Information Sharing in Asymmetric Buyer-Seller Negotiations: an Experimental Study

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This paper reports results of experiments mimicking buyer-seller negotiations over two periods, in which two factors introduce bargaining asymmetries—a threat price from a competitor of the supplier and private information held by either the buyer or seller. Hypotheses are developed, which reflect the possible effects of information sharing and threat price on negotiated price outcomes. The impact of information sharing should depend on whether a threat price exists; it should also depend on which party, buyer or seller, is in control of the information. In each experiment conducted, the bargaining frontier consists of specific price solutions. Information is provided on the utility of each price solution. Results show that there is a main effect of threat in lowering negotiated prices. There is also evidence of a main effect of information sharing, and that the impact of sharing depends on whether there is a threat price. The magnitude of the information sharing effect also depends on whether the seller or the buyer initiates the exchange process. Interestingly, it is disadvantageous for a seller to share information in the absence of a threat. When a threat price exists, sellers can partially mitigate some of the effects of the threat through information sharing. Specifically, we find that the best a seller can achieve is an equal earning settlement, a solution in which both parties earn equal amounts of utility from their worst possible utility points. Buyers perceive the outcomes to be fair when sellers share information; they also consider that sellers have significantly influenced them, when the latter use information sharing as a selling strategy. When buyers share information themselves, they benefit regardless of whether they possess a threat price or not. We conclude that a seller might benefit from sharing private information, but only when facing a credible threat.

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EXTENDED ABSTRACT

Experiments are conducted simulating two-stage, buyer-seller negotiations over the issue of a contract price. Two factors introduce asymmetries to the bargaining situation - an alternative offer from a rival supplier representing a threat price held by the buyer, and private information, held by either the buyer or seller, on the value of potential outcomes to each party. Hypotheses are developed, which reflect the possible effects of sharing of private information and of a threat price, on negotiated price outcomes. There should be a main effect of threat leading to lower negotiated prices - a credible alternative offer from another supplier skews the bargaining scenario in favor of the buyer. There should also be a main effect of information sharing. A number of explanations are offered for this effect. For example, the sharing of information by a seller might be seen as a giving up of power or a concession, which merits a reciprocal concession on the part of the buyer. A seller providing credible information about itself might reduce the problem of adverse selection faced by the buyer by helping answer questions such as "is a low-price offer from a supplier because of its inferior quality?" Sharing of information might also cause the buyer to feel that it is being treated fairly. The direction of any information sharing effect should depend on whether the buyer shares information (lower prices) or the seller controls the information exchange (higher prices). Specific interactions are hypothesized. Our major interaction hypothesis is that the magnitude of any information sharing effect should depend on whether a threat price exists; the impact of information exchange should be greater under conditions of threat than when there is no credible alternative for the buyer. Another hypothesized interaction is that the influence of sharing information should depend on which party, buyer or seller, is in control of the information exchange; the seller, especially when faced with a threat, should be able to benefit more from this negotiating strategy.

In each experiment conducted, the bargaining frontier consists of price points corresponding to specific solution outcomes, mostly based on theoretic solutions that might intuitively be considered fair. Among others, these include a price point where both parties achieve the same utility, a point where each gains an equal amount of utility from his minimum utility point, and a price representing equal loss to each from his maximum utility in the game. Subjects are not told about the meaning of each discrete price point and they are not restricted to settling on just these prices. Information is provided on the value (utility) of each price point on the bargaining frontier. In the 'information-sharing' condition the party in control of information exchange, knows about the value of each potential outcome, not only to itself but also to its opponent, and has to divulge this knowledge during the negotiation. Experiment 1 is designed so that either buyers or sellers can initiate the information exchange in the 'sharing' condition. In experiment 2, in order to focus on selling strategies we allow only sellers to share information. The party initiating the information exchange must share the knowledge that it has - it must reveal details of its own utility function and whatever it knows of its opponent's utility function - as part of its bargaining strategy. The design of experiment 2, with the factor 'knows buyer's utility function/does not know', allows us to distinguish between the effect of knowing about an opponent's utility function (and letting the opponent know this fact), and the effect of divulging details of one's own value for outcomes. Only the latter effect, of private information sharing, is found to be significant in influencing outcomes. In the second study, in addition to observations of the negotiated price (if there is a settlement) measures are taken of the manifest influence exerted by the seller in the opinion of the buyer, and of the buyer's perception of the fairness of the final settlement. Each of these perceptual outcomes is measured using established scales. Since there are multiple dependent variables in experiment 2 MANOVA is used to analyze this data. Protocols are collected in real time with participants typing their arguments in support of a price offer on an online discussion board before entering into verbal negotiations.

Results show that, as in previous studies there is a main effect of threat in lowering negotiated prices. Unique to this study, there is also evidence of a main effect of information sharing, and that the impact of sharing differs significantly, depending on whether there is a threat price or not. The information sharing effect also depends on whether the seller or the buyer initiates the exchange process. Interestingly, in the absence of a threat sellers are found to do worse through exchanging private information than when there is a threat. When a threat price exists, sellers can partially mitigate some of the effects of the threat through information sharing. We find that under the conditions imposed, the best a seller can achieve is a settlement a little above the minimum price point in the bargaining set, corresponding to an equal gain of utility from their respective minimum utility points, for each party. The protocols support the idea that the process of arriving at this price solution corresponds to finding a price that provides equal earning from a minimum utility point.

Buyers perceive the outcomes to be fair when sellers share information; this despite feeling that sellers have significantly influenced them, when they use information sharing as a selling strategy. The 'perceived fairness' result suggests that an information sharing strategy should not harm customer relationships in the longer term. When buyers share private information themselves, they benefit regardless of whether they possess a threat price or not. The main strategic implication for sellers in a bargaining situation is that a seller can benefit from sharing private information, but only when facing a credible threat. If there is no such threat, a seller might be better off keeping any private information to himself.

FULL PAPER REFERENCES


California Processor Board (1993), Management Update, (October).


