Information asymmetry in buyer-seller negotiations and its impact on effectiveness, efficiency and satisfaction

Competitive Paper
Main session

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Abstract

Owing to the increasing need to maximize scarce resources, it is crucial for organizations to perform their negotiations effectively *and* efficiently. Despite the importance of effectiveness *and* efficiency of negotiations, it is surprising that negotiation performance has to date been analyzed – both in the literature and in practice – mostly in terms of the e*ffectiveness* of the outcome. To date, the *efficiency* of negotiations has attracted less interest. This might be due to the dilemma that the exchange of information during the negotiation process – though being important for the effective outcome – is related to costs (input). Given this background, this paper seeks to analyze the overall performance of buyer-seller negotiations (effectiveness and efficiency) as well as their impact on negotiation satisfaction by manipulating the amount of information buyers and sellers receive before entering the negotiation. Specifically, we conducted a face-to-face negotiation simulation. The results show that the group provided with more information achieved more effective *and* efficient outcomes as well as higher levels of satisfaction with the negotiation. Therefore, our analysis implies that the open exchange of information should be an ideal in long-lasting buyer-seller negotiations; because this is generally not the case in practice to date, we provide further implications for its appropriate implementation and discuss opportunities and risks.

Negotiations are a key aspect of industrial transaction processes (*Atkin, Skinner, 1975; Cunningham 1980; Dion, Banting 1988; Anderson, Narus 2004*). This is due to the fact that negotiations usually serve as a means to settle buyer-seller interactions concerning price, date of delivery, and service contracts, for example. Owing to the increasing need to maximize scarce resources, it is crucial for both selling and buying organizations to perform their negotiations effectively *and* efficiently. In this context, a negotiation is usually considered *effective* if the preferences of the negotiation parties are fulfilled and the negotiation outcome induces a high economic (e.g., profit) and non-economic (e.g., building a strong relationship) value (e.g., *Dabholkar et al. 1994; Clyman 1995; Clyman 1996; Clyman, Tripp 2000; Curhan et al. 2006*). On the other hand, *negotiation efficiency* refers to the relationship between the negotiation outcome and the efforts to reach this outcome (e.g., the duration of the negotiation process or the amount of persons involved). To this end, it has been shown that buyers and sellers are satisfied with a negotiation that turns out to be effective *and* efficient (*Voeth et al. 2006*).

Despite the importance of effectiveness *and* efficiency in negotiation performance measurement, it is surprising that negotiation performance has to date been analyzed – both in the literature and in practice – mostly in terms of the e*ffectiveness* of the outcome (*Clopton 1984; Churchill et al. 1985; Oliver et al. 1994; Sharland 2001; Smith, Barclay 1993*). To date, the *efficiency* of negotiations has attracted less interest. This might be a result of the dilemma posed by the simultaneous consideration of effective *and* efficient performance criteria: Negotiation *effectiveness* is a result of the mutual exchange of information between buyers and sellers (*Weitz 1981; Alexander et al. 1991; Thompson, Hastie, 1990; Thompson, 1991; Neal, Northcraft 1991*). This is due to the fact that the uncertainty in the transaction process (which results from information asymmetries between buyers and sellers) can be minimized by the exchange of information, and the quality of decisions can be improved (*Stigler 1961; Dawes, Lee 1997; Knobloch, Solomon 2002*). However, the efforts during the negotiation process increase with the continuous seeking and signaling of information, which negatively impacts the *efficiency* of the negotiation process.

Given this background, we seek to analyze the overall performance of buyer-seller negotiations (effectiveness and efficiency) as well as their impact on negotiation satisfaction by manipulating the amount of information buyers and sellers are provided with before entering the negotiation. More concretely, we want to analyze if (1) information asymmetries between buyer and sellers have an impact on negotiation performance, if (2) information asymmetries in negotiations have an impact on negotiation satisfaction, and if (3) the exploitation of information asymmetries between buyer or seller might depend on the types of preferences (economic vs. non-economic) the negotiation parties possess.

In order to reach these goals, our paper is structured as follows. First we describe buyer-seller negotiations as information exchange processes. On this basis, we examine the components of negotiation performance and propose our conceptual framework. In the next step, we report on our research methodology and discuss the findings of our empirical study. The paper concludes with implications for research and practice.

