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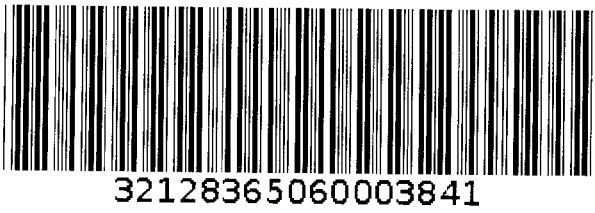

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Trust and Commitment in the United States and Japan[1]

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A distinction is proposed between trust *as a cognitive bias in the evaluation of incomplete information about the (potential) interaction partner and* assurance *as a perception of the incentive structure that leads the interaction partner to act cooperatively. It is hypothesized that trust in this sense helps people to move out of mutually committed relations where the partner's cooperation is assured. Although commitment formation is a rather standard solution to the problems caused by social uncertainty, commitment becomes a liability rather than an asset as opportunity costs increase. Facing increasing opportunity costs, trust provides a springboard in the attempt to break psychological inertia that has been mobilized to maintain committed relations. In conjunction with an assumption that networks of mutually committed relations play a more prominent role in Japanese society than in American society, this hypothesis has been applied to predict a set of cross-national differences between the United States and Japan in the levels of trust and related factors. The results of a cross-national questionnaire survey (with 1,136 Japanese and 501 American respondents) support most of the predictions, and indicate that, in comparison to Japanese respondents, American respondents are more trusting of other people in general, consider reputation more*

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important, and consider themselves more honest and fair. In contrast, Japanese respondents see more utility in dealing with others through personal relations.

When people talk about Japanese society and, in particular, Japanese business, trust comes out in the limelight.[2] Despite considerable variations, Japanese social and business-relations are generally described in many scholastic as well as impressionistic writings to involve strong mutual trust (e.g., Ouchi, 1981; Sako, 1991; Sullivan & Peterson, 1982; Sullivan, Peterson, Kameda, & Shimada, 1981; Vaughan, 1971). We are challenging this widely shared view of the role of trust in Japanese society and business. We argue and provide empirical evidence that the general level of trust is higher among Americans than among Japanese, a proposition opposite to the conventional characterization of interpersonal and interorganizational relations in Japanese and American societies. In so doing, we formulate a theory of trust from which we derive a set of predictions to be tested in a cross-national questionnaire survey.

Our research on trust was originally prompted by a peculiar and yet consistent finding in our previous research that Americans are more trusting than Japanese (T. Yamagishi, 1988a; M. Yamagishi & Yamagishi, 1989). For example, using an 8-item trust scale, T. Yamagishi (1988a) demonstrated that the average trust score of the 852 American respondents was about two thirds of the pooled standard deviation higher than the average trust score of 212 Japanese respondents. A similar difference was replicated by M. Yamagishi & Yamagishi (1989).[3] Although these studies conducted by Yamagishi and his associates used students as samples, a more systematic study conducted by the Institute of Statistical Mathematics (ISM) (C. Hayashi, Suzuki, Suzuki, & Murakami, 1982) using representative national samples reports a similar cross-national difference. Forty-seven percent of the American sample (N = 1,571) responded that "people can be trusted" to the question; "Do you think you can put your trust in most people, or do you think it's always best to be on your guard?" In contrast, only 26% of the Japanese sample (N = 2,032) gave the same response. We believe that this seeming inconsistency between the above survey results and the conventional image of Japanese society as one char-

[2]For example, trust is the term most often referred to in the index of *Theory Z* (Ouchi, 1981).
[3]The trust score measured with this scale or with a previous version of this scale successfully predicted the subject's cooperation level in a series of experiments on social dilemmas (Sato & Yamagishi, 1986; T. Yamagishi, 1986, 1988a, 1988b; T. Yamagishi & Cook, 1993; T. Yamagishi & Sato, 1986). Furthermore, the results of a cross-national experiment (T. Yamagishi, 1988a) indicated that Japanese subjects cooperated more than American subjects in a social dilemma situation consisting of strangers. These results indicate the predictive validity of this scale.

acterized by strong mutual trust is a result of our inability to distinguish trust from related concepts which on the surface resemble trust.

Trust and Assurance

Trust is an elusive concept. This is more true in the English language than in the Japanese language. The most comprehensive definition of trust would be *taken-for-grantedness* of the reality (Holzner, 1973; Luhmann, 1988; Zucker, 1986) or "expectation of the persistence and fulfillment of the natural and the moral orders" (Barber, 1983; p. 9). This definition of trust, however, would not apply in the Japanese language. There are two words in Japanese, *shin'yo* and *shinrai,* roughly corresponding to trust in English. Neither word refers to natural order; they refer only to human (and organization's) traits. This comprehensive definition makes sense only when trust is considered a psychological mechanism for reducing complexity in the environment (Luhmann, 1979, 1988). As discussed later, we assign trust a more positive role; instead of simply reducing cognitive loads, *trust provides a solution to the problems caused by social uncertainty.* Thus, we limit our attention to *trust in other human beings and organizations.*

Barber (1983) argues for the need to distinguish two types of more specific trust. One is "expectation of technically competent role performance from those involved with us in social relationships and systems," and the other is "expectation that partners in interaction will carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place others' interests before their own" (Barber, 1983, p. 9). In brief, the former is expectation of partner's competence and the latter is expectation of partner's goodwill and benign intent. We agree with Barber who argues that inability to make a clear distinction between these two types of trust is one major source of confusion surrounding discussions of trust. There may be an empirical correlation between the two, but they are logically independent. Even those feeling unsafe on a small plane because the pilot has had only a few hours training would not suspect that the pilot will intentionally crash the plane. The incompetent pilot has no malignant intentions! We propose to call the former *confidence* and the latter *trust.* Confidence is expectation of competence, and trust is expectation of goodwill and benign intent.

The distinction between confidence and trust as defined above may easily be appreciated by many as a useful distinction, although most people do not usually treat the two as distinct concepts.[4] More difficult to grasp

[4]This conceptual distinction is slightly clearer in Japanese. The word *shinrai* can be used to refer to confidence or expectation of competence; the other word *shin'yo* is not used in this context. Both words, however, can be used to refer to expectation of goodwill.

intuitively, and more important to our theory of trust, is another distinction between *trust* and *assurance.* Inability to make this distinction, we believe, underlies the seeming inconsistency between the survey results showing that Americans are more trusting than Japanese and the popular image of Japanese society as one characterized by mutual trust. Trust is, as defined above, an expectation of goodwill and benign intent. Assurance, on the other hand, is defined here as an expectation of benign behavior for reasons other than goodwill of the partner. *Trust is based on the inference of the interaction partner's personal traits and intentions, whereas assurance is based on the knowledge of the incentive structure surrounding the relationship.* An example will help making the distinction intuitively clear. Suppose I have a special tie with the Mafia, and my trading partner knows this. I am certain that he will not cheat on me; he knows that if he does he will be quickly sent to a mortuary. My expectation of the partner's "honesty" is based on the fact that acting "honestly" is in his own interest, not on the belief that he is a benevolent person. Here, assurance exists but not trust.[5]

Our research project on trust was launched with a rather intuitive insight that what is commonly believed to characterize social and business relations in Japan is actually mutual assurance based on the nature of the relationship (e.g., the prominence of networks of committed relations) rather than mutual trust based on the belief in human benevolence. It is widely documented that Japanese firms often forgo better deals with new partners in order to maintain long-term relations with loyal partners (e.g., Dore, 1983; Ouchi, 1981; Sako, 1991, 1992). This kind of commitment often removes incentives for defection from the partners, as demonstrated by Axelrod (1984) and others. Axelrod (1984) and other researchers studying iterated prisoner's dilemma situations (e.g., Kollock, 1993; Komorita, Hilty, & Parks, 1991; Oskamp, 1971; Wilson, 1971) have demonstrated that even egoists often cooperate when they expect to deal with the same partners over an extended and unspecified duration. Egoists in such a situation would not trust each other's goodwill, and yet are assured that the partner will not exploit them because of the nature of the long-term incentives. Furthermore, a series of studies by Hayashi, Yamagishi, and their associates (N. Hayashi, Jin & Yamagishi, 1993; T. Yamagishi, Hayashi, & Jin, 1994; Jin, Hayashi, & Shinotsuka, 1993) has demonstrated that cooperativeness of the partner is further reinforced in prisoner's dilemma networks, where players are allowed to select interaction partners.

