declined − 5% since the purchase, but general trends may not be relevant to these highly specialized factories. A comparable factory, albeit a newer one, was sold for € 26 million nine months

[5] Text within <> only visible, if role was instructed to make first offer
[6] Text within <> only visible, if role was instructed to make first offer

ago. Alternatively, your company could shut down the factory and sell the individual parts. That would probably generate revenues of € 17 million.

You have been tasked with negotiating the purchase price of the factory with the Biosphere CFO. The negotiation will take place via a computer system in which offers can be exchanged without further communication. <You have agreed with your colleagues that you will make the first offer. In your discussion, you agreed to...

1. ...start with a very high price. The price you agreed on is 31 million EUR
2. ...start with a high price. The price you agreed on is 27 million EUR
3. ...start with a fair offer. The price you agreed on is 23 million EUR

As you agreed on the price with your colleagues, you will start with this price as first offer.>

Appendix 4: Overview Case Mechanics Study 2

See Fig. 5.

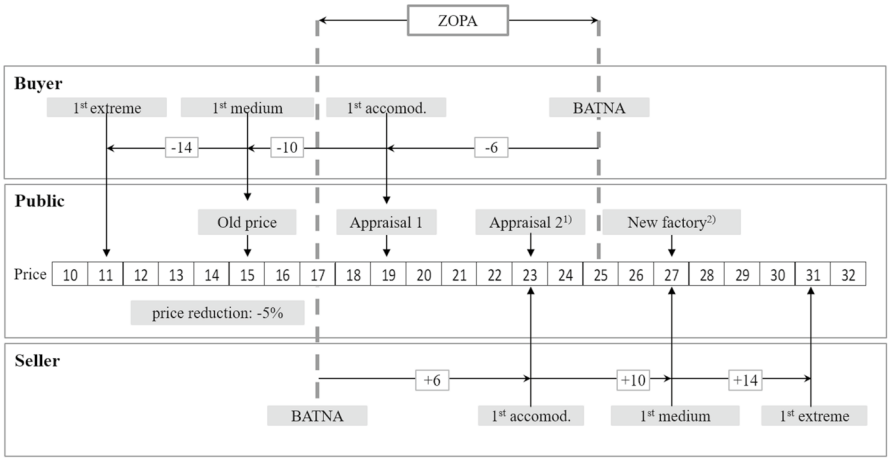


Fig. 5 Overview case mechanics study 2

Appendix 5: Demographic Data Study 2

See Table 8.

Table 8 Demographic data Study 2

Demographic categories	Number before removal	Number after removal	% of total
Age			
18–24	244	140	69
25–34	110	61	30
35–44	4	3	1
Gender			
Male	153	84	41
Female	200	117	57
Non-binary	4	3	2
Prefer not to say	3	2	1
Education			
Pre-university school degree	166	101	49
Bachelor degree	131	70	34
Master degree	61	34	17
Post-master degree	2	1	1
Occupation			
Student	322	182	88
Employed for wages	31	19	9
Looking for work	4	3	2
Other	3	2	1
Work experience			
None	139	81	39
Below 1 year	109	58	28
1–5 years	99	57	28
5–10 years	10	7	3
More than 10 years	3	3	2

Appendix 6: Impasse Frequencies Study 2

See Table 9.

Table 9 Overview of impasse rates

	Treatment		
	Aggressive	Medium	Accommodating
Buyer made counterofffer	0/16 (0%)	2/22 (9%)	0/18 (0%)
Seller made counteroffer	7/24 (29%)	0/22 (0%)	2/19 (10%)

Impasse data only for non-removed datasets (e.g., no wrong first offer)

Appendix 7: Linear Regression Model Midpoint

See Table 10.

Table 10 Linear regression model midpoint

	Contract value
Midpoint	0.84*** (0.06)
Constant	3.93** (1.43)
Observations	105
R2	0.63
Adjusted R2	0.62
Residual std. error ($df = 104$)	1.85
F statistic ($df = 1; 104$)	174.6 ***

***$p < .01$; **$p < .05$; *$p < .10$

Appendix 8: Mediation Model First Offer → Counteroffer → Outcome

See Fig. 6.

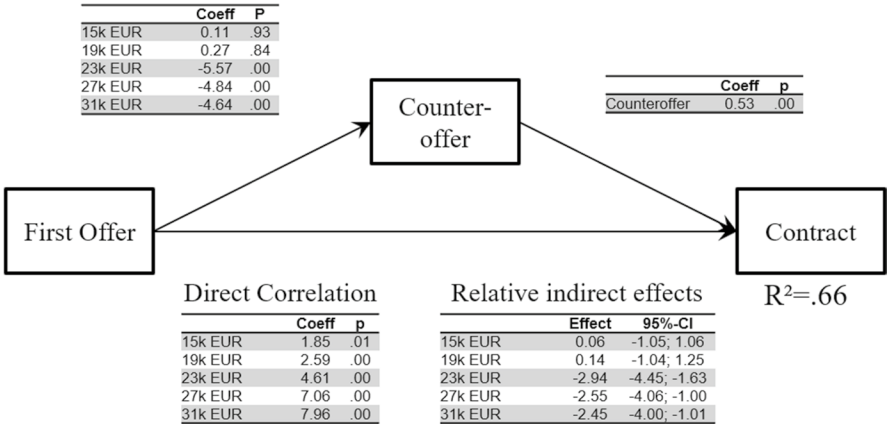


Fig. 6 Mediation test outcome

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Declaration

Conflict of interest We have no known conflicts of interest to disclose. All data has been made publicly available at the OSF Repository and can be accessed at https://osf.io/7erwc/?view_only=81a89da1f54e4357a5c7623b28c06954. This study was not preregistered.

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