Conceptual Background

Buyer-seller negotiations as information-exchange processes

As mentioned, buyer-seller negotiations play a key role in industrial markets. This is due to the fact that the majority of exchange conditions – the price, delivery date, and guaranteed warranties, for example – need to be determined between the partners in a value chain. To this end, buyers and sellers both try to fulfill their own interests as much as possible by deciding which offers and concessions they can make, and which contract they will finally accept (*Thompson 2005, p. 72*). In this context, owing to the fact that buyer-seller relationships in industrial markets are often long-lasting – beside economic preferences – non-economic preferences (e.g., fairness or cooperation in the negotiation) are decisive (*Herbst, Voeth 2008*). Economic frameworks such as Game Theory have been suggested as explanation for economic outputs of negotiations, but not non-economic aspects concerning the process (*Thompson, 1990 a*). To address both output (economic preferences) and process (non-economic preferences), the approach taken here is based on the Dual Concern Model (*Filley, 1975; Thomas, 1976; Pruitt, 1981; Carnevale, Pruitt, 1992; van de Vliert, 1996*). The Dual Concern Model suggests that negotiators are motivated by their own self-interest and also their concern for the other party. This can also be illustrated by reference to the existence of various definitions for a 'good' negotiation (*Williams 1993, p. 155*):

1. A negotiation where both sides are most satisfied

2. A negotiation that provides the most satisfaction

3. A negotiation that provides the most money

4. A negotiation that came closest to totally destroying the other side

The first definition considers a good and satisfactory negotiation both for buyer and seller and implies that especially non-economic preferences might be fulfilled by the negotiated agreement. In order to reach an agreement that satisfies both buyer and seller, they need to cooperate with each other and work with their preferences (*Thompson 2008, p. 20*). If buyer and seller have conflicting preferences concerning their objectives in the negotiation, it is possible to reach an agreement that achieves an optimal result for both parties (*Raiffa 1982*). Hence a negotiation between a buyer and a seller with strong non-economic preferences is effective if the individual fulfillment of own preferences are maximized with consideration for the opponent's preferences. On the contrary, definitions 2 to 4 consider the maximization of own satisfaction or the own monetary outcome. At this juncture, non-economic preferences are likely to be of lesser importance, and the effective negotiation is characterized by the maximization of the fulfillment of own preferences without consideration for the opponent's preferences.

However, the achievement of mutually satisfactory agreements is not at all an easy task. This is due to the fact that buyer-seller negotiations are typically characterized by information asymmetries: Buyers and sellers are not aware of each other's preferences. In turn, this results in both-sided perceived uncertainty concerning possible agreements (*Thompson 1995*). In order to overcome such uncertainty and thus be able to reach mutually satisfying agreements, the acquisition of information seems of high relevance (*Putnam, Roloff 1992*).

Against this background, we consider the ongoing information exchange between the negotiation parties as a central assessment criterion of negotiation performance. In a similar vein, *Schoop et al.* (2008) identified *communicative interaction* as the primary influence factor of negotiation performance. In this context, negotiation performance is defined as a quantification of effectiveness *and* efficiency (*Neely et al. 1995, p. 80*).

Effectiveness and efficiency as dimensions of negotiation performance and their impact on negotiation satisfaction

Due to today's increasingly competitive environment, sellers and buyers are forced to achieve good performance in their negotiations. In this context negotiation *effectiveness* can be defined as indicator of achievement of objectives and preferences (*Butler 1999; Purdy et al. 2000*) ("doing the right things") (*Drucker 1974, p. 45*). Hence, the negotiated agreement should induce the most valuable benefit to the negotiating party as possible. This is the case if the preferences of the negotiation parties are fulfilled (*Bazerman, Neale 1992*). The kind of negotiation preferences is this contingent upon situational *and* relational conditions. To illustrate: in long-term buyer-seller relationships, both economic and non-economic preferences (such as for example the relationship) are usually relevant. By contrast, non-economic preferences are likely to be of inferior importance in the case of transactional price negotiations.

Negotiation *efficiency* can be understood as relation between the efforts of exchange of information (input) and the output of the negotiation ("doing the things right") (*Drucker 1974, p. 45*). Hence, an efficient negotiation requires economical activities for information seeking and signaling. Such an assortment should occur against the background of a cost-benefit analysis. Thereby, the costs of activities for the exchange of information are compared with the benefit that the gain of such information induces (*Stigler 1961, pp. 213*).

According to the above mentioned definitions of a 'good' negotiation, achieving an effective negotiation involves negotiation satisfaction. Furthermore, *Voeth et al. (2006)* demonstrate a relationship between negotiation efficiency and negotiation satisfaction. This is why we posit that both negotiation efficiency and negotiation effectiveness will impact negotiation satisfaction. Our explanations are summarized in figure 1.