[5]Shapiro, Sheppard, & Cheraskin (1992) call assurance in this sense "deterrence-based trust." Assurance in this sense also corresponds to the aspect of trust that Hardin (1991) conceptualizes as "encapsulated self-interest."

Both trust and assurance defined above increase predictability in interactions or expectations of social order. This is probably why the two have not been clearly distinguished in the literature on trust. This distinction, however, is critical to our theory of trust for the reason presented below.

Social Uncertainty and Commitment Formation

We have briefly introduced the three most important concepts in our research on trust: trust, assurance, and commitment. The fourth key concept in our study is *social uncertainty.*[6] How those four key concepts are used to explain the U.S.–Japan difference in the levels of trust follows shortly. Let us first define social uncertainty, and argue that commitment formation is the standard solution to the problem caused by social uncertainty.

We use the term "social uncertainty" to refer to a mixed-motive incentive structure in which the actor does not have the capability of correctly detecting the partner's intentions. The *market for lemons* (Akerlof, 1970) is a good example of such a socially uncertain situation. Ordinary buyers of a used car cannot tell the real quality of cars displayed on a used car lot. Buyers know about the possibility of getting a lemon, and reflect this possibility in his or her offering price. The depression in the price reflecting the possibility of getting a lemon applies equally to lemons and quality cars because the buyer cannot discriminate the two. At this depressed price the seller cannot make much profit by selling quality cars, and is thus even more strongly motivated to sell lemons. This vicious circle would eventually drive quality used cars out of the market. The logic behind the market for lemons briefly described above assumes both of the following conditions; the lack of either one will make it unproblematic. First, buyers do not have the capability of correctly detecting the seller's intentions. Lemons will no longer dominate the market once buyers become capable of telling honest sellers from dishonest ones. Second, there must be a room for the seller to profit from acting dishonestly. There is not much to hide with regard to the quality of new cars, and thus there is not much incentive for a new car salesman to provide false information about the quality. We use these two conditions for defining social uncertainty. That is, social uncertainty is defined to exist when an actor is incapable of correctly detecting partners' intentions whereas the partners have incentives to act dishonestly (and thus the actor faces a risk of loss if the partner is dishonest).

[6]The term "uncertainty" is often used to refer to the situation where the risks are not well defined (see Bhide & Stevenson, 1992, for discussion of the relationship between trust and uncertainty in this sense). We do not use the term "social uncertainty" in this narrow sense.

Social uncertainty is not limited to the market for lemons. We face the problem caused by social uncertainty as defined above almost every day in various aspects of our lives; how to avoid being cheated and yet maintain interactions with other people in order to obtain needed resources, psychological as well as material. The simplest and the most readily available solution to the problem posed by social uncertainty would be to form committed relations with specific partners. (What is often considered trust formation, e.g., Shapiro, Sheppard, & Cheraskin, 1992, is actually commitment formation according to our definition.) At least two experiments have demonstrated that commitment formation is facilitated by social uncertainty.

One is an experiment by Kollock (in press) simulating seller–buyer relations. Using rice and rubber markets in Southeast Asia as illustrations, Kollock argues that people form mutually committed relations in order to solve the problem of social uncertainty. The quality of rice is immediately apparent upon simple inspection. The buyer has very little risk of being cheated on the quality of rice he buys; he faces a very low level of social uncertainty. In contrast, the quality of raw rubber is hard to tell; its quality can be known only when it has been processed. The consequence of being cheated in this situation is extremely serious. The buyer of raw rubber thus faces a high level of social uncertainty. This difference in social uncertainty concerning the quality of rice and rubber, Kollock argues, explains the observed difference in the dominant form of trade. Rice is usually traded at open markets between strangers, whereas rubber is often traded between a particular producer and a broker who have formed a long-term relationship, often extending over several generations. A high level of social uncertainty concerning the quality of rubber is the determining factor for the development of such committed relations between rubber producers and brokers. The experiment Kollock conducted is a laboratory version of rice and rubber trades. In one condition (high uncertainty condition), sellers could tell a lie to potential buyers on the quality of the product they sold. In the other condition (low uncertainty condition), sellers could not lie. The results of Kollock's experiment clearly demonstrated that commitment formation between a particular seller and a particular buyer occurred more frequently in the high uncertainty condition than in the low uncertainty condition. T. Yamagishi, Yamagishi, Hayashi, Takahashi, and Watabe (in press; also reported in T. Yamagishi & Yamagishi, 1993, in English) also report a similar finding of their experiment that high social uncertainty promotes commitment formation.[7]

[7]It should be noted here that the term "commitment" in this paper is used in a strictly behavioristic manner. That is, one is defined to be committed to a relationship to the degree that he or she forgoes better alternatives. A rubber broker is committed to a particular producer if he declines a better offer from another producer and continues trades with the first producer. A Japanese firm is committed to its employees to the degree it keeps an extra

There are at least three reasons why social uncertainty is reduced in committed relations. First, people in such relations accumulate information sufficient for allowing to be certain about the partner's intentions. Second, a variety of "hostages" ranging from mutual emotional attachments to relation-specific assets (Helper & Levine, 1992) develop in committed relations, and these hostages can be mobilized to provide deterrence against unilateral defection (Shapiro et al., 1992). Finally, it is possible for an actor to induce the partner to take a certain course of action with the use of strategies such as "tit-for-tat" (cf. Axelrod, 1984). That is, people often have mutual control over each other in such close and stable relations.

One important implication of the fact that social uncertainty is reduced in mutually committed relations is *reduction in the need for trust.* As stated above, they can tell what kind of person the partner is based on the accumulated information about the partner; because they know, they do not need to infer. Furthermore, they have bilateral behavior control (Thibaut & Kelley, 1959); and thus, even egoists would cooperate in mutually committed relations (Axelrod, 1984). When there is very little social uncertainty, partners do not need to infer each other's intentions to be assured of the partner's benign behavior. In other words, *trust is needed less to the degree that commitment reduces social uncertainty.* This may sound counterintuitive, but as Lewis and Weigert (1985) states, "knowledge alone can never cause us to trust" (p. 970) and "trust begins where simple prediction ends" (p. 976). Similarly, Brandach and Eccles (1989) argue that reduction in social uncertainty through "hostage posting" reduces the need for trust. Through an analysis of Moslem society, Gellner (1988) suggests that strong government destroys trust because it reduces social uncertainty, and thus the need for trust. Committed partners may often be assured of mutual cooperation, but this does not mean that they trust each other's goodwill. As Hawthorn (1988) asserts, friendship cannot be a model of socially extensive trust, the kind of trust that is needed as a solution to the social uncertainty problem.

Trust and Reputation

The full significance of the last paragraph can be appreciated as we introduce a new twist in our definition of trust. Trust was defined above as an expectation that partners, including potential partners, have goodwill and

work force on payroll even in recession. Mutual attraction and liking, and the sense of loyalty to each other, may emerge in such a committed relation, and when they do, they strengthen the commitment. That is, mutual attraction and mutual loyalty, when they develop, keep the partners from moving out of the relation at the first sight of a better offer from an outsider. However, such psychological factors, strongly related to commitment, are not commitment itself in this sense.

benign intent in their dealing with us. This definition is based on the implicit assumption that we do not have the perfect information about the partner's intentions. *Their intentions need to be inferred* from available imperfect information. Trust can thus be defined *as a bias in the processing of imperfect information* about the partner's intentions. A trusting person is the one who overestimates the benignity of the partner's intentions beyond the level warranted by the prudent assessment of the available information.

