Sociological Theory

Fragile and Resilient Trust: Risk and Uncertainty in Negotiated and Reciprocal Exchange*

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Both experimental and ethnographic studies show that reciprocal exchanges (in which actors unilaterally provide benefits to each other without formal agreements) produce stronger trust than negotiated exchanges secured by binding agreements. We develop the theoretical role of risk and uncertainty as causal mechanisms that potentially explain these results, and then test their effects in two laboratory experiments that vary risk and uncertainty within *negotiated and reciprocal forms of exchange. We increase risk in negotiated exchanges by making agreements nonbinding and decrease uncertainty in reciprocal exchanges by having actors communicate their intentions. Our findings support three main theoretical conclusions. (1) Increasing risk in negotiated exchange produces levels of trust comparable to those in reciprocal exchange only if the partner's trustworthiness is near-absolute. (2) Decreasing uncertainty in reciprocal exchange either increases or decreases trust, depending on network structure. (3) Even when reciprocal and negotiated exchanges produce comparable levels of trust, their trust differs in kind, with reciprocal exchange partners developing trust that is more resilient and affect-based.*

Since Granovetter's (1985) classic work, scholars have increasingly documented the extent to which even economic exchanges are embedded in networks of social relationships. In the organizational literature, researchers commonly distinguish between "arm's-length" market exchanges characterized by impersonal deals that focus solely on monetary outcomes and reciprocal exchanges embedded in long-term relationships in which interests expand beyond monetary exchanges and business partners become friends (Kranton 1996; Larson 1992; Uzzi 1996). Contracts and formal agreements govern transactions in market exchanges; trust and reciprocity norms govern reciprocal exchanges in socially embedded relationships. Entrepreneurs prefer embedded reciprocal relationships because of both their economic advantages (e.g., securing loans at lower interest rates and obtaining private information about new products or investment opportunities) and their social benefits.

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Foremost among these social benefits is the development of trust—the belief that an exchange partner will not exploit or take advantage of an actor. Trust facilitates decision making, reduces transaction costs, and encourages actors to help one another in ways that they otherwise would not do. As such, it is an important component of the social capital that actors accumulate through their relationships to one another (Coleman 1988; Fukuyama 1995; Paxton 1999; Portes 1998; Putnam 1993).

Most comparisons of market and embedded exchanges emphasize the *impersonal* versus *personal* character of the two, focusing on differences in the length or history of association, whether contact is recurring or one-shot, and the restricted (economic only) versus expanded (both economic and social) spheres of exchange. These distinctions are undoubtedly important, but they neglect differences in the underlying *form* of exchange: whether actors jointly *negotiate* the terms of contractual agreements (as in market exchanges) or individually give and *reciprocate* benefits without negotiation (as in embedded reciprocal exchanges). It is this distinction—between negotiated and reciprocal forms of exchange, rather than the impersonal or personal nature of the relationship—that is the focus of our study. Experimental research in the social exchange tradition has shown that, even when relationship and resource characteristics are controlled, whether exchange is negotiated or reciprocal has strong and predictable effects on trust and affective bonds between exchange partners (Molm, Takahashi, and Peterson 2000, 2003). Actors engaged in reciprocal exchanges trust their partners more, evaluate them more positively, and feel more committed to them than actors engaged in negotiated exchanges.

Here, we theoretically develop and experimentally test the causal roles of risk and uncertainty in producing differences in trust between negotiated and reciprocal forms of exchange. Risk and uncertainty have long been linked to the development of trust in the theoretical literature (Blau 1964; Coleman 1990; Kelley and Thibaut 1978; Kollock 1994; Luhmann 1979). If trust in an exchange partner is to develop, "there must be the possibility of exit, betrayal, defection" by the partner (Gambetta 1988:218–19). This risk of betrayal or defection provides the necessary condition for inferring partners' trustworthiness from their behavior (Hardin 2002; Yamagishi and Yamagishi 1994).

Reciprocal exchanges are riskier than negotiated exchanges with binding agreements and, thus, risk is a plausible causal mechanism for producing the higher levels of trust observed in reciprocal exchange relations (Molm et al. 2000). But reciprocal and negotiated exchanges differ in other respects (e.g., the relative salience of the cooperative and conflictual aspects of exchange and the expressive value created by the voluntary reciprocity of benefits) that could also account for, or contribute to, their differences in trust (Molm, Collett, and Schaefer 2006, 2007; Molm, Schaefer, and Collett 2007). To test the effects of risk and uncertainty on trust *independent* of these other mechanisms, we vary each *within* forms of exchange. We test the effects of risk on trust in negotiated exchanges by varying whether agreements are binding or nonbinding and the effects of uncertainty on trust in reciprocal exchanges by varying whether actors communicate their intentions before initiating exchange with a partner.

Bringing risk into negotiated exchange and communication of intentions into reciprocal exchange makes the two forms of exchange more alike and has the *potential* to reduce their differences in trust. As we show, however, the effects of risk and uncertainty are complex and depend on the network structure within which the negotiated or reciprocal exchange relation is embedded. Furthermore, even when the two forms of exchange produce comparable levels of trust, the trust that develops between

negotiated exchange partners is less forgiving of the partner's transgressions and less tied to affective regard than the trust that develops between reciprocal exchange partners. Negotiated exchange produces fragile, cognition-based trust, while reciprocal exchange produces resilient, affect-based trust (McAllister 1995; Ring 1996)—the kind of trust associated with embedded relationships (Granovetter 1985).

THEORETICAL BACKGROUND

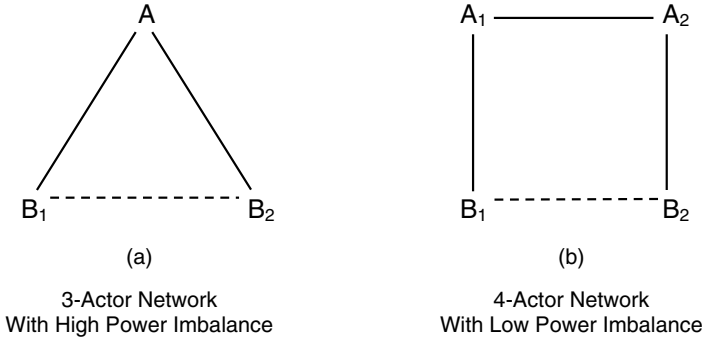
Forms of Exchange

Blau (1964), Emerson (1981), and Lévi-Strauss (1969) all distinguished between negotiated and reciprocal forms of direct, two-party exchange, in which A provides benefits to B and B to A. These two forms of exchange differ on two important dimensions (Molm 1994): (1) whether actors' outcomes are contingent on *joint* action or *individual* action, and (2) the *information* actors have about the terms and timing of the partner's reciprocity. In the "pure" forms of each that have been the subject of most experimental research (e.g., Cook, Emerson, Gillmore, and Yamagishi 1983; Lawler and Yoon 1996; Molm 1997; Skvoretz and Willer 1993), they also differ on the extent to which the other's reciprocity is assured or guaranteed.

In *negotiated exchange*, actors jointly bargain over the terms of a transaction, typically secured by a binding agreement. The task of negotiating an agreement requires communication and exchanges of offers and counteroffers. Consequently, actors know the terms of exchange—what each is getting for what each is giving—before making it. Binding agreements assure both parties receive the benefits they have jointly agreed upon. The flow of benefits in these exchanges is bilateral; that is, both sides of the exchange are agreed upon at the same time, and neither actor can profit without making an agreement that benefits both. Most economic exchanges other than fixed-price trades fit in this category, as well as some social exchanges (e.g., family members might negotiate the division of household labor).

In *reciprocal exchange*, actors' contributions to the exchange are separately performed and are nonnegotiated. Actors initiate exchanges individually, by performing a beneficial act for the other (such as giving help or advice) without knowing whether, when, or to what extent the other will reciprocate in the future. Because choices are made individually, benefits can flow unilaterally. Actors can receive benefit from another without giving in return; conversely, they can initiate exchanges that are not reciprocated. When relationships form, they consist not of discrete transactions but of a series of individually performed, sequentially contingent acts, in which obligations are repeatedly created and repaid. Reciprocal exchanges characterize the vast majority of exchanges among family and friends, but they are also an important component of business relations and many international trades (Keohane 1986; Macaulay 1963; Uzzi 1996).

Exchange theorists' distinction between negotiated and reciprocal forms of exchange parallels game theorists' distinction between cooperative and noncooperative games. In cooperative games (and negotiated exchanges), strictly binding agreements are made jointly by players who can communicate; in noncooperative games (and reciprocal exchanges), actors make choices independently, without knowledge of others' choices (Heckathorn 1985). This distinction also describes the underlying forms of exchange that characterize "market exchanges" (which are jointly negotiated and contractually assured) and "embedded, reciprocal exchanges" (which involve individual acts of benefit, typically given without discussion or assurance of reciprocity). In



Note: Solid lines indicate potential relations with high exchange value, and dashed lines indicate potential relations with low exchange value.

Figure 1. The Networks Studied in the Experiments

natural settings, of course, negotiated exchanges and reciprocal exchanges typically vary on many other dimensions attached to the distinction between "market" and "embedded" relationships: the history of the relationship, the resources exchanged, the one-shot versus repeated nature of the interaction. Our investigation holds constant all of these potential differences. The negotiated and reciprocal exchanges that we study are between actors with no prior history of interaction, who exchange equivalent resources, and who engage in recurring interactions with the same partners over time (rather than one-shot transactions). The latter condition is a standard scope assumption of the social exchange framework (Molm and Cook 1995). Both the negotiated and reciprocal exchange relations that we study are embedded in larger networks of actors and both offer the potential for social as well as material benefits.

Network Structures

Actors engaged in either negotiated or reciprocal forms of exchange are typically connected to other potential exchange partners in larger networks. *Exchange networks* provide actors with access to alternative exchange partners and define their structural opportunities for engaging in beneficial exchanges.