Figure 1: Information asymmetry and its impact on effectiveness, efficiency, and satisfaction
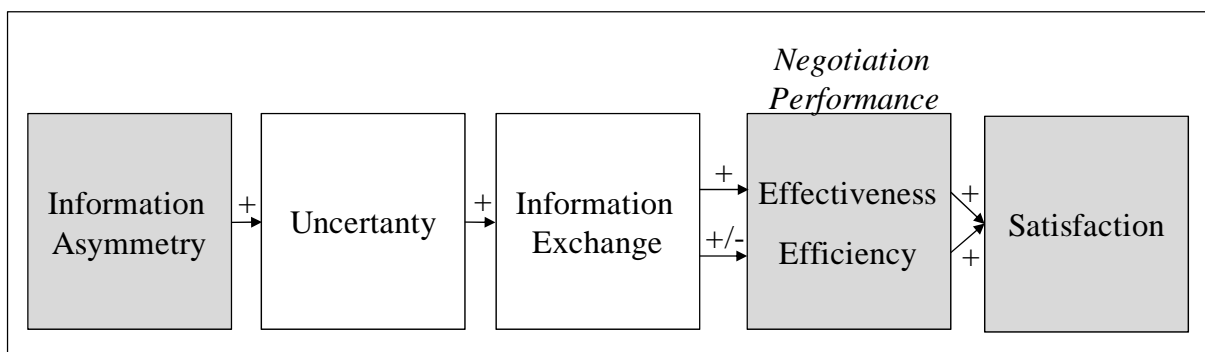
The operationalization of performance in buyer-seller negotiations as well as research questions

In regard to the analysis of negotiation effectiveness, it is crucial to first determine the parties' preferences. In this context, *conjoint analysis* has proven particularly useful (*Greenhalgh, Neslin 1981*; *Herbst, Voeth 2008*). This is due to the fact that both the relative importance of the negotiation preferences (e.g., if the price is more important than the delivery date) as well as their partial utilities (e.g., the exact price or delivery date) can be evaluated by means of this method. These data allow the calculation of the individually perceived utility of every offer made during the negotiation. Moreover, conjoint data allow for comparison with the agreement that would have been optimal. This is the case when the negotiators' preferences are perfectly fulfilled. This requires the negotiators to be aware of their own preferences. Moreover, a better basis of information about the opponents' preferences could help to influence the opponent's offers and thus to reach a more effective negotiation outcome (*Fisher et al., 1993*). From this we derive the following first research question:

RQ 1. *Does a reduction of information asymmetries induce more effective negotiation outcomes?*

In practice, however, the accurate transfer of information is often impeded by distrust and by distorted perceptions (*Cross, 1969 p. 6*). The frequent use of bluffing – the misrepresentation of expectations, preferences, or environmental conditions, for example – does not lead to a downsizing of information asymmetries. In our view, this is particularly harmful if one negotiation party has purely economic preferences, whereas its opponent might also be interested in the fulfillment of non-economic preferences. This is due to the fact that, in this case, the purely economically orientated party cheats the non-economic orientated one by bluffing.

RQ 2. *Do non-cooperative orientated negotiators with strong economic preferences exploit a high information asymmetry to maximize their own negotiation outcome at the expense of the more cooperatively orientated negotiation partner?*

As soon as the maintenance of a stable business relationship is important to the negotiation parties, both one's own preferences as well as those of the opponent should be valued. This is due to the fact that the consideration of the own and the opponent's preferences makes mutual gains possible (*Cross 1969*; *Bacharach, Lawler 1981)*. Hence, if information about the opponents' preferences is available and considered by the both-sided concessions it's possible to create value for both sides and the overall outcome might be more integrative *(Raiffa 1982; Thompson 2008)*. As the consideration of one's opponent's preferences usually implies the existence of non-economic preferences we posit the following research question.

RQ 3. *Does a reduction of information asymmetries induce more integrative outcomes if both parties have strong non-economic preferences?*

Other than the analysis of negotiation effectiveness, negotiation efficiency can be analyzed by the relation of output (utility) and input. In this context, as noted, the dilemma exists that the exchange of information during the negotiation process – though being

important for the effective output – is related to costs (input). It can therefore be assumed that the effort of seeking and signaling information might be reduced if the information asymmetry is decreased prior to the negotiation. Regarding the efficiency of negotiations, we thus posit the following research question.

RQ 4. Does a reduction of information asymmetries lead to more efficient negotiations?

As the reduction of information asymmetries support the achievement of more effective and efficient outcomes it is assumable that negotiators might be more satisfied with the negotiation when information asymmetries are reduced. This is due to the fact that in an effective negotiation the negotiators' preferences are fulfilled as good as possible which should also result in a higher satisfaction. Furthermore, *Voeth et al.* (2006) identified by means of causal analysis that the effectiveness and efficiency of a negotiation might increase the satisfaction of the negotiators. Here from we derive the following last research question:

RQ 5. Does a reduction of information asymmetries induce to higher satisfaction?

Empirical Study

Method and objectives

In order to address these research questions, we conducted a large-scale negotiation simulation based on a realistic business environment. The sample participants were gathered from a business graduate course of a German university. Within two weeks, we were able to motivate 92 graduate students to participate in the simulation, which was structured as follows: The students were randomly allocated in one-person teams on either the role of a buyer or the role of a seller in the solar energy market. They were asked to familiarize themselves with a business situation supplied in a case study. This case study provided identical general information on the market and the product to all participants. Furthermore, role-specific information was provided so as to create information asymmetry within the markets. Prior to the negotiation, every student was asked to fill out a conjoint analysis questionnaire in regard to his or her individual economic and non-economic preferences.