Having adopted this cognitively flavored definition of trust, a fundamental question arises; why does this bias exist at all in the processing of information concerning intentions of interaction partners? The same question may be phrased in a different way; what functions does the bias play for the individual and for the society? The social functions of trust are well known; trust is said to play the role of social lubricant, making transactions beyond immediate partners possible (Barber, 1983; Bradach & Eccles, 1989; Luhmann, 1979). However, the role that trust plays for the individual is not so obvious. The individual function of *trustworthiness* and having good reputation has been discussed as a form of social capital (e.g., Coleman, 1990; Dasgupta, 1988; Frank, 1988).[8] However, except Orbell and Dawes (1993), there has been no systematic treatment of the individual function of trustfulness.

Our theory of trust has been developed to give an answer to the above question of the individual function of *trustfulness*.[9] As suggested above, commitment formation is a standard solution to the problem of social uncertainty. But, the effectiveness of this solution is greatly limited to the situation where opportunity costs are small. People can lead secure and comfortable lives dealing with each other in a closely connected small community insofar as they do not need to deal with outsiders. From a more rational point of view, it pays to stay in committed relations insofar as opportunities to get better deals do not exist outside the relations. Using terms drawn from transaction economics (e.g., Williamson, 1975, 1985), whether or not it is rational to stay in committed relations depends on the balance between transaction costs and opportunity costs. An actor can save transaction costs by staying with the current relations in which cooperation of the partners are assured.

[8]Bhide and Stevenson (1990) claim that trust does not pay. However, they use "trust" and "honesty" interchangeably. They make no distinction between trustworthiness and trustfulness.

[9]This is *the* central research question driving our theory development. The central role that this question plays makes our approach distinct from "cultural" approaches (e.g., Triandis, 1994). Many of the cross-national differences we deal with in this study have been known to exist to psychologists interested in cultural differences in social cognition. For example, mutual assurance within committed relations in Japanese society has been discussed as an aspect of a collectivist culture (e.g., Hofstede, 1980; Triandis, 1989,1990,1994). These psychologists, however, are not interested in explaining *why* (not how) such cross-cultural differences exist. The goal of our research is to explain such "cross-cultural" differences in social cognition, not simply to point to their existence.

On the other hand, the actor who stays with the committed relations despite better outside opportunities forgoes the potential extra benefit (i.e., opportunity costs). Thus, commitments become a liability rather than an asset as opportunity costs increase. In such a situation, actors who are willing to leave the committed relations seeking better outside opportunities have a chance to do better than those who stay in the committed relations.

Why don't people leave the committed relations as soon as outside opportunities arise? There are at least four reasons. First, committed people are by definition those who stay with the current relations despite outside opportunities. They may eventually leave the committed relations as outside opportunities keep increasing, but there must be a substantial time lag. Second, committed partners are likely to have developed mutual attraction and loyalty, which keep them from defecting the relationship. Such psychological derivatives of commitment will certainly strengthen the bond between committed partners, and thus will keep them in the relationship in the face of better alternatives. Third, committed relations are usually characterized by relation-specific assets. Relation-specific assets such as machinery designed specifically for a particular customer makes the relationship more productive. However, development of such relation-specific assets requires an assurance that the relation will last for some time. Mutual commitment thus encourages investments in relation-specific assets. Once such assets have been created, a temporary better offer from outsiders would not be sufficient for the one who has invested in relation-specific assets to leave the current relation. Social and psychological assets such as warm memory of pleasant past and mutual understanding may also be considered as relation-specific assets. Finally, seeking outside opportunities involves social uncertainty. Although the profit expected from a deal with an "outsider" may be greater than the profit assured in a deal with an "insider," the deal with an outsider involves a risk of being exploited. Perception of this risk or the subjective social uncertainty may be higher among those who mostly deal with insiders in committed relations than those who are regularly in contact with outsiders. In this sense, commitment may actually reduce the level of trust in outsiders, and as a result, those who mostly stay in the security of committed relations experience higher subjective social uncertainty. In other words, commitment may create a vicious circle of distrust of outsider; those who do not trust outsiders tend to stay in committed relations, and because they avoid outsiders they become even less trusting of outsiders. Although there is no direct evidence supporting this explanation, cross-cultural psychologists have demonstrated repeatedly that members of collectivist cultures emphasize the ingroup–outgroup boundary (cf. Triandis, 1989, 1990).

Reputation is considered to play an important role in such a situation, the situation where most people stay with committed relations despite the

rising outside opportunities. Reputation can provide an extra assurance for committed people to deal with social uncertainty involved in the deals with outsiders. This, of course, is based on the assumption that there is some validity to reputation. Reputation is imperfect and indirect information about a potential partner's traits, and as such, is not as assuring of the partner's traits and intentions as concrete knowledge accumulated during the history of interactions with a commitment partner. However, having access to reputation is usually more assuring than having no information at all. According to Lewis and Weigert (1985), trust requires the kind of information "that is somewhere between total knowledge and total ignorance" (p. 970), and reputation provides a good opportunity for trust to prosper in this sense.

A positive bias in assessing reputation of potential partners will help an actor to move out of committed relations. That is, *an individual actor can benefit from having trust because trust helps him or her to move out of secure, committed relations.* Trust, in this sense, plays the role of a booster rocket that helps one to take off the secure ground of committed relations. As discussed above, however, this is not necessarily true in all situations. One condition for having trust to be advantageous is that opportunities for better deals exist outside the committed relation. Even when this condition is met, high-trusters are more prone to get exploited than low-trusters who would stay with the secure committed relations. High-trusters may be able to harvest from better outside opportunities, but they are also likely to be exploited. For high-trusters to prosper more than low-trusters, the risk of outright exploitation has to be reduced to a moderate level by the establishment of fair and effective social institutions such as judicial and social control systems. According to Zucker (1986), this process actually took place during the late 19th and the early 20th century in the United States. Through an analysis of business practices during the latter half of the 19th century and the early 20th century in the United States, Zucker (1986) illustrates how the weakening of "process-based trust" (which roughly correspond to assurance provided in committed relations) due to increasing mobility and instability lead to the emergence of trust producing institutions.

The above discussion of reputation and trust focused on the informational aspect of reputation. That is, reputation played an important role in the above discussion because information conveyed by reputation helps reduce social uncertainty among the *recipients* of reputation. Reputation, however, plays another role in reducing social uncertainty. That is, reputation often works as a sanctioning mechanism against dishonest deeds (i.e., reputation as hostage, Shapiro et al., 1992). People may often refrain from misconduct *because they are afraid of getting a bad reputation.* This sanctioning role of reputation is a part of the assurance mechanism. It directly

reduces the incentive of the *owner* of the reputation to act dishonestly. In short, the informational aspect of reputation makes the recipient trustful, whereas the sanctioning aspect of reputation makes the owner act in a trustworthy way. We believe this distinction between the informational and the sanctioning roles of reputation important especially when we later compare Japanese society and American society; we suspect that the informational role of reputation is more important in American society, whereas the sanctioning role is more important in Japanese society.

General Trust and Knowledge-Based Trust

We have defined above that trust is a cognitive bias in the evaluation of (potential) partners. We have to admit that this is a rather narrow definition of trust. It covers only a part of the original definition of trust as the belief in a partner's goodwill. One may have a strong belief in the benevolence of his or her partner, and yet his or her belief can be based on reliable pieces of information accumulated over a long history of interactions with the partner. In this case, bias is not likely to be involved. Yet, he or she is certain that the partner will not cheat on him or her even when the incentive encourages the partner's cheating. This is actually the kind of trust many people would first think of when asked what trust is. We call this kind of trust *knowledge-based trust* and call trust as a cognitive bias *general trust. Whereas knowledge-based trust is limited to particular objects (people or organizations), general trust is a belief in the benevolence of human nature in general and thus is not limited to particular objects.* We consider this distinction critical, since the former does not provide a solution to the social uncertainty problem. That is, knowledge-based trust does not encourage one to move out of committed relations. Knowledge-based trust is a by-product of committed relations, and thus does not play an important role in our theory of trust. Its role is strictly limited to that of a dependent variable. In contrast, general trust as a positive cognitive bias plays a role when sufficient knowledge of the partners is lacking. It helps one to move out of familiar relations.