While the form of exchange—negotiated or reciprocal—is independent of the structure of the network, whether exchanges are negotiated or reciprocal does affect how benefits flow in exchange networks. Consider the two networks in Figure 1. Both are *negatively connected* networks (Emerson 1972) of *substitutable resources* (Yamaguchi 1996), meaning that they are networks in which actors choose among partners who are alternative sources of the same resource, such as raw materials or advice. Each actor has two alternative partners, as indicated by the lines connecting them. When exchanges are negotiated, actors explore potential exchanges with alternative partners in the network until they reach an agreement with one particular partner. That agreement creates a dyadic unit (e.g., A receives benefit from B and B from A). Some actors in the network may not have an opportunity to make an agreement with another actor and thus will neither give nor receive benefit. For example, in the three-actor network in Figure 1(a), if A makes an agreement with B_1 on a particular exchange opportunity, B_2 will be left with no exchange partner. In contrast, when exchanges are reciprocal, exchange activity is not restricted to dyadic units. Benefits

flow unilaterally, from one actor to another, and all actors in the network can initiate exchange with another actor on any given opportunity. Some initiations may be reciprocated immediately, others later, and some never. For example, in the three-actor network in Figure 1(a), both Bs might initiate exchange with A (by giving benefits to A), while A gives benefits to B_1. B_2's giving to A is not reciprocated immediately, but might be later—and A still benefits from B_2's giving on that opportunity.

Differences in the size and shape of network structures have strong and predictable effects on the frequency and inequality of exchange between particular actors, in ways that influence both power and behavioral commitments (Cook and Emerson 1978; Skvoretz and Willer 1993). In Figure 1, both networks create some power inequality between actors in the A and B positions by varying their relative opportunity to make exchanges of high or low value (indicated by the solid or dashed lines). In both, A has a power advantage over B because A has a more valuable alternative to exchange with B (the other B in Figure 1(a), and the other A in Figure 1(b)) than B has to exchange with A (the other B in both networks). The power difference between A and B is larger in the three-actor network than in the four-actor network. In the three-actor network, the two Bs must compete with one another for exchange with the single A, giving A considerable power over the Bs and producing more unequal exchanges between A and B. In the four-actor network, the availability of another A makes it possible for all network members to make exchanges with a high-value partner. Consequently, the Bs need not compete with each other for exchanges with A, and exchanges between A and B will be less unequal.

The opportunity for actors to form committed, exclusive relationships with a single exchange partner is also greater in the four-actor network (Figure 1(b)) than in the three-actor network (Figure 1(a)). In Figure 1(a), both Bs want to exchange with A (their high-value partner), while A is indifferent between the Bs. Consequently, a committed relationship between A and either B is unlikely. But the network in Figure 1(b) provides the opportunity for two committed relationships—between A_1 and B_1, and between A_2 and B_2—to form. Such behavioral commitments increase the stability of exchanges and decrease their inequality (Cook and Emerson 1978; Lawler and Yoon 1996; Yamagishi, Cook, and Watabe 1998).

Both power differences and behavioral commitments can affect trust, by influencing how actors behave toward one another (Molm et al. 2000) and the institutional constraints we place on them (Cook, Hardin, and Levi 2005). We test variations in the risk and uncertainty of negotiated and reciprocal exchanges in both of these network structures. As we show, risk and uncertainty interact with network structure in complex and interesting ways.

Risk and Uncertainty in Exchange

Because relations of social exchange are based on structures of mutual dependence, which make actors vulnerable to each other's actions, exchange is inherently risky. We define *risk* as the structural or situational potential for incurring a net loss; in the context of exchange, risk refers to the potential for giving benefit to another (and thus incurring cost, at least opportunity cost) without receiving something valued or expected in return. Risk is typically reduced by eliminating either the opportunity or the incentive for an actor to exploit an exchange partner, usually by establishing institutional mechanisms such as contracts, legal sanctions for violating agreements, collateral, and the like.

Riskless exchanges are certain (they are riskless because institutional mechanisms assure that the partner's behavior will not be exploitative), but in risky exchanges, the amount of uncertainty can vary. The relative *uncertainty* of a risky exchange depends on the amount of knowledge or information that an actor has for estimating the probability of obtaining a good or poor outcome. This could include information about the partner's intentions or past behavior, the value of what the actor will receive from the exchange, or the quality of a product or service (DiMaggio and Louch 1998; Kollock 1994).[1]

Theoretically, all forms of exchange involve risk and uncertainty. However, the process of jointly negotiating agreements reduces both uncertainty (actors know what they are getting for what they are giving before they agree to an exchange)[2] and risk (joint agreements provide benefits for both actors at the same time). And when negotiated exchanges are secured with binding agreements, risk and uncertainty are eliminated.[3] In reciprocal exchange, in contrast, the individual nature of the decision process and the lack of communication about terms make exchanges *both* risky and uncertain: actors initiate exchanges individually, with no guarantee of the other's reciprocity and without knowing what, if anything, they will receive in return. They may be able to infer the other's intentions once the relation is established, but their initial exchanges must take place without that knowledge, and exploitation is always possible.

Trust and Trustworthiness

The differences in the risk and uncertainty between reciprocal and negotiated forms of exchange have important implications for the development of *trust*. Scholars conceptualize trust in various ways (Cook et al. 2005; Kramer 1999); we define trust as the belief that the exchange partner can be relied upon to behave benignly or favorably toward the actor and resist exploiting the actor. As this definition implies, trust is intimately tied to another's *trustworthiness* (Hardin 2002).[4] Both trust and trustworthiness are integral to our analysis.

In some settings, trust (based on reputation or previous encounters) may precede the development of a relationship, but trust also develops out of conditions of uncertainty and risk that provide the opportunity for actors to demonstrate their trustworthiness to one another (Gambetta 1988; Hardin 2002; Kollock 1994; Luhmann 1979; Yamagishi and Yamagishi 1994). The mechanism underlying the relationship between risk and trust is an actor's ability to infer an exchange partner's trustworthiness from the partner's behavior. Acts of trust, and attributions of trustworthiness, can only be made in situations in which the partner has both the incentive and the opportunity to exploit the actor but instead behaves benignly.

[1]Economists typically distinguish between decision making under *risk*, in which the probabilities of various outcomes are known but are less than 1.0, and decision making under *uncertainty*, in which even the probabilities are unknown (Knight 1921). Because sociologists rarely study situations in which the probabilities associated with possible outcomes are known, they more commonly group risk and uncertainty together and define risk as an uncertain situation with a chance of loss (Heimer 1988), as do standard dictionary definitions of risk. Our definition of risk follows the sociological tradition. We then define uncertainty in relative terms, as the amount of uncertainty in risky situations, based on the amount of information available for assessing probabilities.

[2]An exception is when goods of uncertain value are exchanged (Kollock 1994).

[3]Actors still face the risk of exclusion (losing out on making an agreement with a desired partner), but this type of risk is less relevant to trust.

[4]Hardin (2002), in fact, has argued that it is trustworthiness, not trust, which contributes to social capital.

Reciprocal exchanges provide the necessary conditions of risk and uncertainty for trust to develop; negotiated exchanges with binding agreements do not. Binding agreements, collateral, and the like provide "assurance" that the exchange partner will not exploit the actor, but they eliminate the opportunity to make inferences about the partner's trustworthiness (Yamagishi and Yamagishi 1994). Such mechanisms substitute for trust, rather than produce trust (Cook et al. 2005). In contrast, the uncertainty and risk of exploitation in reciprocal exchanges provide the opportunity for actors to demonstrate their trustworthiness to one another. Laboratory experiments support this logic, showing that reciprocal exchanges produce both higher levels of average trust and stronger relations between the partner's behavior and trust than negotiated exchanges with binding agreements (Molm et al. 2000).

Fragile and Resilient Trust. Traditionally, trust has been considered more cognitive than affective in nature because it involves a judgment and is grounded in beliefs about another's probable behavior (Hardin 2002). Our definition of trust is consistent with that tradition. Granovetter's (1985) work on embeddedness, however, provided the impetus for new, multidimensional models of trust that incorporate social and affective components (see Kramer 1999, for a review). Of particular relevance to our work is McAllister's (1995) distinction between "cognition-based" and "affect-based" trust and Ring's (1996) parallel but expanded distinction between "fragile" and "resilient" trust.

Fragile (cognition-based) trust is based primarily on predictability in a context of risk. It is grounded in beliefs about another's reliability and dependability, and it is abandoned if the other does not live up to expectations. Resilient (or affect-based) trust, on the other hand, rests on a belief in another's goodwill. Resilient trust survives occasional violations of expectations (i.e., it is more forgiving of the other's digressions from trustworthy behavior) because it is grounded not only in expectations about reliability but also in sentiments of interpersonal care and regard. Fragile trust allows actors to deal with one another even in risky situations, but it is resilient trust that helps maintain the stable, long-term relationships of embedded exchange (Granovetter 1985; Uzzi 1996), and it is resilient trust that engenders the kind of social behaviors (cooperation, altruistic acts, and extra-role behavior) that build social capital (Fukuyama 1995).

This distinction parallels, more broadly, a long-standing tension in the literature between two competing conceptions of trust: as cognitive, rational, instrumental, and calculative (Coleman 1990; Williamson 1993), or as social and relational (Granovetter 1985; Tyler and Kramer 1996). Hardin's (2002) encapsulated trust theory bridges the two in the sense that it emphasizes actors' interests as the underpinnings of trust, but takes a relational stance on the role that interests play in determining trust; that is, we trust those whose interests encapsulate our own. Hardin's emphasis on trust as not only relational but also contextual allows for the possibility of different kinds of trust operating in different contexts (Kramer 1999).

To take account of this distinction, we examine not only the levels of trust that develop under different forms and conditions of exchange but also the nature of trust: its resilience in the face of the partner's occasional digressions from trustworthy behavior, and the extent to which trust relations based on reliability and dependability expand to encompass affective bonds of positive sentiment and regard. We measure trust and affective regard as distinct but potentially related variables.

VARYING RISK AND UNCERTAINTY WITHIN FORMS OF EXCHANGE: NONBINDING AGREEMENTS AND "CHEAP TALK"

In natural settings, the "pure" forms of negotiated and reciprocal exchange that we have just described are rare. Negotiated agreements are not always binding, and when they are not, negotiated exchanges are risky—the partner may not honor the agreement. Reciprocal exchanges are *always* risky because of the individual nature of decision making and the lack of "assurance" mechanisms to guarantee reciprocity, but they can vary in relative uncertainty; in particular, information about the partner's intentions can provide some basis for predicting what the partner will do and, potentially, reduce the uncertainty of these exchanges.

We study the effects of variations in the risk and uncertainty *within* the two forms of exchange to help us understand their causal role in producing differences in trust both *within* and *between* forms of exchange. We examine risk by varying whether agreements in negotiated exchanges are binding or nonbinding and study uncertainty—*independent* of risk—by varying whether actors engaged in reciprocal exchange communicate their intentions prior to initiating exchange with a partner.