Figure 2 shows the average relative importance of the 14 attributes[1]. This reveals that buyer and seller had different preferences for some objects in the negotiation (e.g., the price for the electrolyte and the solar cell). Every participant was provided with his or her individual results prior to the negotiation. This allowed them to prepare for the negotiation and to evaluate the different offers discussed during the negotiation process.

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[1] The seven economic attributes are the attributes that had to be fixed in the contract at the end of the negotiation. The seven non-economic attributes were chosen on the basis of the study of *Herbst, Voeth* (2008).

Figure 2: The average relative importance of the 14 attributes for buyer and seller
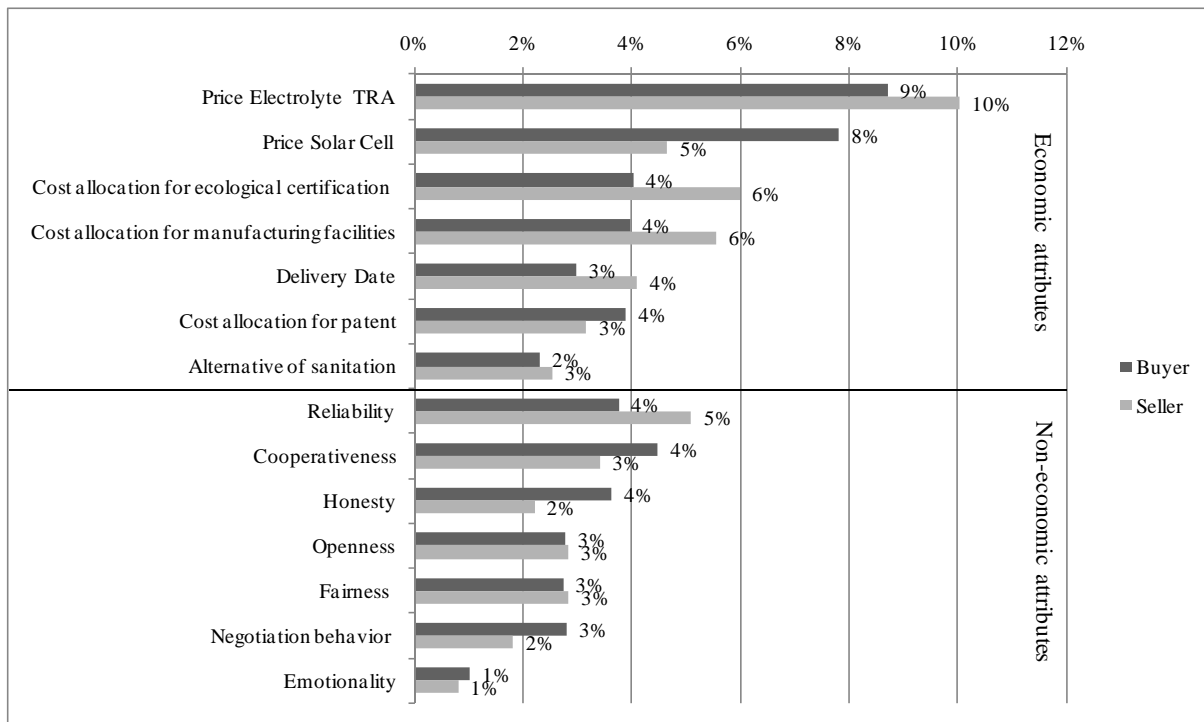
Finally, in order to manipulate the participants in terms of our research goal, we divided the sample into two subgroups:

1. Negotiations in which both negotiators only had information about their own preferences
2. Negotiations in which both negotiators also had information about their opponents' preferences in addition to their own preferences.

All negotiations were conducted face-to-face without a time limit. After the negotiations, the participants signed a contract and filled out a questionnaire in regard to their negotiation satisfaction. On the basis of individual conjoint results as well as the information from the contract, we were able to determine the *effectiveness* the negotiators achieved by their mutual agreement. One example for effectiveness is shown in table 1.

Table 1: Example for effectiveness

Role	Max. utility (a)	Realized utility (b)	Individual effectiveness (b)/(a)
Buyer	169.4	91.29	53.9 %
Seller	157.4	49.34	31.3 %

On the basis of the individual effectivenesse of buyer and seller it was possible to calculate the integrative outcome by combining the individual effectiveness of buyer and seller. Hence, this *combined effectiveness* of the negotiation was estimated by the sum of

individual effectiveness of buyer and seller. In this example, this would be 53.9 + 31.3 = 85.2% points.