Trustworthiness and Trustfulness

One unique feature of our theory of trust is that ours is a theory of trustfulness rather than trustworthiness. As Hardin (1992) points out, "many discussions of trust run trust and trustworthiness together, with claims about trust that might well apply to trustworthiness but that seem off the mark for trust" (p. 512). Admitting the importance of this distinction, however, we also face a task of explaining the strong correlation be-

tween the two that has been observed repeatedly in empirical studies (e.g., Dawes, McTavish, & Shaklee, 1977; Dawes, Orbell, Simmons, & van de Kragt, 1986; Marwell & Ames, 1979; Messick et al., 1983; Tyszka & Grzelak, 1976; T. Yamagishi, 1986, 1988a, 1988b; T. Yamagishi & Sato, 1986). Our theory of trust can provide at least an initial step toward the explanation of this relationship.

In a population where reputations of people are reasonably accurate, people, especially high-trusters, would seek out others who have good reputations as potential partners. In such a situation, high-trusters would come to interact mostly with people of good reputation. Reflecting the accuracy of reputation, those are largely honest and trustworthy people. This implies that, given a reasonable level of validity in reputation, trustful people tend to interact with trustworthy people.[10] Conversely, high-trusters who do not have good reputation will not be able to successfully seek better opportunities since outsiders would not particularly want to interact with them. To have a good reputation requires one to be honest in most situations (see Frank, 1988, for an intriguing discussion of this issue). This process may underlie the empirically well-established correlation between cooperativeness or trustworthiness and trustfulness. (Orbell and Dawes, 1991, 1993, explain this correlation as a false consensus due to the use of own action as a sample drawn from a population.)

Hypotheses Concerning the U.S.–Japan Comparison

We started with a rather intuitive hypothesis that what is commonly believed to characterize social and business relations in Japan is mutual assurance developed in committed relations rather than trust as a bias in assessing imperfect information. Now we are going to reexamine this hypothesis in a more theoretical manner. The question we face is: What is the reason for expecting that the general level of trust is higher among Americans than among Japanese? In answering the above questions, we accept the assumption that networks of committed relations play a more prominent role in Japanese society than in American society. We do not aspire to test whether or not this assumption is valid. Instead, we tentatively accept this assumption, and see what predictions we can make from this assumption. It is these specific predictions that we test in this study.

[10]In fact, Orbell and Dawes (1993) demonstrated in an experiment involving social dilemmas that trustful people tend to join a social dilemma involving social uncertainty, whereas low-trusters do not, and that high-trusters who come to play a social dilemma game with other high-trusters-cooperators profit more than low-trusters who do not join. That is, in their experiment, trustful people congregated and acted in a trustworthy manner. Reputation, however, did not play a major role in their experiment.

It is obvious that modern business cannot be conducted only through relations between mutually committed partners. This is true either in the United States or Japan. On the other hand, literature on Japanese society and business is filled with reports testifying to the prominence of long-term, mutually committed relations such as *keiretsu* (cf. Asanuma, 1989; Cusmano & Takeishi, 1991; Dyer, 1993; Gerlach, 1987; Helper & Levine, 1992; Miwa, 1990; Wada, 1991). Lifetime employment is another example of committed relations (cf. Abegglen, 1958; Clark, 1979; Cole, 1972; Lincoln & Kallenberg, 1985; Marsh & Mannari, 1976). In these relations, it is argued, partners often forgo short-term extra profits in order to maintain the relations and thus secure long-term profits. Assuming that these characteristics of Japanese business and interpersonal relations are valid, we can expect that *reputation* plays a more central role in American society in resolving the problem of social uncertainty, whereas *reliance on relations* is more central in Japanese society (cf. Deutsch, 1983). From this, the following set of predictions are derived.

First, *reputation (especially the informational aspect of reputation) is expected to play a more important role in American society than in Japanese society.* As discussed above, the informational role of reputation is important only when people seek better opportunities outside committed relations. If Japanese prefer dealing with committed partners more strongly than do Americans, we can predict that reputation is less important among Japanese than among Americans. The second prediction concerns general trust. We argue that general trust is mostly irrelevant in mutually committed relations. Thus, *Americans are predicted to be generally more trustful than Japanese.* This prediction, in turn, leads to another prediction. That is, it is predicted that *Americans consider honesty more important than do Japanese.* As discussed above, the benefit of trustfulness requires that trusters are also honest and trustworthy. Since Americans are expected to be more trustful than Japanese, they are expected to be more honest (or at least think honesty is important) than Japanese. We tested these predictions concerning the U.S.–Japan contrast in a questionnaire survey conducted in the United States and Japan.

SURVEY DESIGN

Samples

Two types of samples were used in each country. One is the student sample and the other the general population sample.

Student Sample. The student sample is a convenience sample and does not represent any well-defined population. We included the student sample in order to compare it with general population sample to evaluate generalizability of findings in our previous studies in which students were used as respondents. Responding to the questionnaire were 246 American students (152 from University of Washington, and 94 from UCLA, both from sociology classes) and 928 Japanese students (225 from Hokkaido University, 14 from Saitama University, 90 from Toyo University, 161 from Osaka International University, and 438 from Bukkyo University, mostly in humanities and social sciences with a few engineering and natural science students).

General Population Sample. The general population sample was randomly drawn from telephone books in Sapporo, Japan, and Seattle, WA: 300 were randomly drawn from the Sapporo telephone book and 450 were drawn from Seattle telephone book. Of these lists, 208 responded in Sapporo and 265 responded in Seattle. Data collection procedures are discussed in more details later.

Sample Characteristics. Due to the nature of the sampling method, the demographic composition of the United States and the Japan general population samples are substantially different. Compared to the Japan sample, the U.S. general population sample includes more female and older people. The cross-national comparisons reported below were conducted with these differences in mind.

Questionnaire Development

Preliminary Study 1. The construction of the questionnaire used in this survey took the following steps. The first version of the questionnaire was constructed in Japanese (although some items were translations from the English originals) and administered in April and May of 1993 to 369 Japanese students. The main purpose of this preliminary survey was to conduct item analysis and select appropriate items to be used in later studies (the results of this study are partly reported in Watabe et al., 1993). Some of the items related to trust have been adopted from Rotter's (1967) Interpersonal Trust Scale, T. Yamagishi's (1986) Trust Scale, Wrightsman's (1974) Philosophies of Human Nature Scale, Rempel and Holmes' (1986) Trust Scale, and Rosenberg's (1957) Faith in People Scale. The other items were original.

Preliminary Study 2. The second questionnaire, which we call the short-version, was then constructed based on the results of item analysis in the first preliminary study. The Japanese version was administered in

June of 1993 to 394 Japanese students. The translated English version was administered in July and September of 1993 to 300 American students. We wanted to make sure, before investing more energy and funds in our project, that the predicted U.S.–Japan differences were likely to emerge with the measurement tools we had developed. The results were encouraging.

Back Translation. Seventy-eight Likert type items, 2 binary-choice items, and 6 scenario-type measures were constructed, first in Japanese, based on the results of the above two preliminary studies. All items were then back-translated, and the equivalence of the original (Japanese) items and the back-translated (first translated into English and then back to Japanese) items were examined before the construction of the final version of the questionnaire. Equivalence of each set of items (the original or the back-translated) was evaluated in two ways. First, a group of evaluators (40 students) responded to both questionnaires (one consisting of the original items and the second consisting of the back-translated items). Then, the same set of evaluators was asked to directly evaluate the degree of similarity in the meaning for each pair of items. Items that were found to have problems were reformulated.