Negotiated Exchange: Risk and Nonbinding Agreements

Programs of experimental research on negotiated exchange have assumed that agreements are binding, effectively eliminating the risk of nonreciprocity.[5] But in natural settings, many negotiated transactions are based on *nonbinding* agreements (Macaulay 1963; Malhotra and Murnighan 2002). These agreements often include explicit terms, mutually negotiated, but because of the legal or normative context in which they are made, they are not strictly enforceable—one or both parties can renege on a nonbinding agreement. Most labor contracts are nonbinding, for example, with no real capacity to keep either party in the relationship (Stole and Zwiebel 1996). Nonbinding agreements are also common in international relations, where many agreements concerning trade, alliances, or arms control are not bound by legal sanctions for nonperformance (Lipson 1991; Majeski and Fricks 1995). In natural settings, a wide range of variation exists between purely binding and purely nonbinding agreements, depending on "loopholes" in contracts and the costs of violating them.

For analytical purposes, we concentrate on the two ends of this continuum: agreements that are purely binding (actors cannot renege on them once they are made) or purely nonbinding (actors can renege, with no cost other than possible effects on future negotiations with the same partner). Binding agreements are riskless; nonbinding agreements are risky. If risk produces the greater trust observed in reciprocal exchanges, then increasing risk in negotiated exchanges, by making agreements nonbinding, should increase trust in these exchanges, too.

We conceptualize nonbinding agreements as proceeding in two stages. In the first stage, negotiations are contingent on *joint* action (just as they are when agreements are binding), but in the second stage, actors *individually* choose whether or not to honor the agreement (Heckathorn 1985). By making actors' actual outcomes contingent on each other's individual choices, nonbinding agreements introduce the same risk of nonreciprocation that is inherent in reciprocal exchanges. One actor may provide benefit to another, by honoring the agreement, while the other fails to reciprocate. This risk is the necessary condition for making inferences about the

[5]For exceptions, see Rice (2002) and Brown, Falk, and Fehr (2004).

partner's trustworthiness from his or her behavior. Therefore, when agreements are nonbinding and nothing assures the partner's good behavior, actors should be more likely to attribute their partner's beneficial actions to the partner's trustworthiness (Malhotra and Murnighan 2002).

For risk to increase trust, however, the partners' good behavior is essential: trust depends on the other's trustworthiness. Actors' trust in their partners should increase if the partners honor the nonbinding agreements they have made, but it should decrease if they do not. When relationships are ongoing, the prospect of future transactions (the "shadow of the future") should encourage trustworthy behavior (Axelrod 1984; Hardin 2002; Heimer 2001). If so, then risk should increase trust under the conditions of recurring exchange that we study.

HYPOTHESIS 1: *Increasing risk in negotiated exchanges, by making agreements nonbinding, will increase trust; other things equal, trust will be higher when agreements are nonbinding than when they are binding.*

We assume, for analytical purposes, that actors who have made a nonbinding agreement can choose only whether or not to honor that agreement; reneging on an agreement made with one partner does not offer the opportunity to renew negotiations with another partner until a new exchange opportunity arises (and actors can once again explore negotiations with alternative partners). Under these conditions, the structure of the larger network in which the dyad is embedded should not affect decisions within the dyad about honoring nonbinding agreements. Therefore, actors are expected to be equally trustworthy (or untrustworthy) in the two network structures that we compare. Nevertheless, the positive effect of risk on trust predicted in Hypothesis 1 should be stronger in relations with high power imbalance (the A–B relations in Figure 1(a)) than in relations with low power imbalance (the A–B relations in Figure 1(b)) because of the substantial differences in trust between the two networks when risk is absent (Molm et al. 2000). Trust is reasonably high in relations with low power imbalance even when negotiated agreements are binding because of the greater stability and equality of these exchanges. But in relations with high power imbalance, where trust is otherwise low (Granovetter 2002; Hardin 2002), the introduction of risk offers an opportunity for actors to demonstrate their trustworthiness by honoring nonbinding agreements. Introducing risk also offers the opportunity to exploit the other, of course, by reneging on nonbinding agreements. In highly imbalanced relations, the positive effects of risk should boost the otherwise low levels of trust; in more equal relations, the positive effects of risk are less likely to outweigh the negative effects of potential exploitation on the stable commitments that would normally form.

HYPOTHESIS 1a: *Increasing risk in negotiated exchanges, by making agreements nonbinding, will have a stronger positive effect on trust in networks with high power imbalance (Fig. 1(a)) than in networks with low power imbalance (Fig. 1(b)).*

Reciprocal Exchange: Uncertainty and "Cheap Talk"

Many scholars group risk and uncertainty together and treat them as interchangeable determinants of trust, assuming that both risk and uncertainty increase trust by making the attribution of trustworthiness possible (Heimer 1988; Kollock 1994;

Yamagishi et al. 1998). But although riskless situations are always certain, and risky situations are always uncertain, the relative amount of uncertainty in risky situations can vary. By varying the levels of uncertainty while holding risk constant, we analytically separate the effects of uncertainty from risk and test whether uncertainty, per se, increases trust.

We study the effects of uncertainty in reciprocal exchanges. *All* reciprocal exchanges are risky because all offer the opportunity and incentive for nonreciprocity: actors provide benefits to another unilaterally, and those benefits may or may not be reciprocated. The information that actors have about their partner's intentions can vary, however, and knowing the partner's intentions should reduce the actor's uncertainty about the likelihood of the partner's reciprocity. We investigate the effects of reducing uncertainty in reciprocal exchanges by having actors communicate their intentions *prior* to making actual behavioral choices.

Statements of intent give actors information about which potential exchange partners are likely to provide benefit to them. Some social psychological research suggests that this "signaling" function can build trust by promoting coordination (bringing together actors who will benefit each other) and by providing actors with an opportunity to promise an action in advance of making it, as a way to demonstrate their trustworthiness (see Wilson and Sell 1997, for a review). Game theorists, in contrast, consider nonbinding statements of intent to be "cheap talk" of questionable credibility (Croson, Boles, and Murnighan 2003; Farrell and Rabin 1996). Actors may deliberately deceive others with false statements of intent, or information about other actors' intentions may lead them to change their original plans. For example, if B expresses an intention to help A, but then learns that C intends to benefit B, B may direct his favors to C instead—and thus B's actions would not match B's stated intentions. Statements of intent that mislead others can destroy trust rather than promote it.

As these different arguments illustrate, statements of intent essentially provide actors with another means of assessing a partner's trustworthiness in a context of risk. They are similar, in some respects, to nonbinding agreements in negotiated exchange, although they are individually made rather than jointly negotiated. For the same reason that actors should be more likely than not to honor nonbinding agreements in ongoing relations, actors should try to follow through on their stated intentions so that others will trust them in the future (see Hardin 1988, on "promise keeping" in ongoing reciprocal exchange relations).

We propose, however, that the structure of the network in which reciprocal exchanges are embedded can either facilitate or constrain actors' abilities to do what they say by affecting the likelihood that actors' intentions will coincide. Because the four-actor network in Figure 1(b) encourages more stable and committed patterns of interaction, statements of intent are likely to be reciprocated by their target; that is, two actors (e.g., A_1 and B_1) are likely to express intentions to give *to each other*. Consequently, their behaviors are more likely to match their stated intentions, thus bolstering beliefs in the other's trustworthiness. In the three-actor network (Fig. 1(a)), communication of intent should have the opposite effect: because both Bs should prefer to exchange with A, while A can give benefits to only one of them on each opportunity, discrepancies between statements of intent and behaviors should be common (e.g., those Bs who learn that A does *not* intend to give to them may not follow through on their stated intentions to give to A). In these networks, information about the partners' intentions becomes the kind of "cheap talk" that is more likely to *decrease* than increase trust. As the disordinal nature of this proposed

interaction implies, uncertainty, per se, should have no unconditional effect on trust; whether it increases or decreases trust depends on the network structure and its effect on the partner's behaviors and perceived trustworthiness.[6]

HYPOTHESIS 2: *Decreasing uncertainty in reciprocal exchanges, through communication of intent, will increase trust in the four-actor network in Figure 1(b) but decrease trust in the three-actor network in Figure 1(a).*[7]

Fragile and Resilient Trust

Making negotiated exchanges *riskier*, by making agreements nonbinding, and reciprocal exchanges *less uncertain*, by having actors communicate their intentions prior to their actual behaviors, reduces the differences in the risk and uncertainty between the two forms of exchange. In addition, both nonbinding agreements in negotiated exchange and statements of intent in reciprocal exchange provide actors with "tests" of a partner's trustworthiness: Does the partner keep agreements? Does the partner follow through on stated intentions? For both forms of exchange, trust should vary directly with these indicators of the partner's trustworthiness. In negotiated exchange, trust should increase with the partner's confirmation of agreements; in reciprocal exchange, trust should increase with the partner's fulfillment of stated intentions.

Despite these similarities, however, the key structural distinction between negotiated and reciprocal exchange remains, even when their differences in risk and uncertainty are reduced: negotiated exchanges involve *bilateral* agreements between two parties; reciprocal exchanges involve reciprocated acts of individual, *unilateral* giving. As we have seen, this distinction affects the flow of benefits within a network structure. We propose that it should also affect the *kind* of trust that develops in the two forms of exchange—the extent to which trust is "fragile" and "cognition-based" or "resilient" and "affective-based" (McAllister 1995; Ring 1996). Three mechanisms, activated by the bilateral or unilateral flow of benefits, produce these differences.

First, the bilateral transactions of negotiated exchange increase awareness of the competitive, conflictual face of exchange through the act of bargaining itself and by making outcomes easier to compare and the relation of one actor's gain to another's loss more direct and transparent (Molm et al. 2003, 2006). The unilateral acts of giving that comprise the structure of reciprocal exchange mute the inherent conflict in actors' interests by making it harder to compare outcomes and by making both the costs of exchange and any unsatisfactory outcomes from exchange less directly tied to the other actor. Perceptions of conflict do not encourage the formation of strong affective bonds, and they are likely to trigger immediate, negative responses to any behavior of the partner that qualifies as untrustworthy.

[6]Network structure also affects the risk of nonreciprocation, which is higher for the disadvantaged Bs in the three-actor network than for those in the four-actor network. Our interest in this study, however, is not in the well-established effect of network structure on rates of reciprocity but in the effect of network structure on the likelihood that actors will follow through on their intentions.

[7]Note that *different* interactions of risk or uncertainty with network structure are predicted for the two forms of exchange (Hypotheses 1a and 2). This difference is a function of their different outcome structures: whether joint action or individual action is required to produce benefits for another. In negotiated exchange, jointly negotiated agreements create a dyadic unit, and decisions about keeping nonbinding agreements involve only the actors in this unit. In reciprocal exchange, both acts that benefit another and statements of intent to perform those acts are made individually, with no necessary reciprocity, and the structure of the larger network affects the likelihood that intentions and behaviors will coincide.