The *efficiency* was determined by the ratio of the effectiveness to the time the negotiators needed to get to their agreement. In order to avoid any biases we set no time limit. This means that the negotiators finished the negotiation at that point at which they thought they had reached the optimal agreement. One example for efficiency is shown in *table 2*.

Table 2: Example for efficiency

Role	Effectiveness (a)	Time in minutes (b)	Efficiency (a)/(b)
Buyer	65 %	60	1.08 % points / min.
Seller	55 %	60	0.92 % points / min.

The research findings

The results concerning individual and combined effectiveness

RQ 1 asks whether a reduction of information asymmetries induce more effective negotiation outcomes. In order to analyze this research question, we calculated the individual buyer and seller effectiveness. Our results, as shown in table 3, indicate that information asymmetry has an influence on individual effectiveness. Parties that had information about the preferences of both sides achieved more effective individual outcomes. Thus, there was a significant (p = 0.045) difference between buyer effectiveness under information asymmetry and buyer effectiveness under reduced information asymmetry – 11.29 % points. There was also a significant (p = 0.022) difference between seller effectiveness under information asymmetry and seller effectiveness under reduced information asymmetry – 16.42 % points. Hence, reduced information asymmetry induces more effective individual outcomes. *RQ 1* is thus supported.

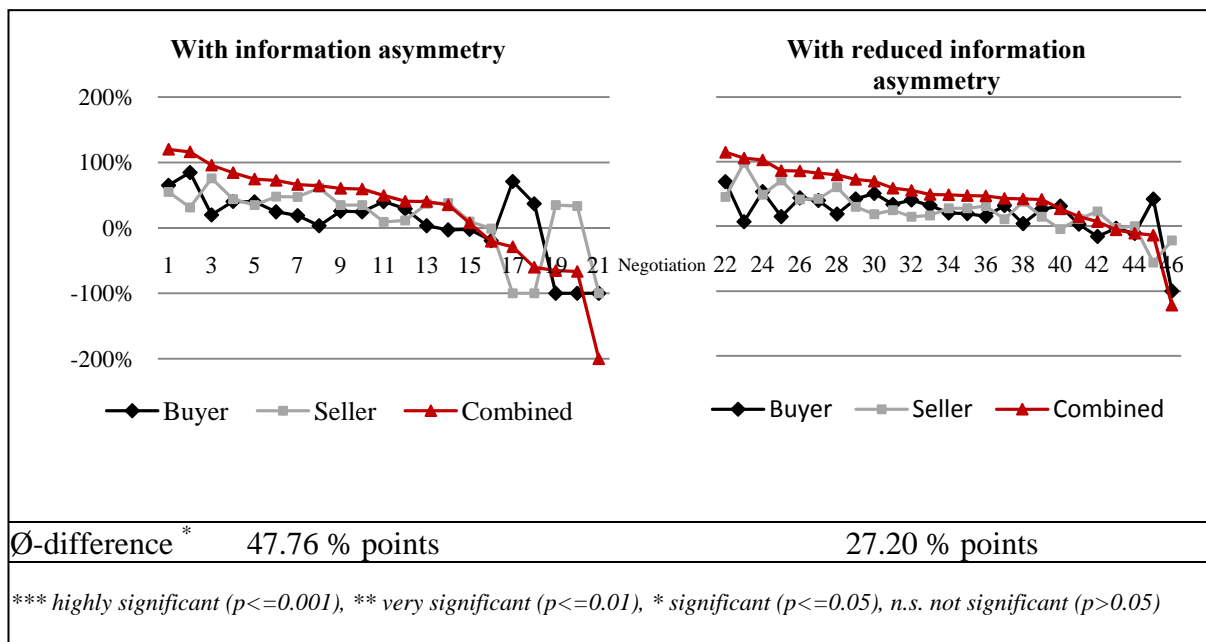**Table 3: The average individual and combined effectiveness**

Role	With information asymmetry	With reduced information asymmetry	Difference Δ
Buyer [*]	9.71 %	21.00 %	11.29 % points
Seller [*]	11.71 %	28.13 %	16.42 % points
Combined effectiveness [*]	25.11 % points	47.40 % points	22.29 % points

*** highly significant (p<=0.001), ** very significant (p<=0.01), * significant (p<=0.05), n.s. not significant (p>0.05)

In *RQ 2* we posit the question whether non-cooperation-orientated negotiators with strong economic preferences exploit information asymmetry to maximize their own negotiation outcome at the expense of more cooperation-orientated opponents. This time, we

analyzed the negotiation outcomes not according to average (as shown in table 3), but on an individual basis (figure 3) and by consideration of negotiator preferences. When one negotiator maximizes his or her own negotiation outcome at the expense of the opponents' outcome, this can be demonstrated by an unbalanced allocation of individual effectiveness between buyer and seller. Hence, if the difference between buyer and seller effectiveness is very high, the allocation is not balanced and one party has achieved a much better result. Figure 3 indicates that reduced information asymmetry induces a more balanced allocation of individual effectiveness between buyer and seller in the numerous negotiations (e.g., 17 - 21). In the group with information asymmetry, an average difference between buyer and seller of 47.76 % points can be identified. In the group with reduced information asymmetry, the difference is 27.4 % points. The difference between these two groups (with and without information asymmetry) is significant (p = 0.018).