Data Collection Procedure

The student data were collected by distributing the questionnaire in classes. The procedure to collect general population data was slightly different in the two countries. In both countries, any adult over 20 years old in the household might fill out the questionnaire. In Sapporo, Japan, it was indicated that there would be three lucky winners who could claim the prize of 10,000 yen (about $95) each if they returned the questionnaire. Out of 277 who received the questionnaire, 208 (75.1%) eventually responded. In Seattle, three incentive conditions were used. In the no monetary incentive condition, where no monetary reward was mentioned or provided, the response rate was 51.8% (71 of 137 who actually received the questionnaire). In the promise-of-$5 condition, where $5 would be mailed to the respondent upon receipt of his or her questionnaire, the response rate was 62.1% (87 of 140 who actually received the questionnaire). Finally, the response rate in the $5 condition, where $5 bill was enclosed together with the questionnaire, was 79.3% (107 of 135 who actually received the questionnaire). The purpose of using these different incentive schemes was to obtain information to facilitate the choice of the incentive to be used in the next survey, which will include a nationwide sample from each country.

RESULTS

American respondents for whom English was not the native language (47 students and 21 in the general population sample) were excluded from the following analyses.

Incentive Bias

We first examined whether the difference in the incentive scheme (no money, promise-of-$5, $5 included) had any systematic effect on the level of trust among those who responded. Among the total of 86 items included in the questionnaire, the incentive scheme had a significant effect at α 0.05 on only one item. We may thus conclude that the difference in the incentive scheme did not create a bias in the response to this questionnaire.

Trust

Although the questionnaire included items related to trust in social institutions in addition to trust in people, due to limitation in space we report only results related to trust in people. A factor analysis of 32 items related to trust in people (19 items on trust in general others, 13 items on trust in specific, closely related others) was performed separately for the student and the general population subsample in each country. The results of these factor analyses were largely consistent across the four subsamples in that trust in general others and trust in closely related others did not load on the same factor. Therefore, each set of items was separately analyzed.

General Trust

A factor analysis of the 19 items on trust in people in general with the combined sample (all four subsamples combined) revealed two factors as shown in Table I.[11] These two factors correspond to the ones found repeatedly in previous research (e.g., M. Yamagishi & Yamagishi, 1989; Kaplan, 1973; T. Yamagishi, 1988a). They were largely replicated in each

[11]Although not shown in the table, the eigenvalue of the first factor before rotation was predominant; the eigenvalues of the first and the second factor were 6.20 and 1.15 with the combined sample, 7.10 and 1.13 with the Japan student sample, 5.87 and 1.60 with the Japan general sample, 5.41 and 2.22 with the U.S. student sample, and 7.76 and 2.45 with the U.S. general sample.

Table I. Factor Loadings (Maximum Likelihood Factor Analysis with Varimax Rotation) of Trust in General Others Items[a]

	Combined	Japan		U.S.		Combined	Japan		U.S.	
Item	sample Factor 1	Student Factor 1	General Factor 2	Student Factor 1	General Factor 1	sample Factor 2	Student Factor 2	General Factor 1	Student Factor 2	General Factor 2
13	**0.72**	**0.71**	**0.63**	**0.61**	**0.74**	0.22	0.22		0.28	
11	**0.64**	**0.60**	**0.51**	**0.65**	**0.72**	0.27	0.30	0.37		0.20
1	**0.62**	**0.60**	**0.46**	**0.65**	**0.73**			0.20		
51	**0.50**	**0.48**	**0.43**	0.28	**0.40**	0.22	0.29		0.27	
35	**0.46**	**0.47**	**0.44**	**0.59**	**0.52**	0.35	0.34	**0.42**		0.27
78	**0.46**	**0.42**	**0.45**	**0.42**	**0.48**					0.22
20	0.35	0.36	**0.42**	0.29	0.39	0.30	0.33			0.37
29	0.26	0.35	**0.42**	**0.44**	0.37	0.21				0.38
24						0.28	0.26	0.31	0.27	0.39
49	0.27	0.43	0.36	0.23		0.31	0.25			0.37
38		0.24		0.48	0.44	0.33	0.28	0.22		0.38
45						0.35	0.39	**0.46**	**0.42**	0.24
10						0.38	**0.50**	**0.50**	**0.51**	0.38
5						**0.41**	**0.50**	0.39	**0.40**	**0.46**
40	0.22	0.21				**0.41**	**0.43**	**0.50**	**0.73**	0.34
25[b]			0.35	0.31	0.25	**0.49**	**0.42**	**0.42**	0.27	**0.64**
19						**0.50**	**0.52**	**0.51**	0.25	**0.46**
48	0.23	0.32		0.26		**0.54**	**0.58**	**0.56**		**0.43**
65		0.23				**0.62**	**0.55**	**0.60**	**0.44**	**0.61**
Contributions	2.57	2.70	2.57	2.62	2.98	2.52	2.63	2.22	1.86	2.60

[a]Loadings above 0.4 are in bold letters. Loadings less than 0.2 are not reported.
[b]Reversed item.

subsample, again as shown in Table I. Table II reports correlations between factor loadings across subsamples. The high correlations concerning the first factor in this table indicate that the factor pattern is similar across subsamples. (Results of confirmatory factor analyses, however, indicate significant differences in the factor pattern across populations.) On the other hand, the correlations concerning the second factor are generally lower. This seems to suggest that the second factor is more likely to reflect the influence of population-specific source of variance than the first factor.

Items with high loadings on the first factor are general statements concerning honesty and trustworthiness of people in general. These items are the ones that are most directly related to the central variable in this study, general trust. In the following analysis, the average of six items that had relatively high loadings on this factor is used to constitute the General Trust Scale. Means and standard deviations of the General Trust Scale and its constituent items in each subsample, representing a combination of country, students versus general population, and sex, are reported in Table III. Reliabilities of the scales in each subsample are reported in Table IV. Consistent with the previous findings (M. Yamagishi & Yamagishi, 1989; T. Yamagishi, 1988a), the mean of the General Trust Scale was significantly greater among American respondents than among Japanese respondents. This cross-national difference is a robust one in the sense that it exists in every subsample. That is, the difference was significant in the male student sample, female student sample, male general population sample, or female general population sample. The magnitude of the difference was also substantial. Especially in the male general population sample, the American average was more than one pooled standard deviation higher than the Japanese average. Furthermore, all six constituent items consistently showed that American respondents were higher in general trust than Japanese respondents. Taking into account the result of the ISM cross-national survey mentioned earlier (C. Hayashi et al., 1982), it is safe to conclude that Americans have greater trust in people in general than do Japanese. This

Table II. Across-Samples Correlations of Factor Loadings of Trust in General Others Items[a]

	1	2	3	4	5
1. Combined sample	—	.92	.85	.37	.71
2. Japan-students	.95	—	.87	.49	.58
3. Japan-general	.84	.88	—	.56	.39
4. U.S.-Students	.78	.82	.80	—	.18
5. U.S.-General	.90	.88	.82	.93	—

[a]The lower half of the matrix represents correlations concerning Factor 1, and the upper half Factor 2.