Second, actors are more likely to attribute outcomes of exchange to their partner's intentions in negotiated than in reciprocal exchange (Molm et al. 2006). This is partly due to the heightened salience of conflict in negotiated exchange, but also because the scope of interactions has narrowed to the dyad. Once actors agree to terms, attention shifts to their relationship and to the partner whose confirmation decision determines whether the expected benefits are received. Consequently, an actor is more likely to regard a partner's failure to keep a nonbinding agreement as an intentional act of exploitation, which is less likely to be forgiven (Bradfield and Aquino 1999). But when actors individually specify intentions to give to another (as in reciprocal exchange), no mutual decision to exchange has been made. All actors remain subject to influences from others in the network, and partners' failures to follow through on their intentions are more likely to be attributed to those influences and less likely to produce negative affect.

Third, while following through on stated intentions and confirming nonbinding agreements are both acts that indicate trustworthiness, they are likely to differ in their expressive value, that is, in the extent to which they convey positive sentiments of regard for the other and for the relationship that create affective bonds between giver and recipient (Kranton 1996; Larson 1992; Molm et al. 2007). Such sentiments depend not only on conditions of risk and uncertainty, which are present in both, but also on actors' expectations about their partner's behavior. All else being equal, actors' expectations that a partner will confirm a nonbinding agreement in negotiated exchange should be substantially higher than expectations that a partner will follow through on a stated intention to give in reciprocal exchange. When negotiating an agreement, actors not only invest greater time than in reciprocal exchange but also incur greater opportunity costs by forgoing potentially beneficial agreements with other partners. The greater investment made in reaching agreements, compared with simply stating intentions, leads to greater expectations that the agreement will be fulfilled. Consequently, any rate of fulfillment is more likely to exceed the expectations for reciprocal exchange than for negotiated exchange, thus conveying greater positive regard in the former than in the latter. Similarly, failure to fulfill agreements or intentions is more likely to fall below the expectations for negotiated than for reciprocal exchange, thus conveying negative regard in the former but neutral affect in the latter.

The combined effect of these three mechanisms is to alter the *nature* of trust that develops in the two forms of exchange, independent of any differences in the *level* of trust. We propose that the trust that develops in reciprocal exchanges is (a) more forgiving of the partner's occasional digressions from trustworthy behavior, and (b) more affect-based; that is, as trust develops through reciprocal exchange, feelings of trust become intertwined with affective regard—positive feelings toward, and evaluations of, the other that create affective bonds between exchange partners. In Ring's (1996) terms, reciprocal exchange partners develop *resilient* trust, while negotiated exchange partners develop *fragile* trust.

HYPOTHESIS 3: *A partner's digressions from honoring jointly made agreements in nonbinding negotiated exchanges will have a stronger negative effect on trust than digressions from following through on stated intentions in reciprocal exchanges with communication of intent.*

HYPOTHESIS 4: *Increasing levels of trust will be more closely tied to affective regard in reciprocal exchanges with communication of intent than in negotiated exchanges with nonbinding agreements.*

Table 1. The Experimental Design: Two 2 × 2 Factorial Experiments

	Negotiated Exchange Experiment		Reciprocal Exchange Experiment	
	No Risk	Risk	High Uncertainty	Reduced Uncertainty
3-actor network (high imbalance)	3-actor, binding	3-actor, nonbinding	3-actor, no intent	3-actor, with intent
4-actor network (low imbalance)	4-actor, binding	4-actor, nonbinding	4-actor, no intent	4-actor, with intent

METHOD

Design

Because our objective is to assess the causal roles of risk and uncertainty in producing differences in the level and nature of trust in reciprocal and negotiated exchanges, we test our hypotheses in laboratory experiments. The control and randomization of the laboratory experiment allows us to disentangle the effects of risk and uncertainty and eliminate many of the confounding variables that make causal inferences difficult in natural settings (Fehr and Gintis 2007). Our aim is not to mimic any naturally occurring situation but rather to create exchange settings and manipulations of variables that operationalize the key dimensions of our theoretical concepts.

We designed two separate 2 × 2 factorial experiments: one to test the effects of *risk* on trust in negotiated exchange, and one to test the effects of *uncertainty* on trust in reciprocal exchange (see Table 1). In both experiments, the second factor was the network structure, with subjects assigned to either the three-actor or the four-actor network shown in Figure 1.

In the negotiated exchange experiment, two levels of risk, manipulated by varying whether agreements were binding (no risk) or nonbinding (risk), were crossed with the two network structures to create four experimental conditions. Data from this experiment were used to test Hypotheses 1 and 1a, which predict how risk will affect trust (Hypothesis 1) and how the effect of risk on trust will be modified by network structure (Hypothesis 1a).

In the reciprocal exchange experiment, two levels of uncertainty, manipulated by varying whether or not actors communicated their intentions prior to initiating exchange with a partner (high uncertainty with no communication, and reduced uncertainty with communication of intent), were crossed with the same two network structures to create four additional experimental conditions. Data from this experiment were used to test Hypothesis 2, which predicts a disordinal interaction between uncertainty and network structure on trust.

Hypotheses 3 and 4, which predict differences in the nature of trust that develops, require comparisons between conditions from *both* experiments: negotiated exchanges with nonbinding agreements and reciprocal exchanges with communication of intent. To meet the assumption of random assignment required for these tests, we conducted the negotiated exchange experiment and the reciprocal exchange experiment at the same time and randomized subjects across all eight conditions. We also designed the

negotiated and reciprocal exchange settings to be as comparable to one another as possible on all dimensions other than their defining differences. Thus, in both settings, the actors had no prior relationship with their exchange partners, they exchanged the same resources with the same value (within exchange relations, potential joint benefit is constant and exchange benefits have equal value for both actors), and they had the same information about the network structure.

Ten networks were run in each of the eight conditions, with 280 undergraduate students randomly assigned to experimental conditions and positions within networks. All networks consisted of same-sex subjects, with gender balanced within experimental conditions.[8]

Experimental Procedures

We begin by describing the procedures common to all experimental conditions. Following detailed instructions and practice trials, subjects engaged in either reciprocal exchange or negotiated exchange with actors in their network to earn money. In both the three- and the four-actor networks, all subjects had two alternative partners with whom they could exchange (see Figure 1). To create the power differences between A and B, some relations in the networks offered "high value" from exchange (the solid lines in Figure 1), while others offered "low value" (the dashed lines in Figure 1). An exchange between two actors in a high-value relation could produce a joint total of 16 points for both actors; an exchange in a low-value relation could produce a total of 4 points for both actors.[9] The focal relations of our study—the relations between actors in the A and B positions—were always high-value.

To provide the opportunity for trust to develop, the subjects remained in the same network positions throughout the experiment and interacted repeatedly with the same two partners. To prevent personal characteristics from influencing trust, all interaction occurred through computers; the subjects were seated in isolated rooms and never met each other.

The subjects exchanged with each other on a series of exchange opportunities. On each opportunity, they could make an agreement with (negotiated exchange) or give benefits to (reciprocal exchange) only one of their two partners. At the end of each opportunity, they were informed about the source and amount of any points gained, and their total points were cumulated and shown on their computer screens. At the conclusion of the exchange period, they responded to a postexperimental questionnaire on their computer screens that included items used to measure the dependent variables. They were then paid the amounts they had earned and were debriefed.

The subjects were not informed in any of the conditions about the amounts of money their partners received from exchanges with them or others, the outcomes of their partners' exchanges with others, or their partners' cumulative earnings. These restrictions on subjects' information reduced actions based on motives of equity or competition, which are contrary to exchange theory's assumption that actors

[8]Because preliminary data analyses found no effects of gender on the measures examined here, gender is omitted from these analyses.

[9]These point values have been used in numerous earlier studies in this research program; they were originally selected after extensive pretesting to assure that they created sufficient power differences between actors in the A and B positions and were of a range that allowed subjects in the negotiated conditions to reach agreement on their division within the five rounds of bargaining allowed.

seek individual gain.[10] They were also consistent with exchange conditions in many natural settings, where precise information about how much value a partner places on the benefits from exchange is often lacking. To eliminate the network structure as a potential source of attributions about the partner's behavior, subjects' information about the network was restricted to knowledge of their own access to their two exchange partners and their potential benefits from these partners. They knew that their partners had other potential partners, but they did not know the number or value of their partners' alternatives. Because this information was identical for both networks, subjects' perceptions of the network structures should also be identical, at least initially.

The Negotiated Exchange Experiment: The Effect of Risk

In the negotiated exchange experiment, the actors negotiated the division of a fixed amount of benefit (16 points in the high-value relations and 4 points in the low-value relations) on each of a series of exchange opportunities, for a total of 72 opportunities. Each opportunity consisted of up to five rounds of negotiation. On each round, all actors in the network simultaneously made offers to both of their alternative partners. After the first round, the actors could accept another's offer, repeat their last offer, or make a counteroffer. The negotiations continued until all potential agreements were made or the five rounds were up. In the three-actor network, only one potential agreement (between any two of the three actors) could be made; in the four-actor network, two agreements (between two pairs of the four actors) were possible. Each actor could make only one agreement with another actor on each exchange opportunity.

The subjects knew the range of points they could request from the agreements and that, in general, the more they received, the less the other person received. They did not know that a fixed amount of profit was divided, however, nor did they know the exact benefit the other person received from an agreement (conditions similar to negotiations in many natural settings). They made offers by *requesting* the number of points they wanted to receive from an agreement, and each subject's *request* for points was then converted, by the computer, into an *offer* of the remaining points for the other subject. They were told that they would not know how many points the other person received and should be concerned only with their own points. This procedure prevented them from negotiating equal splits out of a concern for equity and focused their attention on their own benefits from the agreements.

Manipulation of Risk. The negotiated exchanges were conducted under two conditions of risk of the partner's nonreciprocity, manipulated by varying whether agreements were binding or nonbinding. In the *binding* condition, there was no risk of giving benefit without receiving benefit in return: as soon as an agreement was reached, both actors received the amounts they had agreed upon. In the *nonbinding* condition, risk of the partner's nonreciprocity was introduced by making agreements nonbinding. Each exchange in this condition consisted of two stages. In the first

[10]These procedures are commonly employed in the power-dependence tradition of exchange to control for potential effects of equity motives (e.g., Cook et al. 1983; Lawler and Yoon 1996). In addition, not informing subjects of the outcomes of their partners' exchanges with others eliminated another potential cause of trust—reputation—which, if uncontrolled in the design, would have made interpretation of the effects of risk and uncertainty on trust more difficult.

stage, the subjects jointly negotiated the terms of agreements, just as they did in the binding condition. In the second stage, which occurred if an agreement was reached, the two parties to the agreement then made *individual* decisions about whether or not to confirm their agreement—a simple yes or no choice. If an actor confirmed the agreement, the other party received the points they had agreed upon. If an actor did not confirm the agreement, the other party did not receive the agreed-upon points. Thus, it was possible for both actors (if both confirmed), neither actor (if neither confirmed), or only one of the two actors (if the other confirmed) to receive the points jointly agreed upon in the first stage of the opportunity.