Figure 3: The individual and combined effectiveness, sorted by negotiations

| Ø-difference [*] | 47.76 % points | 27.20 % points |

*** highly significant (p<=0.001), ** very significant (p<=0.01), * significant (p<=0.05), n.s. not significant (p>0.05)*

If the differences are analyzed in detail against the background of the negotiator preferences (table 4), some important results can be identified. In the negotiations with information asymmetry and only one party with strong non-economic preferences, the differences (85.22 % points) are notably higher than in the negotiations where both sides had the same orientation. In the negotiations with reduced information asymmetries, the negotiators with strong economic preferences seem unable to cheat the non-economically orientated opponent due to the transparent information. In this case, the difference between seller and buyer was only 23.02 % points. Hence, non-cooperation-orientated negotiators with strong economic preferences can exploit information asymmetry to maximize their own negotiation outcome at the expense of more cooperation-orientated opponents. *RQ 2* is thus supported.

Table 4: The average individual and combined effectiveness, depending on negotiator preferences[2]

Both have strong economic preferences	Difference between individual effectiveness [n.s.]	With reduced information asymmetry	29.79% points
		With information asymmetry	34.21% points
	Combined effectiveness [**]	With reduced information asymmetry	52.05%
		With information asymmetry	19.37%
One has strong non-economic preferences and the other has strong economic preferences	Difference between individual effectiveness [**]	With reduced information asymmetry	23.02% points
		With information asymmetry	85.22% points
	Combined effectiveness [**]	With reduced information asymmetry	34.94%
		With information asymmetry	2.50%
Both have strong non-economic preferences	Difference between individual effectiveness [n.s.]	With reduced information asymmetry	29.36% points
		With information asymmetry	34.71% points
	Combined effectiveness [*]	With reduced information asymmetry	72.50%
		With information asymmetry	62.33%

*** highly significant ($p<=0.001$), ** very significant ($p<=0.01$), * significant ($p<=0.05$), n.s. not significant ($p>0.05$)*

RQ 3 asks whether the reduction of information asymmetries induce more integrative outcomes if both parties have strong non-economic preferences. In order to analyze this research question, we analyzed the combined (integrative) outcome against the background of the negotiators' preferences. The results in table 4 indicate that the negotiations where both parties have strong non-economic preferences have the best combined outcome (72.5 % points) in the case of reduced information asymmetries, compared to the other negotiations where neither party (52.05 % points) or only one party (34.94 % points) has non-economic preferences. Hence, the reduction of information asymmetries induces more integrative outcomes if both parties have strong non-economic preferences. *RQ 3* is thus supported.

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[2] To determine if the negotiators have strong non-economic preferences, we calculated the mean of the non-economic preferences over all negotiators. Above-average preferences were declared as *strong* preferences and below-average preferences as *low*.

The results concerning the efficiency of the negotiation

In **RQ 4** we posit the question whether a reduction of information asymmetries leads to more efficient negotiations. Therefore we analyzed how much time the negotiators needed to reach their agreement. The average duration of the negotiation was 47.2 minutes in the case of information asymmetries and 46.5 minutes with reduced information asymmetry. This difference was not significant. Hence, the reduction of the information asymmetry did not have an influence on the duration of the negotiation. The better efficiency in the negotiations without information asymmetries (as shown in figure 4) is due to higher effectiveness. Hence the outcome of the negotiations was increased by the reduction of information asymmetries. The input was almost unchanged. As the results in figure 4 show, the difference in efficiency between the two groups (with and without information asymmetry) is significant in the case of combined efficiency and individual seller efficiency. It is only in the case of the individual buyer efficiency that the difference is not significant. Nevertheless, the reduction of information asymmetries induces more efficient negotiations as a trend, even if the results are not significant in one case. *RQ 4* is thus supported partly.