Table III. Means of General Trust Scale and Caution Scale, and of Items Included in These Scales[a]

Scales and items	Male students		Female students		Male general		Female general	
	Japan (n = 583)	US (n = 75)	Japan (n = 330)	US (n = 124)	Japan (n = 167)	US (n = 138)	Japan (n = 39)	US (n = 106)
General Trust Scale	3.12 (0.83)	**3.60** (0.59)	3.35 (0.77)	**3.53** (0.62)	3.53 (0.71)	**4.13** (0.56)	3.38 (0.76)	**3.85** (0.72)
	$t(117) = 6.40$ $p < .001$		$t(255) = 2.53$ $p < .05$		$t(292) = 7.99$ $p < .001$		$t(136) = 3.38$ $p < .001$	
1 Most people are basically honest.	3.03 (1.35)	**3.29** (1.05)	3.36 (1.26)	3.27 (1.04)	3.93 (1.17)	**4.25** (0.89)	4.08 (1.11)	3.86 (1.12)
11 Most people are trustworthy.	2.57 (1.22)	**3.23** (0.99)	2.81 (1.19)	**3.12** (1.01)	2.65 (1.28)	**4.06** (0.78)	2.41 (1.09)	**3.65** (1.19)
13 Most people are basically good and kind.	3.20 (1.22)	3.40 (0.93)	3.43 (1.13)	3.41 (1.01)	3.75 (1.26)	**4.07** (1.03)	3.51 (1.26)	3.82 (1.15)
35 Most people are trustful of others.	2.89 (1.24)	**3.16** (0.94)	3.04 (1.13)	2.85 (1.01)	3.05 (1.26)	**3.51** (1.03)	2.92 (1.26)	3.11 (1.15)
51 I am trustful.	3.60 (1.22)	**4.33** (0.92)	3.85 (1.06)	**4.37** (0.89)	4.04 (0.98)	**4.55** (0.77)	3.79 (1.15)	**4.39** (0.91)
78 Most people will respond in kind when they are trusted by others.	3.41 (1.29)	**4.20** (0.66)	3.60 (1.11)	**4.14** (0.74)	3.67 (1.10)	**4.32** (0.67)	3.54 (1.25)	**4.20** (0.84)

Table III. Continued

Scales and items	Male students		Female students		Male general		Female general	
	Japan (n = 583)	US (n = 75)	Japan (n = 330)	US (n = 124)	Japan (n = 167)	US (n = 138)	Japan (n = 39)	US (n = 106)
Caution Scale	3.29 (0.75)	3.35 (0.56)	3.02 (0.75)	**3.29** (0.57)	3.09 (0.80)	2.95 (0.70)	2.98 (0.82)	3.00 (0.72)
	$t(110) = 0.85$ ns		$t(272) = 4.08$ $p < .001$		$t(295) = -1.58$ ns		$t(141) = 0.16$ ns	
5 No matter what they say, most people inwardly dislike putting themselves out to help others.	**3.04** (1.29)	2.62 (1.13)	2.75 (1.18)	2.68 (1.09)	**3.03** (1.34)	2.51 (1.16)	**3.18** (1.23)	2.51 (1.28)
10 People are always interested only in their own welfare.	**3.46** (1.22)	3.05 (1.11)	**3.17** (1.17)	2.85 (1.24)	**3.40** (1.24)	2.71 (1.28)	**3.31** (1.13)	2.67 (1.31)
19 There are many hypocrites in this society.	3.41 (1.18)	**4.40** (0.77)	3.36 (1.13)	**4.44** (0.69)	2.99 (1.31)	**4.06** (1.09)	3.09 (1.18)	**4.10** (0.98)
25[b] In this society, one does not need to be constantly afraid of being cheated.	3.56 (1.27)	3.62 (1.13)	3.46 (1.18)	3.68 (1.08)	2.93 (1.43)	3.08 (1.29)	2.58 (1.46)	**3.34** (1.31)
40 One can avoid falling into trouble by assuming that all people have a vicious streak.	2.60 (1.31)	2.49 (1.10)	2.28 (1.12)	2.26 (1.14)	**2.90** (1.37)	1.93 (1.08)	**2.62** (1.33)	1.61 (0.89)
48 People usually do not trust others as much as they say they do.	3.44 (1.26)	3.51 (0.94)	3.15 (1.20)	**3.56** (0.99)	3.56 (1.24)	3.34 (1.08)	3.28 (1.36)	3.34 (1.12)
65 In this society, one has to be alert or someone is likely to take advantage of you.	3.33 (1.18)	**3.79** (0.96)	2.96 (1.12)	**3.68** (0.99)	2.84 (1.25)	**3.20** (1.24)	2.69 (1.28)	**3.45** (1.14)

[a]Standard deviations within parentheses. Bold numbers indicate that they are significantly higher than the mean in the other country within the subsample. Actual n may differ from item to item due to missing values.

[b]The reported means for the Item 25 are based on reversed scores, such that the higher value indicate greater needs for caution.

Table IV. Reliabilities of Constructed Scales in the Four Subsamples

Scale	No. of items in the scale	Japan		US	
		Students	General	Students	General
General Trust	6	0.76	0.70	0.72	0.78
Caution	7	0.74	0.72	0.61	0.71
Knowledge-Based Trust	4	0.59	0.66	0.56	0.65
Utility of Relations	3	0.46	0.45	0.53	0.56
Reputation	3	0.28	0.19	0.29	0.43
Honesty	7	0.60	0.53	0.45	0.45

result supports our prediction that the level of general trust would be higher among Americans than among Japanese.

Caution in Dealing with Others

Items having high loadings on the second factor in the above factor analysis, taken together, are those that point out the existence of risk in social life and advise people of caution in dealing with others. The existence of this factor has also been reported by Kaplan (1973); two of the three factors obtained through a factor analysis of Rotter's (1967) Interpersonal Trust Scale in Kaplan's study were "perceived sincerity of others" (which corresponds to our first factor, the general trust factor) and the "need to be cautious of others" (which corresponds to our second factor). T. Yamagishi (1988a, M. Yamagishi & Yamagishi, 1989) also found a similar factor, and called it a factor representing "fear of exploitation." However, as Kaplan (1973) suggests, some of the items loaded on this factor emphasize the need to be cautious in dealing with others rather than just being afraid of others. Thus, we decided to call this a "caution factor." Seven items reported in Table III, which had high loadings on this factor, were used to constitute the Caution Scale. (Note that the value of Item 25 in Table III has been reversed such that a higher value indicates greater needs for caution.)

What is represented by this factor, a belief that caution is needed in dealing with others, is *not* trust in the sense of the term defined before as a bias in assessing potential partner's intentions.[12] Rather, it is more directly

[12]Zucker (1986) points out that disruption of trust does not necessarily produce distrust. Instead, she argues that trust and distrust are different constructs. We see a parallel here between trust-caution in our analysis and trust–distrust in Zucker's scheme.

related to how to respond to a perceived potential risk of being exploited by others. Of course, perception of the risk probability, which is directly affected by trust as a cognitive bias, and how to respond to it are not independent. Generally, more caution is advised when the perceived risk is high. On the other hand, there seem to be people who are trusting and yet prudent. These are people who believe that the majority of people are trustworthy and yet be prepared to deal with a small minority of potential predators. For example, Kelley and Stahelski (1970) found that "cooperators believe others are heterogeneous as to their cooperativeness versus competitiveness, whereas competitors will believe other persons are uniformly competitive" (p. 66). Kelley and Stahelski's cooperators are those who are willing to trust others and, at the same time, are ready to quickly respond to defectors. Consistent with this interpretation of General Trust and the Caution Scales, the cross-tabulations of the two scales as they are split at the scale midpoint of 3 (not the median split) shown in Table V indicate that (a) low trusters are mostly cautious in dealing with others whereas (b) some of the high trusters are prudent and some are not. Actually, trusting-and-prudent can be the best strategy in dealing with the problem of social uncertainty when the opportunity cost is relatively high; it is better to seek better opportunities outside the committed relations in such a situation, and yet caution is required when one seeks opportunities outside such relations.

We predicted and confirmed above that Americans have a higher level of general trust than Japanese. However, our theoretical discussion does not predict a similar cross-national difference in the level of caution. *There is no theoretical basis to expect a cross-national difference in the level of caution in either direction.* And the means of the Caution Scale and the

Table V. Cross-Tabulation of General Trust and Caution for Each Subsample in Percentage of the Total

	General trust		Students			General population		
				General trust			General trust	
Caution	Low	High	Caution	Low	High	Caution	Low	High
Combined sample (n = 1,579)			Japan (n = 928)			Japan (n = 208)		
High	24.4	27.7	High	31.1	24.7	High	20.2	27.9
Low	8.5	39.3	Low	10.0	34.2	Low	9.1	42.8
			U.S. (n = 189)			U.S. (n = 244)		
			High	17.5	31.2	High	9.0	37.7
			Low	5.3	46.0	Low	4.9	48.4

means of its constituent items across subsamples reported in Table III do not indicate a systematic cross-national difference. There are some statistically significant differences at the individual item level, but the direction of the difference varies from item to item.[13] Taking further into account the fact that the internal structure of the caution factor substantially differs across subsamples, no definite conclusion can be drawn concerning the cross-national difference in the level of caution people think they should take in dealing with others. Although not central to the purpose of this study, a more careful study of the relationship between general trust and caution will contribute to our understanding of trust in the two countries.