To provide an incentive that was conceptually comparable to the gain that motivates actors not to keep nonbinding agreements in natural settings, actors who chose not to confirm an agreement received 1 point for self, in addition to whatever points they received from the other actor's choice.[11] This incentive provided the temptation of a prisoner's dilemma: if an actor chose not to confirm an agreement, but the partner did, the actor would receive the points agreed upon *plus* the 1 point for self, while the partner received nothing. The value of this gain—the gain from exploiting the partner by not honoring their agreement—was set after extensive pretesting. Our objective was to create an incentive for exploitation that would be high enough to produce sufficient variation in the frequency of confirmation to examine its effects on trust, but low enough that subjects experienced the gains that could be obtained from mutually honored agreements. It soon became evident that the incentive must be set quite low to keep nonconfirmation at a reasonable rate. Even with *no* immediate incentive to exploit the partner—nonconfirmation produced zero points for self—pretest subjects chose not to confirm agreements a significant portion of the time.[12] We therefore used the lowest possible incentive for nonconfirmation, a gain of 1 point. This manipulation produced confirmation rates (the proportion of agreements that an actor confirmed) of sufficient range (.17–.96) and frequency (a mean of .67) for the purpose of studying the relation between trustworthiness and trust.

The Reciprocal Exchange Experiment: The Effect of Uncertainty

In the reciprocal exchange experiment, each actor gave points to one of his or her partners in the network on each opportunity. Giving points to another added to that person's total points, but did not subtract points from the giver's total. As in the negotiated exchange experiment, the subjects knew only the number of points they received from others, not the number of points they gave to others—they simply chose "to give points" to one of their two partners. To hold constant the potential joint benefit of exchanges across the negotiated and reciprocal exchange experiments, the number of points that each actor gave to an exchange partner on a single opportunity was fixed (2 points in low-value relations, and 8 points in high-value relations) and was equal to one-half of the total points (4 or 16) that two actors in the negotiated setting divided on each agreement. Thus, the total points that were at stake in a relation were the same in the negotiated and reciprocal exchanges (e.g.,

[11]This incentive is also parallel to the incentive offered by the prospect of exchange with alternative partners in reciprocal exchange; that is, in both negotiated exchanges with nonbinding agreements and reciprocal exchanges with communication of intent, the choice actors face between doing as they say, or not, is a choice with potential benefits attached to both alternatives.

[12]While such action may appear irrational (and was, in the long run), it can be explained by the short-term desire to avoid being a "sucker," by confirming an agreement that the partner might not confirm.

if two actors gave each other 8 points in a high-value reciprocal exchange, the total points received in the relation was 16 points, equal to the 16 points that two actors could divide in a high-value negotiated exchange).

On each exchange opportunity, all subjects simultaneously and independently chose which partner to give points to. Because choices were made individually, benefits flowed unilaterally, and reciprocity was not assured (e.g., A might give to B_1, while B_1 gave to B_2). After making their choices, the subjects were then informed that each of their partners either added to the subject's earnings or did not, and their cumulative points were updated.

Each reciprocal exchange opportunity involved less interaction (a single act of giving) than each negotiated opportunity (up to five rounds of negotiation). To adjust for this difference, subjects in the reciprocal exchange conditions participated in twice as many exchange opportunities (144, compared with 72 in negotiated exchange) at half the monetary value (1.5 cents per point, compared with 3 cents in negotiated exchange). This procedure roughly equated the time and effort involved in the two forms of exchange.

Manipulation of Uncertainty. Actors' relative uncertainty about the partner's reciprocity was manipulated by varying the information that the subjects had about their partners' intended choices *before* making their own choices. In the no-intent (high uncertainty) condition, the subjects had no information about their partners' intended actions other than what they could infer from their partners' choices on previous opportunities. In the condition with intent (reduced uncertainty), they first stated to whom they *intended* to give points on that opportunity, and received feedback of other subjects' stated intentions, before making their actual behavioral choices and receiving feedback about others' actual choices. Subjects' stated intentions did not constrain their subsequent choices; intentions and actual giving might or might not coincide.

Measures of Trust, Trustworthiness, and Affective Regard

Trust. We measured *trust* in the exchange partner, our primary dependent variable (Hypotheses 1–3), with a three-item scale derived from subjects' evaluations of the focal partner (A's evaluations of B, and B's of A) on a series of seven-point bipolar semantic differential scales included in the postexperimental questionnaire. One item asked the subjects to evaluate their partner's behavior as untrustworthy/trustworthy, and the other two items asked them how much (very little/very much) they trusted the partner and how much (very little/very much) they felt they could rely on the partner. Scores were computed for each A and each B and then averaged across actors in each position within a network (in the three-actor networks, A's evaluations of each of the two Bs were averaged). These scores for the three items were then averaged, producing a trust scale ranging in value from 1 (low trust) to 7 (high trust), with a neutral point of 4. Alpha reliabilities were .94 for A and .89 for B.

Trustworthiness. Both the negotiated exchanges with nonbinding agreements and the reciprocal exchanges with communication of intent provided behavioral indicators of the partner's trustworthiness: the partner's confirmation of nonbinding agreements in the negotiated nonbinding conditions, and the partner's matching of behaviors to stated intentions in the reciprocal conditions with intent. We measured actors'

confirmation rates in the nonbinding negotiated conditions by the proportion of agreements between A and B that each of the actors, A and B, confirmed. In the reciprocal exchanges, we measured actors' matching of behavior to intent by the proportion of exchange opportunities on which each of the actors, A and B, gave to the same partner to whom they stated an intention to give. These measures were computed for the entire exchange period for each A and each B and then averaged across the actors in each position within a network, producing measures of trustworthiness that varied from 0 (completely untrustworthy) to 1 (completely trustworthy). These measures were used to test Hypothesis 3, which predicts that digressions from trustworthy behavior will have a stronger negative effect on trust in negotiated exchanges than in reciprocal exchanges.

Affective Regard. To test Hypothesis 4, which predicts differences in the generalizing effects of trust to affective bonds, we measured *affective regard* for the partner with a three-item scale, also derived from subjects' evaluations of the focal partner in the postexperimental questionnaire. One item asked the subjects to describe their general feelings toward the partner as negative/positive, and the other two items asked them to evaluate their partner's behavior toward them as bad/good and awful/nice. With responses to the three items averaged, the resulting scale has alpha reliabilities of .89 for A and .93 for B and ranges in value from 1 (low affective regard) to 7 (high affective regard).

Control Variables

Our tests of Hypotheses 1 and 2 control for the actual benefits obtained from exchange, which are potentially related to both trust and our manipulations of risk and uncertainty. For negotiated exchange, we measured the actual points received from binding agreements or confirmed nonbinding agreements. For reciprocal exchange, in which exchange values were fixed, benefits obtained are determined by the frequency of giving, measured by the proportion of exchange opportunities on which each actor gave to the other (A to B, and B to A).

RESULTS

Replicating Effects of "Pure" Forms of Negotiated and Reciprocal Exchange

We begin by comparing the "pure" forms of reciprocal and negotiated exchange—negotiated exchanges with binding agreements and reciprocal exchanges without communication of intent—that have previously been studied to examine whether our data replicate the strong effects of the form of exchange on trust found in earlier research (Molm et al. 2000). Table 2 reports the mean values of trust for all experimental conditions by actor (A or B) and by relation (averaged across the A and B positions); the relevant means for this analysis are in the first, third, fifth, and seventh columns of the table. We conducted a mixed-design analysis of variance (ANOVA) on these mean values of trust, treating actor (A or B position) as a within-subjects variable and exchange form and network structure as between-subjects variables. Because actors within networks are interdependent, the statistical unit for this analysis and all others we report is the exchange network. Table 3 reports the between-subjects portion of the analysis; because actor position had no main or interactive effects on trust, we omit these results from the table.

Table 2. Means and Standard Deviations of Trust, by Experimental Condition

	Negotiated Exchange Experiment				Reciprocal Exchange Experiment			
	3-Actor Network		4-Actor Network		3-Actor Network		4-Actor Network	
Measure	Binding	Nonbinding	Binding	Nonbinding	No Intent	With Intent	No Intent	With Intent
A's trust in B	3.97	4.02	4.83	4.18	4.47	4.40	5.27	5.87
	(.60)	(1.16)	(1.19)	(1.31)	(.78)	(.67)	(1.03)	(.54)
B's trust in A	3.42	3.90	4.40	3.53	4.93	4.43	4.93	5.33
	(.83)	(1.62)	(.87)	(.97)	(.63)	(.98)	(1.11)	(.80)
Mean trust in the A–B relation	3.69	3.96	4.62	3.86	4.70	4.42	5.10	5.60
	(.59)	(1.36)	(.93)	(.85)	(.52)	(.73)	(.99)	(.50)

Note: Higher values, on a scale of 1 to 7, indicate greater trust. Standard deviations are in parentheses.

Table 3. Analysis of Variance on Trust: Effects of "Pure" Forms of Negotiated and Reciprocal Exchange ($N = 40$)

Source	d.f.	Mean Square	F-Ratio	Partial Eta^2
Exchange form (F)	1	11.12	8.98**	.20
Network structure (S)	1	8.78	7.08*	.16
$F \times S$	1	1.38	1.11	.03
Error	36	1.24		

*$p < .05$, **$p < .01$.

The analysis shows a strong main effect of the form of exchange, significant at $p < .01$, that replicates results of previous research: reciprocal exchange produces stronger trust than negotiated exchange. Network structure also affects trust, with trust higher in the four-actor network with low power imbalance than in the three-actor network with high power imbalance, again replicating previous findings. Note, however, that the form of exchange has a *stronger* effect on trust than the network structure. This effect remains significant after controlling for key behavioral variables (the inequality of exchange and the partner's relative frequency of exchange with the actor) in analyses not shown here.

We now turn to our main objective: examining how variations in the risk and uncertainty *within* each form of exchange affect partners' trust in one another.