Figure 4: The individual and combined effectiveness sorted by negotiations
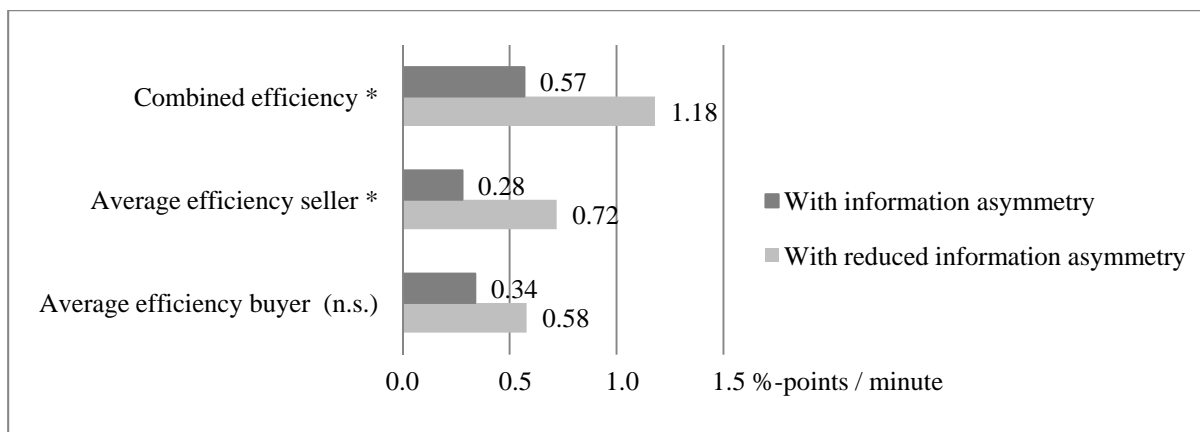
*** highly significant (p<=0.001), ** very significant (p<=0.01), * significant (p<=0.05), n.s. not significant (p>0.05)
Note: The combined efficiency is the ratio of combined effectiveness to the duration of the negotiation. The individual efficiency of buyer and seller is the ratio of the individual effectiveness to the duration of the negotiation.

The satisfaction of the negotiators

RQ 5 asks whether a reduction of information asymmetries induces greater satisfaction. In order to analyze this research question, we first calculated the difference between the satisfaction[3] in the case of reduced information asymmetry (3.56) and in the case of full information asymmetry (3.48). This difference is not significant (p=0.76). The reduced information asymmetry therefore did not make the negotiators more satisfied.

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[3] Satisfaction was measured by a 5-point scale from 1 (*very dissatisfied*) to 5 (*very satisfied*).

Due to the assumption that the satisfaction of a negotiator is dependent on effectiveness and negotiator preferences, we analyzed satisfaction against the background of the negotiator preferences in a second step.

Table 5: The influence of individual effectiveness, combined effectiveness and efficiency on the satisfaction of the negotiators

	Independent variables	With information asymmetry		With reduced Information asymmetry	
		Standardized regression coefficient β	R^2	Standardized regression coefficient β	R^2
Strong economic preferences	Individual effectiveness	0.758^{**}	0.815	$0.668^{\text{ n.s.}}$	0.557
	Combined effectiveness	0.381^{*}		$-0.051^{\text{ n.s.}}$	
	Efficiency	$-0.201^{\text{ n.s.}}$		$0.125^{\text{ n.s.}}$	
Strong non-economic preferences	Individual effectiveness	$0.592^{\text{ n.s.}}$	0.433	0.467^{*}	0.848
	Combined effectiveness	$-0.209^{\text{ n.s.}}$		0.561^{***}	
	Efficiency	$0.191^{\text{n.s.}}$		$-0.040^{\text{ n.s.}}$	

*** highly significant ($p<=0.001$), ** very significant ($p<=0.01$), * significant ($p<=0.05$), n.s. not significant ($p>0.05$)

Table 5 shows the results of the regression analysis for the two possible preference characteristics (more economically orientated or more non-economically orientated). The dependent variable in all cases is the individual satisfaction with the overall negotiation. The results indicate three major findings.

(1) If the negotiator has strong economic preferences, *individual* effectiveness has a strong and very significant influence on the satisfaction. However, this connection is only true in the case of information asymmetries.
(2) If the negotiator has strong non-economic preferences, *combined* effectiveness has a strong and very significant influence on the satisfaction. This connection is only true if the information asymmetry is reduced.
(3) The results for efficiency are not significant in all cases. Hence, only tendencies are identifiable.

The overall relationships between effectiveness, efficiency, and satisfaction (as per *RQ 5*) cannot be confirmed completely. In fact, the satisfaction should be analyzed against the background of the amount of available information *and* the negotiators' preferences.

These observations reveal that our findings offer initial insights concerning the influence of information asymmetries on negotiation performance; they also provide concrete directions for managerial guidelines.

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Discussion and managerial implications

Our study's primary objective was to analyze the influence of information asymmetries on the overall performance of buyer-seller negotiations (effectiveness *and* efficiency) as well as their impact on negotiation satisfaction. In this context, our aim was (1) to use a broader, more complete analysis of negotiation performance in order to reach a more satisfactory explanation of industrial negotiation settings, and (2) to achieve a deeper understanding of the influence of information asymmetries on negotiation performance.