Knowledge-Based Trust

Eigenvalues of the factors before rotation suggested the existence of two factors in the factor analysis of the 13 items on trust in closely related people.[14] The factor patterns shown in Table VI do not indicate the existence of a consistent factor pattern across subsamples. The only consistent pattern across subsamples is the relatively high loadings of Items 8, 41, 43, and 58 on the first factor. These are items measuring the sense of security in dealing with others with whom one has a long-lasting relations and whom one knows well. These items correspond to what we have termed *knowledge-based trust.* Items 4, 15, and 18 are reverse items of the above set, but these items showed up as a separate factor on their own in the two Japan subsamples. On the other hand, these items did not have even moderate loadings on either factor in the two U.S. subsamples. Because of this inconsistency, we decided not to include these items in our cross-national analysis. Items 75, 76, and 77, which measure belief in the utility of relations or "connections," loaded on the first factor in the two Japan subsamples,

[13]The aforementioned ISM study reports a significant cross-national difference on an item similar to Item 65 in our questionnaire. That is, 64.6% of the American sample responded "not true" to the question, "Do you think that other people are always out to make use of you if ever they see an opportunity, or do you think that's not true." In contrast, only 53.0% in the Japan sample indicated the same response. The direction of this cross-national difference is opposite to our result on Item 65; "In this society, one has to be alert or someone is likely to take advantage of you." The inconsistency between our result and the ISM result may be a consequence of bias in our samples. However, considering the fact that the Americans agree with Item 65 more strongly than Japanese in all of the four subsamples, this is not very likely. Another possible explanation is that responses to such items, or people's feelings for the need to be cautious in dealing with others, are sensitive to short-term changes in social atmosphere.

[14]The eigenvalues of the first, second, and third factor before rotation are 2.24, 1.25, and 0.60 with the combined sample; 2.12, 1.22, and 0.69 with the Japan student sample; 3.11, 1.62, and 0.63 with the Japan general sample; 3.34, 1.72, and 0.57 with the U.S. student sample; 3.28, 1.15, and 0.61 with the U.S. general sample.

Table VI. Factor Loadings (Maximum Likelihood Factor Analysis with Varimax Rotation) of Items on Trust in Specific, Closely Related Others[a]

	Combined	Japan		U.S.		Combined	Japan		U.S.	
Item	sample Factor 1	Student Factor 1	General Factor 1	Student Factor 1	General Factor 1	sample Factor 2	Student Factor 2	General Factor 2	Student Factor 1	General Factor 1
43	**0.51**	**0.45**	**0.46**	**0.64**	**0.66**		0.30			
58	**0.34**	0.31	**0.75**	**0.73**	**0.63**					0.22
8	**0.48**	**0.49**	**0.44**	0.29	**0.60**				0.23	
41	**0.54**	**0.56**	**0.61**	**0.41**	0.39	0.39				0.29
76	**0.48**	**0.50**	0.33	0.22					**0.52**	**0.65**
75	**0.50**	**0.50**	0.37						**0.79**	**0.42**
77		0.22	0.26						0.30	**0.47**
15	**0.41**			0.22	0.31	**0.56**	**0.59**	**0.71**		
18						**0.48**	**0.48**	**0.48**	–0.23	
4	0.27		0.22			0.34	0.35	0.34		
42						0.29	0.32			
68			**0.45**	0.23						0.35
74	–0.31	–0.32							**–0.41**	–0.28
Contributions	1.59	1.55	1.93	1.39	1.60	0.91	0.95	0.97	1.33	1.21

[a]Loadings above 0.4 are in bold letters. Loadings less than 0.2 are not reported.

whereas they constituted a separate factor in the two U.S. subsamples. These three items tap into the assurance aspect or the utilitarian aspect of relations rather than trust in interaction partners. We thus decided to construct the Knowledge-Based Trust Scale with Items 8, 41, 43, and 58, and the Utility of Relations Scale with Items 75, 76, and 77.

The mean of the Knowledge-Based Trust Scale was much higher among Americans than among Japanese, and the difference existed in each of the four subsamples reported in Table VII. Furthermore, the same difference was observed at the individual item level; all but one of the significant cross-national differences at the individual item level are in the same direction, indicating higher knowledge-based trust among Americans than Japanese. Thus, it is relatively safe to conclude that the level of knowledge-based trust is higher among Americans than among Japanese. Thus, Americans, more than Japanese, are more trusting of others, whether they are strangers or personal acquaintances.

It is interesting that the correlation between general trust and knowledge-based trust is low within each subsample (r = .22 with Japan-student, .00 with Japan-general, .12 with U.S.-student, and .07 with U.S.-general subsample), and yet both scales indicate the consistent cross-national difference (i.e., the higher trust in the U.S. subsamples). The lack of within-subsamples correlation seems to be consistent with the previous discussion of knowledge-based trust, in which general trust and knowledge-based trust were shown to be conceptually distinct. We return to the issues concerning knowledge-based trust in the Discussion section.

Utility of Relations

The pattern is reversed for the Utility of Relations Scale, consisting of Items 75, 76, and 77. The Japanese average score of this scale is much higher than the American average in each of all four subsamples reported in Table VII. In addition, all the significant cross-national differences are in the same direction, indicating that Japanese see more utility in dealing with others through personal relations. Although the scale consists of only three items and thus we cannot draw a strong conclusion, the above cross-national differences strongly suggest that Japanese consider more strongly than do Americans that they can benefit from using personal connections in dealing with others. In other words, Japanese believe more strongly than Americans that "in-group bias" or preferential treatments to insiders is a matter of social fact that they can count on in everyday life. The pattern shown in Table VII is thus clearly consistent with our argument that Japa-

Table VII. Means of Knowledge-Based Trust Scale and Utility of Relations Scale, and of Their Constituent Items[a]

Scales and items	Male students		Female students		Male general		Female general	
	Japan (n = 583)	US (n = 75)	Japan (n = 330)	US (n = 124)	Japan (n = 167)	US (n = 138)	Japan (n = 39)	US (n = 106)
Knowledge-Based Trust Scale	3.91 (0.78)	**4.46** (0.53)	3.87 (0.73)	**4.37** (0.61)	3.93 (0.77)	**4.24** (0.69)	3.83 (0.96)	**4.19** (0.81)
	$t(117) = 7.81$, $p < .001$		$t(254) = 7.25$, $p < .001$		$t(298) = 3.54$, $p < .001$		$t(140) = 2.09$, $p < .05$	
8 I trust a person I know well more than one whom I don't know.	4.24 (1.03)	**4.49** (0.95)	4.13 (1.00)	**4.76** (0.53)	4.01 (1.18)	**4.55** (0.93)	3.95 (1.19)	**4.61** (0.81)
41 Whatever work I have to perform, I feel more secure when I work with someone I know well than with someone I don't know.	4.14 (1.05)	4.23 (0.97)	3.95 (1.11)	3.80 (1.27)	**4.21** (0.87)	3.75 (1.33)	3.82 (1.30)	3.58 (1.37)
43 Generally, a person with whom you have had a longer relationship is likely to help you when you need it.	3.80 (1.22)	**4.62** (0.66)	3.88 (1.14)	**4.53** (0.82)	3.70 (1.19)	**4.43** (0.85)	3.64 (1.39)	**4.35** (1.03)
58 The people I trust are those with whom I have had long-lasting relationships.	3.47 (1.28)	**4.51** (0.76)	3.51 (1.21)	**4.44** (0.81)	3.85 (1.17)	**4.25** (0.96)	3.92 (1.26)	4.23 (1.12)