Negotiated Exchange and Risk: Hypotheses 1 and 1a

The first experiment, on negotiated exchange, tested the hypotheses that increasing risk, by making agreements nonbinding, would increase the average trust (Hypothesis 1), and that this relation would be stronger in the three-actor network with high power imbalance than in the four-actor network with low power imbalance (Hypothesis 1a). The mean values of trust from the experiment are shown on the left-hand side of Table 2. Table 4 reports the results of mixed-design analyses of variance and covariance on the mean trust, treating actor position as a within-subjects variable and risk and network structure as between-subjects factors. The analysis of covariance (ANCOVA) controls for the actual benefits that A and B received from agreements before estimating the effects of risk and network structure. Because actor position has no significant main or interactive effects on trust, we again report only the between-subjects results in Table 4.

As the first set of results (the ANOVA) in Table 4 shows, without controlling for the differences in benefits received, nonbinding agreements produce no greater trust than binding agreements. The findings change, however, when we estimate the effects of risk on trust *independent* of the benefits received. Because actors confirmed only .67 (SD = .23) of their nonbinding agreements,[13] both A and B received substantially

[13]This rate did not vary by network structure or actor's position of power. When asked in the postexperimental questionnaire what factors affected their decisions to confirm or not confirm agreements, the majority of subjects (61%) reported that "building a relationship that would pay off in future negotiations" was their primary consideration. A significant minority (24%), however, reported more short-term considerations, indicating that they opted for the choice that would produce the most points for them on that particular opportunity.

Table 4. Negotiated Exchange Experiment: Analyses of Variance and Covariance on Trust ($N = 40$)

	ANOVA			ANCOVA		
Source	d.f.	Mean Square	F-Ratio	d.f.	Mean Square	F-Ratio
Covariate						
A's points per agreement	—	—	—	1	21.30	19.90***
B's points per agreement	—	—	—	1	6.47	6.04**
Experimental factor						
Risk (R)	1	1.21	.64	1	12.48	11.66***
Network structure (S)	1	3.40	1.78	1	4.05	3.78*
$R \times S$	1	5.25	2.75	1	6.67	6.23**
Error	36	1.91		34	1.07	

*$p < .05$, **$p < .01$, ***$p < .001$ (one-tailed tests).

lower benefits, on average, when agreements were nonbinding than when they were binding ($F[1,36] = 44.45$, $p < .001$). With the actual points that A and B received from their agreements controlled as covariates, both the main and the interactive effects of risk on trust are significant. Nonbinding agreements produce greater trust than binding agreements in both networks (Hypothesis 1), with the effect stronger in the three-actor networks with greater power imbalance (adjusted mean trust = 4.68 vs. 2.84) than in the four-actor networks (adjusted mean trust = 4.58 vs. 4.03), as predicted (Hypothesis 1a). In support of the logic underlying Hypothesis 1, trust increases with the partner's trustworthiness in the nonbinding conditions: the partial r (controlling for network structure) between the partner's confirmation rate and the actor's trust in the partner is .78 ($p < .01$).

In short, when we compare exchanges that produce equivalent benefits, introducing risk in negotiated exchange does increase trust, thus supporting Hypothesis 1. Without controlling for differences in exchange benefits, however, the increased exploitation in the nonbinding conditions counteracts the positive effects of risk on trust.

Follow-Up Experiment. One important question remains: *If* exchange partners responded to the risk of nonbinding agreements with completely trustworthy behaviors, what levels of trust would negotiated exchanges then produce? Is it possible under these conditions for negotiated exchanges to generate levels of trust that meet or exceed those of reciprocal exchanges? To answer this question, we replicated the nonbinding, three-actor condition of our experiment (again with an N of 10), but with one difference: the subjects chose whether or not to confirm agreements, as before (and received 1 point for not confirming an agreement, as before), but they received false feedback of their partners' decisions in the A–B (but not the B–B) relations. When subjects in the A and B positions made agreements with each other, they *always* received feedback indicating that their partner confirmed the agreement, regardless of the partner's *actual* confirmation decision. Consequently, A–B agreements always produced the agreed-upon points for both subjects. In all other

respects, the new experimental condition was identical to the nonbinding, three-actor condition of the original experiment.

Combining risk with an unconditionally trustworthy partner produced much higher levels of trust than in the original nonbinding condition of the negotiated exchange experiment. Averaged across the A and B positions, the mean trust in the new condition is 5.22 (5.30 for A's trust in B, SD = 1.28; 5.13 for B's trust in A, SD = .81), compared with 3.96 in the original—a 32% increase ($t = 2.45$, d.f. = 18, $p < .05$). This level of trust compares favorably with most of the condition means in Table 2, including those for reciprocal exchange. Thus, *introducing risk to negotiated exchanges by making agreements nonbinding has the potential to produce high levels of trust, but to be effective, risk must be combined with high levels of trustworthy behavior*. The .67 average confirmation rate of the main experiment was clearly not high enough.

Reciprocal Exchange and Uncertainty Under Risk: Hypothesis 2

Our second experiment, on reciprocal exchange, tested the effects of relative uncertainty about the exchange partners' behavior while holding structural risk constant. Hypothesis 2 predicts that the effect of communication of intent on trust depends on network structure, with communication *increasing* trust in the four-actor networks and *decreasing* trust in the three-actor networks—a disordinal interaction that should produce no main effect of uncertainty. Table 5 summarizes the results of analyses of variance and covariance on the mean values of trust from this experiment (shown on the right half of Table 2). These analyses treat actor (A or B) as a within-subjects variable, uncertainty and network structure as between-subjects variables, and frequencies of giving (which determine exchange benefits) as covariates that are controlled in the analysis of covariance before estimating effects of the manipulated variables. Because neither the main effect of actor position nor its interaction with uncertainty is significant, we omit these results from Table 5.

Table 5. Reciprocal Exchange Experiment: Analyses of Variance and Covariance on Trust ($N = 40$)

	ANOVA			ANCOVA		
Source	d.f.	Mean Square	F-Ratio	d.f.	Mean Square	F-Ratio
Covariate						
Frequency of A's giving to B	—	—	—	1	7.58	10.76**
Frequency of B's giving to A	—	—	—	1	.21	.29
Experimental factor						
Uncertainty (U)	1	.24	.23		1	0.00
Network structure (S)	1	12.54	12.26***	1	.54	.77
$U \times S$	1	3.07	3.00*	1	1.63	2.31†
Error	36	1.02		34	.70	

†$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (one-tailed tests).

As expected, relative uncertainty about the partner's intentions has no main effect on trust in either analysis. Instead, as Hypothesis 3 predicts, uncertainty interacts with network structure, with communication of intent *increasing* trust in the four-actor network and *decreasing* trust in the three-actor network. This interaction declines to borderline significance ($F[1,34] = 2.31$, $p = .07$) when frequencies of giving are controlled (the higher frequencies of reciprocal giving between A and B in the four-actor network are partially responsible for the greater trust in that network).

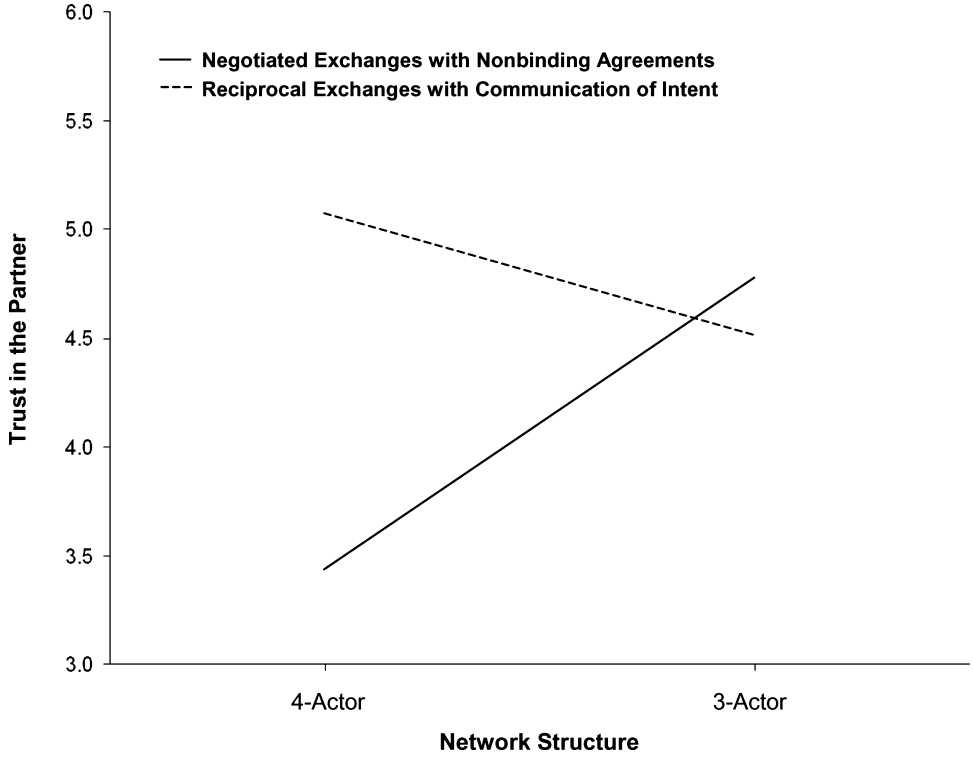
The results also support the logic underlying Hypothesis 3 that actors' trustworthiness (as measured by their matching of behavioral choices to stated intentions) will be greater in the four-actor than in the three-actor network in the conditions with communication of intent. Subjects' rate of matching was significantly higher in the four-actor than in the three-actor network (.77 vs. .68, one-tailed $t = 1.90$, $p < .05$). Across networks, trust increases with partner's trustworthiness: the partial r (controlling for network structure) between the partner's rate of matching and the actor's trust in the partner is .56 ($p < .01$).

While this pattern of results supports the predictions and logic of Hypothesis 3, the effects of uncertainty are clearly weaker than the effects of risk (compare Tables 4 and 5). Not only does the direction of the effect of uncertainty depend on network structure but also the strength of this interaction is weaker than either the effect of risk or its interaction with network structure.