Based on a large-scale negotiation simulation, we found that a reduction of information asymmetries is accompanied by more effective individual negotiation outcomes. Consequently, well-executed negotiation processes should be understood as social interaction processes (*Lewicki, Litterer, 1985*) in which both-sided perceived uncertainties are reduced by exchanging information (*Knobloch, Solomon, 2002*).

Furthermore, our results reveal that the reduction of information asymmetries might enable more integrative agreements. This result, however, is also contingent on the negotiation parties' preferences (economic vs. non-economic orientation). We found that the achievement of integrative outcomes is aided if all involved parties value non-economic preferences highly. For real buying-selling negotiations, this implies that if buyer and seller both have highly non-economic preferences and are in – or seek to develop – a long relationship characterized by trust, open information transfer is recommended (*Koeszegi 2004*). By contrast, open information transfer might not be appropriate as soon as one of the negotiation parties has highly economic preference. This is because this party might exploit information asymmetry in order to maximize his or her own outcome. Hence, an open exchange of information is dependent on the situation in which the negotiation takes place (*Murnighan et al. 1999*).

Regarding negotiation efficiency, our results were unable to confirm the assumed relationship between reduced information asymmetry and more efficient negotiations by reducing the input. Our results show that in both subgroups (the one with reduced information asymmetry as well as the other one with full information asymmetry) there is no significant difference in the duration of the negotiation. However, at this junction, it must be noted that the negotiations were arranged under experimental circumstances and the negotiation case was simpler than it might be in practice. Hence, a reduction of information asymmetries might well influence the efficiency in real negotiation situations by reducing the negotiation task's complexity (*Hakansson, Wootz 1975*). Furthermore, the duration of the negotiation processes was the only efficiency criterion in our study. Consequently, we might achieve different results by taking into account other criteria, including the amount of persons involved in the process.

Our considerations about and analysis of satisfaction referred to the results of the study of *Voeth et al.* (2006), among others. Whereas our results on the one hand could confirm the relationship between effectiveness and efficiency as well as the negotiators' satisfaction, they also yield some more interesting insights. Our results show that satisfaction is highly dependent on the negotiators' preference types *and* the situation of information asymmetry. To illustrate: As soon as a negotiation party is highly economic orientated, the effectiveness of the individual outcome has a stronger influence on negotiation satisfaction than the achieved integrative outcome. However, this is only the case if the negotiation

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situation is characterized by information asymmetries and the negotiator does not have to reveal his or her real preferences, i.e. the aim of optimizing the own outcome. On the contrary, the integrative outcome has a strong impact on negotiation satisfaction if the negotiation parties pursue non-economic preferences while the information asymmetries are reduced. This means that if the negotiators are in a negotiation characterized by trust with open information transfer and can realize a well-integrative outcome; this is highly satisfying to the participants. Hence, the satisfaction resulting from the performance must be considered along with negotiator preferences and the situation of information asymmetries. This presents an opportunity for further research in this field.

In summary, our results indicate that it is crucial to obtain as much information as possible prior to the negotiation (*Brodt, 1994, p. 173*). Against the background of our findings especially information about the opponent's goals and preferences are of crucial importance (*Thompson, 2008, p. 2*). This is not at least due to the fact that the estimation of opponents preferences delivers important implications on how transparent the own preferences should be communicated. Hence on the basis of this information information-exchange- and negotiation-strategy can be planed (*Cross, 1969*). However, it must be pointed out that information seeking and signaling is involved with costs. Hence in practice efficient solutions of information management are required.

Limitations

The findings are presented with certain caveats: First, our sample was composed of relatively inexperienced negotiators (in this case, graduate students). This could have led to an over-estimation or under-estimation of the relative importance of non-economic preferences in practice (*Thompson, 1990 b*). Secondly, our analysis of both negotiator preferences and performance might be invalid as our conjoint analysis was conducted prior to the negotiations. However, negotiator preferences and expectations might be unstable (*Simon, 1959, pp. 262*; *Ariely et al., 2003*) and might change during the negotiation process. The appropriateness of a single measurement, which furthermore was prior to the negotiations, must be considered. Our simulation was also developed in a one-to-one negotiation setting. In practice, buyer-seller negotiations, especially on industrial markets (*Backhaus et al., 2008*) mostly take the form of team negotiations. Due to the fact that, in our study, negotiation performance was determined on the basis of individual preferences, our results cannot be applied to teams (*Bazerman et al., 1988*). Thus, further studies are required to analyze the performance of negotiation teams.

These limitations indicate that the analysis of negotiation performance is not at all a simple or easy task. It is hardly possible to sufficiently cover all the elements in the complex task of negotiation performance in a single study. Nevertheless, our results offer first useful insights into the highly relevant topic of negotiation performance and the key role of information in this context. They also provide a direction and motivation for further research.

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