FRAGILE AND RESILIENT TRUST: NEGOTIATED AND RECIPROCAL EXCHANGE REVISITED

We began our analysis with a comparison of the "pure" forms of negotiated and reciprocal exchange. We conclude by again comparing negotiated and reciprocal exchange, but under the conditions of risk and uncertainty in which they are most alike: negotiated exchanges with nonbinding agreements and reciprocal exchanges with communication of intent. Reducing the differences in the risk and uncertainty between the two forms of exchange might have been expected to reduce their differences in trust, but as we have seen, the relations between risk, uncertainty, and trust are complex. The effects of both risk and uncertainty depend on network structure, and the interactions take different forms: risk (nonbinding agreements) has a positive effect on trust in both networks, with the effect stronger in the three - than in the four-actor network, while communication of intent has a positive effect on trust in the four-actor network and a negative effect in the three-actor network. Consequently, as Figure 2 shows, *increasing* the risk of negotiated exchange (by making agreements nonbinding), while *decreasing* the uncertainty of reciprocal exchange (by having actors communicate their intentions), eliminates differences in trust between negotiated and reciprocal exchange in the three-actor networks but accentuates their differences in the four-actor networks.

Underlying the interactions between risk, uncertainty, and network structure are partners' responses to "tests" of their trustworthiness. We now hold risk and uncertainty relatively constant by focusing only on these two conditions and address a different set of questions about the *nature* of trust that develops in the two forms of exchange. To assess whether the trust developed in reciprocal exchanges is more forgiving of partners' digressions from trustworthy behavior (Hypothesis 3) and more tied to affective regard (Hypothesis 4), we examine how the relations between trustworthiness and trust, and between trust and affective regard, vary for the two forms



Note: Means are adjusted for differences in benefits received from the exchange.

Figure 2. Reducing the Differences in Risk and Uncertainty Between Negotiated and Reciprocal Exchange: The Interaction with Network Structure

of exchange. For these analyses, we combine the mean values of these variables for actors in the A and B positions, which did not differ in the previous analyses.

Trustworthiness and Trust: Hypothesis 3

Both negotiated exchanges with nonbinding agreements and reciprocal exchanges with communication of intent provide actors with a clear test of their partner's trustworthiness: the extent to which the partner's actions match the partner's words. In negotiated exchange, the partner agrees to the terms of a jointly negotiated transaction, and then individually decides whether to keep that agreement by confirming it. In reciprocal exchange, the partner states his or her intentions to give points to a particular partner and then chooses an actual recipient of benefits. Overall, actors in the two forms of exchange did not differ in the frequency with which they confirmed agreements or matched intentions ($F[1,36] = 1.03$, $p = .32$); in other words, they were equally trustworthy—or untrustworthy. And, as we have seen, our results confirm the well-established relation between trustworthy behavior and trust: partners who do what they say are trusted more.

While actors in both negotiated and reciprocal exchange clearly develop greater trust in partners who do as they say, Hypothesis 3 predicts that actors in reciprocal exchange will be more forgiving of their partner's digressions from trustworthiness.

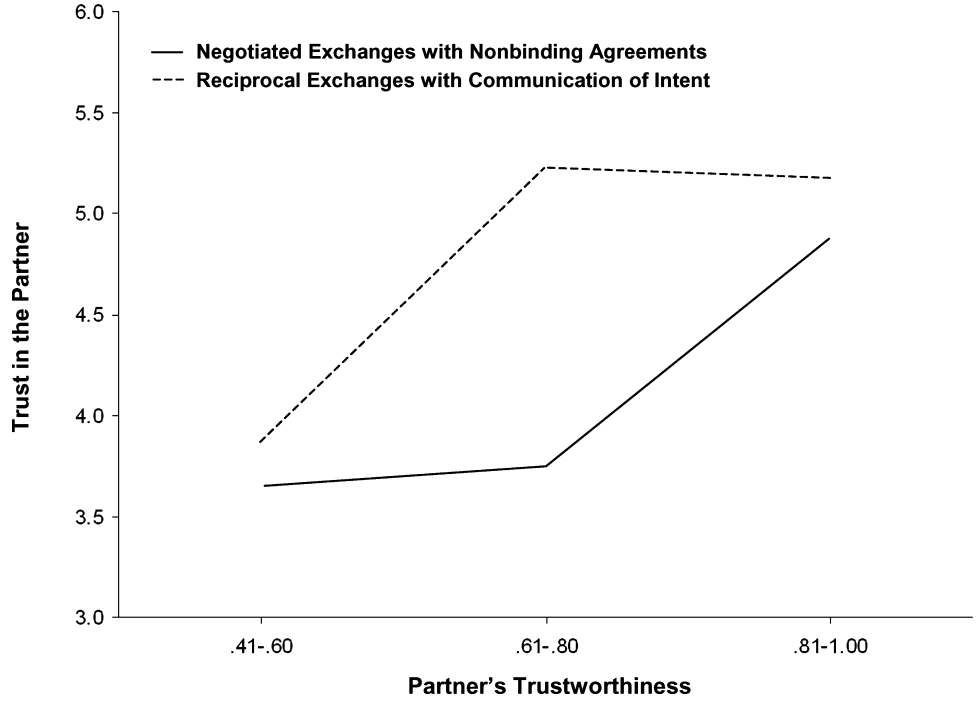


Figure 3. Trustworthiness and Trust: Trust Reactions to Varying Levels of Partner's Trustworthiness in Negotiated and Reciprocal Exchange

That trustworthy behavior is more highly correlated with trust in negotiated exchange than in reciprocal exchange (.78 vs. .56) provides preliminary support for Hypothesis 3; a more refined test of Hypothesis 3, however, requires examination of how trust is affected in the two forms of exchange at varying digressions from trustworthiness. For this purpose, we divided the mean trustworthiness (measured by the rate, or proportion, of confirmation or matching) into five equal-interval levels: 0.00–.20, .21–.40, .41–.60, and .61–.80, and .81–1.00. Because the two lowest categories of trustworthiness included no reciprocal exchange cases and only two negotiated exchange cases, we restricted our analysis to the remaining three levels—trustworthiness greater than .41—which are most relevant to the theoretical question.[14] Trust should be high in both reciprocal and negotiated exchange when the partner is extremely trustworthy (as evidenced by the high levels of trust produced by our test of "unconditionally trustworthy" partners in negotiated nonbinding exchanges), but actors in reciprocal exchanges should be more forgiving of partners who are somewhat less trustworthy.

Figure 3 visually displays the relations between partners' trustworthiness and actors' mean trust in their partners for the two forms of exchange. As Figure 3 shows, mean trust in negotiated exchange remains below the neutral point of 4.0 until partners honor agreements at least 80% of the time; then it increases

[14]The number of cases in each of the three intervals of trustworthiness are as follows: .41–.60: negotiated = 7, reciprocal = 3; .61–.80: negotiated = 4, reciprocal = 13; .81–1.00: negotiated = 7, reciprocal = 4. For the two negotiated exchange cases with levels of trustworthiness below .41, mean trust is 1.58 and 1.83.

to 4.88. Unconditionally trustworthy partners, as we saw earlier, boost trust even further, to 5.22 (because trustworthiness was constant in this follow-up condition, these data are not included in Figure 3). In the reciprocal exchanges, in contrast, matching rates in the .61–.80 range are sufficient to boost trust to high levels (5.20). The interaction between form of exchange and partner trustworthiness on trust in the partner is significant ($F[2,32] = 2.78$, $p < .05$, one-tailed) and remains so after controlling for network structure. These results support Hypothesis 3.

Trust and Affective Regard: Hypothesis 4

Hypothesis 4 predicts that the trust produced by reciprocal exchange with communication of intent will be more affect-based than the trust produced by negotiated exchange with nonbinding agreements. That is, as trust develops, feelings of trust will be more likely to encompass affective regard—positive feelings toward, and evaluations of, the partner—in reciprocal than in negotiated exchange. Our test of Hypothesis 4 is parallel in logic to our test of Hypothesis 3: we examine the affective regard associated with varying levels of trust for the two forms of exchange, with mean trust divided into six equal-interval levels, four of which were examined in our analysis (3.01–4.00, 4.01–5.00, 5.01–6.00, and 6.01–7.00).[15] If Hypothesis 4 is supported, we should see increases in trust accompanied by increases in affective regard to a greater degree in reciprocal than in negotiated exchange.

Figure 4 shows the mean affective regard produced by the two forms of exchange at each of the four levels of trust in our analysis. As Figure 4 shows, the effect of trust on affective regard is parallel for the two forms of exchange until trust exceeds the neutral point of 4.0.[16] Then, at higher levels of trust, the relation between trust and affective regard begins to diverge for the two forms of exchange. In reciprocal exchange, mean regard not only keeps pace with mean trust but also exceeds it; in negotiated exchange, mean regard increasingly falls below mean trust. The interaction between form of exchange and trust on affective regard is significant ($F[3,38] = 4.68$, $p < .01$, one-tailed) and remains so after controlling for network structure. For negotiated exchange, there appears to be an upper bound on affective regard: if risk is combined with absolute trustworthiness, as in the follow-up experiment with unconditionally trustworthy partners, trust increases to levels comparable to those seen in reciprocal exchange, but positive feelings for the partner do not follow.

[15]Both the negotiated and the reciprocal exchange conditions produced a sufficient number of cases in the middle ranges (3.0–5.0) of trust for comparison, but there were no reciprocal exchange cases with mean trust below 3.0, and only two negotiated exchange cases with mean trust above 5.0. Since our primary interest is in the affective regard produced when trust exceeds the neutral point of 4.0, we restricted our analysis to cases with trust greater than 3.0. Then, to provide sufficient cases of negotiated exchange with levels of trust above 5.0, we included the data from the follow-up negotiated condition with unconditionally trustworthy partners. The resulting N for this analysis is 26 negotiated exchange cases and 20 reciprocal exchange cases. The number of cases in each of the four equal-interval levels of trust that we examined are as follows: 3.01–4.00: negotiated = 8, reciprocal = 4; 4.01–5.00: negotiated = 9, reciprocal = 4; 5.01–6.00: negotiated = 8, reciprocal = 10; 6:01–7:00: negotiated = 1, reciprocal = 2.

[16]For the four negotiated exchange cases with levels of trust below 3.0, mean affective regard was below 3.5.

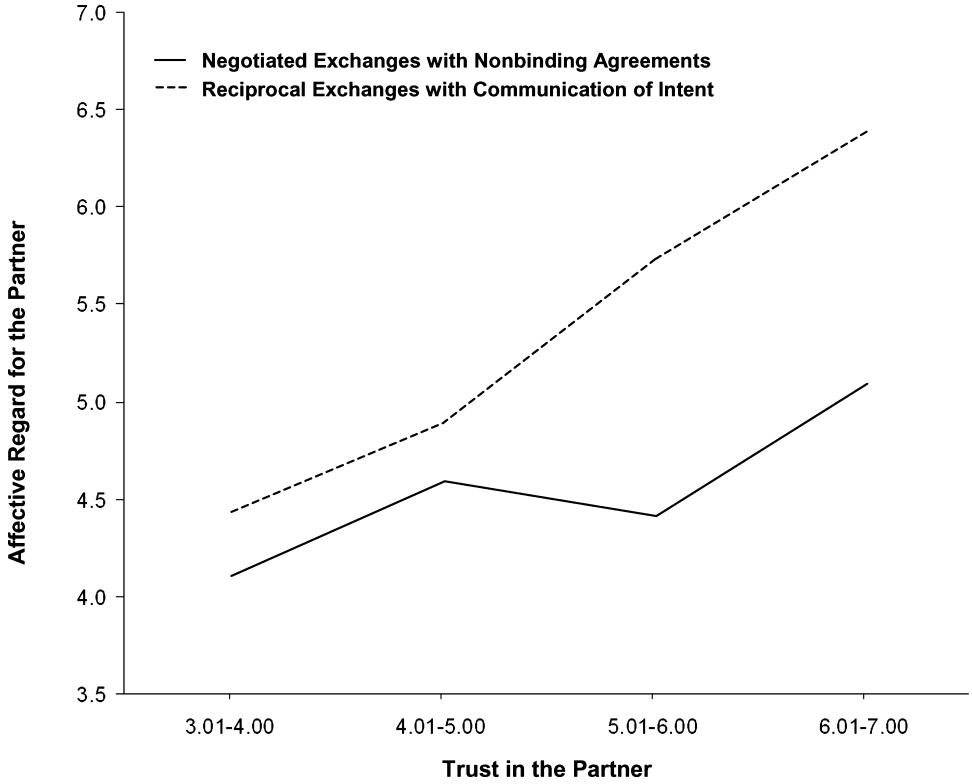


Figure 4. Affect-Based Trust: The Correspondence Between Trust and Affective Regard in Negotiated and Reciprocal Exchange

CONCLUSIONS

Processes of social exchange not only provide actors with needed benefits but also connect them to one another through bonds of trust. Previous research has found substantial differences in trust between negotiated and reciprocal exchange—the forms of exchange that underlie the distinction between "market" exchange and "embedded" exchange relationships. In this study, we tested whether those differences in trust are explained by the greater risk and uncertainty in reciprocal exchange. We tested effects of risk and uncertainty by varying each *within* forms of exchange: we varied risk in negotiated exchanges by making negotiated agreements binding or nonbinding and varied uncertainty in reciprocal exchanges by whether or not actors were asked to communicate their intentions to others in their network prior to their acts of individual giving. These manipulations introduced variations in the two forms of exchange that are common in natural settings (i.e., negotiated agreements are not always binding, and reciprocal exchanges sometimes involve the communication of intentions or promises) and created conditions that reduced the differences in risk and uncertainty *between* the two forms of exchange. These differences are minimized when negotiated exchanges are not secured by binding agreements and reciprocal exchanges are preceded by communication of intent.

We now assess our results: Do differences in risk and uncertainty explain the well-established differences in trust between "pure" forms of negotiated and reciprocal exchange? And does reducing these differences, by making negotiated exchanges

riskier and reciprocal exchanges less uncertain, reduce their differences in trust? The answer to those questions is a qualified yes—risk and uncertainty contribute to the differences in trust, but do not entirely account for them—but expanding upon that qualification reveals the most interesting and important findings of our study. Three particular qualifications show the complexity of both the development of trust relations and the interrelations between the form of exchange and the structure of the networks in which it is embedded.

The first qualification rests with the logic of the relation between risk and trust itself. Risk is a necessary condition for actors to develop trust in one another through interaction because it provides the opportunity for them to infer trustworthiness from the other's behavior. But it follows that whether risk *increases* or *decreases* trust (or has no effect) depends on the trustworthiness of the partner's behavior. When negotiated agreements are nonbinding *and* exchange partners behave in trustworthy ways, by honoring those nonbinding agreements (in our experiment, by confirming them), trust increases to levels as high as those observed in reciprocal exchanges. But merely making agreements nonbinding does not assure an increase in trust, nor (somewhat surprisingly) does the "shadow of the future" assure trustworthy behavior when exchanges are negotiated. Approximately a third of the time, our subjects took advantage of the nonbinding agreements to exploit their partners for a relatively small incentive, even though their exploitation clearly destroyed trust and hurt future transactions with the partner.

Second, even when negotiated and reciprocal exchanges produce comparable levels of trust, they do not produce the same kind of trust. Actors engaged in reciprocal exchange are far more "forgiving" of their partners' occasional digressions from trustworthy behavior; trust was higher in the "middle range" of partner trustworthiness when exchanges were reciprocal than when they were negotiated. Reciprocal exchange partners develop strong trust in each other without displaying perfect trustworthiness, and accompanying those feelings of trust are strong bonds of affective regard. In short, the trust developed in reciprocal exchange relations displays the characteristics of Ring's (1996) "resilient" trust and McAllister's (1995) "affect-based" trust, while the trust developed between negotiated exchange partners appears more "fragile" and "cognition-based."

Third, the effects of both risk and uncertainty depend, at least to some extent, on the network structures within which negotiated and reciprocal exchange relations are embedded. Both the effects of risk in negotiated exchange and the effects of uncertainty in reciprocal exchange interacted with network structure in their effects on trust. In negotiated exchange, network structure simply modified the strength of the positive effect of risk on trust, which was stronger in networks with high power imbalance than in those with low power imbalance. But in reciprocal exchanges, network structure determined the *direction* of the effect of uncertainty on trust: whether communication of intent increased or decreased trust depended on whether the network structure facilitated reciprocal preferences for partners.

Our study also sought to disentangle the effects of risk and uncertainty, which are typically treated as interchangeable concepts in discussions of trust. To an extent, they are: risky exchanges always entail some degree of uncertainty, while riskless exchanges are certain. But risky exchanges can vary in the information available to actors for assessing the probability of the partner's behavior, and we examined whether having more information affects trust. Our results show that in already risky reciprocal exchanges, communication of intent makes relatively little difference. As we have seen, even the direction of the effect—positive or negative—depends on

network structure (and, quite possibly, other variables that we did not examine), and these effects were relatively weak. Other manipulations of information might have different effects, but we suspect that any form or source of information will always have credibility issues that reduce its value and its impact. It is risk, more than uncertainty, which matters for trust.

Our work has important implications not only for the burgeoning literature on trust but also for theorists working in the fields of social networks, organizations, and exchange. Several implications concern the role of network structures in developing trust relations. Our findings suggest that some network structures may be more likely than others to endure over time because they encourage trustworthy behaviors that help to build the kinds of trust and solidarity that are necessary for their continued existence. We also show that introducing some level of risk can increase the likelihood of building trust in networks where it is otherwise very difficult—networks that create highly unequal power relations between actors. Many organizations adopt mechanisms such as binding contracts as substitutes for trust when interpersonal relations are lacking, but our results suggest that such procedures are most likely to fail in relationships of highly unequal power, for example, relations between management and workers.[17]

The most important implications of our study, however, are for the topic with which we began this article: the embeddedness of exchange relations. Our results provide further evidence for the importance of reciprocal forms of exchange in producing the effects often associated with embeddedness. While that term refers to the embedding of exchange in *personal* relationships (in contrast to the impersonal transactions of "market" exchange), our research suggests that the *form* of exchange typically associated with embedded relationships—reciprocal exchange, in which actors individually give and reciprocate benefits without negotiation or assurance of reciprocity—contributes to many of the positive effects associated with embeddedness. Our experimental setting held constant the three "relationship" differences typically used to distinguish market exchanges from embedded relationships: exchanges between strangers versus friends or long-term associates, one-shot transactions versus recurring exchanges, and a focus solely on money versus an expanded domain of value. Both the negotiated and reciprocal exchanges that we studied took place between strangers with no previous personal relationship, but we then placed these strangers in a setting where they engaged in recurring exchanges with the same partners, for the same benefit (money). We found that even with all of these variables controlled, and regardless of the variations in risk and uncertainty that we introduced, reciprocal exchanges produced more of the benefits commonly associated with embedded exchanges. They produced higher levels of trust, more "resilient" trust, and stronger affective bonds than negotiated exchanges. These findings strongly suggest that the kind of relationships that Granovetter (1985, 1992, 2002) and others have associated with "embeddedness"—relationships in which economic transactions do not involve just rational calculation of gain but also social obligations and personal bonds of trust—can *emerge from* reciprocal forms of exchange.

The use of the experimental method allowed us to disentangle effects of the form of exchange from other features that typically distinguish between "market" and

[17]Positive effects of risk are expected only in situations that meet our scope assumption of recurring exchanges between actors. They are unlikely to hold in other contexts, such as one-time transactions between strangers (Macy and Skvoretz 1998). In such situations, binding contracts are necessary and building trust is not an issue.

"embedded" exchanges and study the independent effects of risk and uncertainty. For making causal inferences—our primary goal—this level of control is highly desirable. But it necessarily means that the exchanges we studied do not resemble most exchanges in natural settings. Some of the variables that we controlled—personal histories, resources exchanged, and recurring versus one-shot exchanges—are undoubtedly important influences on trust and may modify the differences in trust that we observed between reciprocal and negotiated exchange.

For negotiated exchanges, some initial level of trust—based on personal history or a prior relationship—may be an important condition for building stronger, more "resilient" trust. Our focus was on trust as a *dependent* variable, and the subjects in our experiments were strangers, with no history and no basis for trusting one another. Caught in a prisoner's dilemma, where the opportunity to exploit created suspicions that the partner might do exactly that, some subjects reacted defensively, choosing not to confirm agreements in anticipation of the other's possible nonconfirmation. When presented with an unconditionally trustworthy partner (in the follow-up experiment), they were as apt to exploit the opportunity as to respond to kind. In natural settings, nonbinding agreements are probably most common when exchange partners have a history of successful exchange and some initial basis for trust. For example, Uzzi (1997) documents the common use of nonbinding agreements in the apparel industry, but notes that the use of such agreements is typically restricted to trading partners with whom there is a history of personal contact. Macaulay's (1963) classic study of noncontractual relations among Wisconsin manufacturers reports the same pattern.

Finally, the results of this study and other work in this research program suggest new directions for exchange theorists. For the last 30 years, exchange scholars have placed dominant emphasis on the structure of networks in developing theories of power, justice, and other exchange outcomes. But our research shows that the form of exchange has stronger effects on trust than either network structure or actors' relative positions of power within those structures. It is clearly time to pay more attention to the structure of exchange itself—to the forms of exchange that shape patterns of interaction, the flow of benefits in network structures, and how actors perceive their partners and their relationships.

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