Utility of Relations Scale	**3.82** (0.82) $t(653) = -2.69$ $p < .01$	3.55 (0.89)	**3.81** (0.72) $t(188) = -4.20$ $p < .001$	3.44 (0.88)	**3.84** (0.76) $t(259) = -6.67$ $p < .001$	3.18 (0.94)	**3.96** (0.82) $t(141) = -3.40$ $p < .001$	3.36 (0.97)
75 If I were going to buy a used car, I would feel more comfortable buying it. from a salesperson whom a friend had introduced me to in person rather than from a salesperson who is a total stranger.	3.98 (1.13)	4.05 (1.17)	3.96 (1.01)	4.10 (1.14)	3.90 (1.16)	3.95 (1.15)	4.23 (0.84)	4.16 (1.16)
76 When negotiating over an important issue with a total stranger it is very important to have a personal introduction by someone you know well.	**4.01** (1.02)	3.47 (1.26)	**3.99** (0.95)	3.27 (1.28)	**4.05** (1.01)	3.08 (1.38)	**4.15** (0.96)	3.30 (1.42)
77 A doctor examines a patient more carefully than usual if the patient has been referred by a personal acquaintance.	**3.47** (1.33)	3.13 (1.21)	**3.47** (1.28)	2.98 (1.29)	**3.57** (1.18)	2.50 (1.32)	**3.49** (1.41)	2.63 (1.44)

[a]Standard deviations within parentheses. Bold numbers indicate that they are significantly higher than the mean in the other country within the subsample.

nese rely on relations in dealing with social uncertainty more strongly than do Americans.

Reputation

The central role of reputation in our theory of trust came up relatively recently in theory development, and thus only four items that were directly relevant to reputation were included in the questionnaire. Among the four items, Item 61 differs from the other three in that it is about the sanctioning role of reputation, whereas the other three items are about the informational role of reputation. Our theoretical discussion of reputation in the formation of trust emphasizes the informational role of reputation; reputation provides incomplete but somehow reliable information about the potential partner. The result of a principal component analysis of the four items shown in Table VIII also suggests that Item 61 is somehow different from the other three. Consistent with the cross-national prediction derived from this theoretical discussion, the current result indicates that Americans consider reputation more valid (Item 26) and more important (Items 28, 50) than do Japanese (see Table IX). On the other hand, the cross-national difference on Item 61 is in the opposite direction, suggesting that the sanctioning role of reputation (i.e., people avoid misconduct in order not to create a bad reputation) is more prevalent in Japan than in the U.S., especially among male general subsample. However, we cannot make a definite conclusion on the sanctioning role of reputation since it is measured by only a single item.

Table VIII. Principal Factor Loadings (Principal Component Analysis) of the Four Items Related to Reputation[a]

Item	Combined sample	Japan		US	
		Students	General	Students	General
26	0.79	0.76	0.56	0.75	0.68
28	0.77	0.71	0.31	0.75	0.81
50	0.40	0.37	0.63	−0.07	0.47
61	0.04	0.14	0.68	−0.39	0.30
Contributions	1.38	1.25	1.27	1.29	1.42

[a]Maximum likelihood factor analysis was not used here since communality estimates exceeded one.

Table IX. Means of the Items Related to Reputation[a]

Scale and items	Male students		Female students		Male general		Female general	
	Japan (n = 583)	US (n = 75)	Japan (n = 330)	US (n = 124)	Japan (n = 167)	US (n = 138)	Japan (n = 39)	US (n = 106)
Reputation Scale[b]	2.78 (0.76)	**3.28** (0.82)	2.73 (0.75)	**3.24** (0.80)	2.87 (0.74)	**3.71** (0.92)	2.86 (0.77)	3.72 (0.82)
	$t(652)$ =5.21 $p < .001$		$t(445)$ = 6.35 $p < .001$		$t(262)$ = 8.55 $p < .001$		$t(141)$ = 5.66 $p < .001$	
26* A person's reputation is not very useful in judging his or her true character.	2.43 (1.27)	**3.01** (1.33)	2.41 (1.21)	**3.15** (1.25)	2.57 (1.33)	**3.75** (1.33)	2.45 (1.33)	**3.70** (1.26)
28* One should not be overly concerned with his or her own reputation if one wants to accomplish something meaningful.	2.03 (1.18)	**2.64** (1.43)	2.01 (1.10)	**2.72** (1.37)	1.90 (1.15)	**3.11** (1.57)	1.97 (1.15)	**3.18** (1.55)
50 Having a good reputation is most important for success in business.	3.90 (1.16)	**4.24** (0.98)	3.75 (1.10)	3.88 (1.10)	4.09 (1.14)	4.28 (0.93)	4.08 (1.20)	4.28 (0.95)
61 Most people refrain from dishonest conduct to avoid getting a bad reputation.	3.45 (1.23)	3.61 (1.11)	3.27 (1.13)	3.15 1.27	**3.70** (1.09)	3.16 (1.31)	3.51 (1.12)	3.15 (1.28)

[a]Standard deviations within parentheses. The reported means for the items with an asterisk are based on reversed scores, such that greater values indicate greater importance of reputation. Bold numbers indicate that they are significantly higher than the mean in the other country within the subsample.

[b]Item 61 is not included in the reputation scale.

Honesty and Fairness

Six items in the questionnaire were about the respondent's self-evaluation of their honesty and fairness and the importance of honesty and fairness. The result of a factor analysis indicated the existence of one-factor structure as shown in Table X. We thus decided to construct the Honesty Scale with these six items. Means of the Honesty Scale and its constituent items are reported in Table XI. The cross-national difference in the scale value is substantial, consistently favoring the American subsamples over the Japan subsamples by almost one standard deviation. In addition, all the significant cross-national differences observed at the individual item level are in the same direction as the scale value. Thus, it would be safe to conclude, as predicted, that Americans view themselves more honest and fair than do Japanese.

DISCUSSION

We started with a puzzling empirical finding that Japanese questionnaire respondents in past studies have repeatedly shown a lesser degree of trust than their American counterparts. This result is puzzling to those who think that close, stable, long-term relations are the cradle of trust. If we accept the conventional view that stability of interpersonal and interorganizational relations is one of the distinguishing characteristics of Japanese society, especially in comparison to American society, it seems natural to conclude that stronger trust would have been nurtured in Japanese society. Yet, this logical conclusion was inconsistent with the previous survey results.

Table X. Loadings of the Principal Factor (Principal Component Analysis) of the Six Items Related to Honesty and Fairness

Item	Combined sample	Japan		US	
		Students	General	Students	General
62	0.81	0.78	0.90	0.92	0.71
63	0.77	0.82	0.80	0.45	0.49
72	0.50	0.40	0.34	0.22	0.36
47	0.35	0.12	0.26	0.37	0.26
70	0.32	0.23	0.13	−0.01	0.20
31	0.27	0.24	0.07	0.03	0.22
Contributions	1.80	1.57	1.65	1.23	1.03

Table XI. *Means of the Honesty Scale and its Constituent Items*[a]

Scale and items	Male students		Female students		Male general		Female general	
	Japan (n = 538)	US (n = 75)	Japan (n = 330)	US (n = 124)	Japan (n = 167)	US (n = 138)	Japan (n = 39)	US (n = 106)
Honesty Scale	2.81 (0.69)	**3.39** (0.59)	2.99 (0.61)	**3.59** (0.59)	3.43 (0.64)	**4.00** (0.55)	3.41 (0.58)	**4.06** (0.52)
	$t(652) = 6.97$ $p < .001$		$t(436) = 9.05$ $p < .001$		$t(293) = 8.02$ $p < .001$		$t(134) = 6.30$ $p < .001$	
31* I don't want to miss out on good opportunities while trying to be fair to others.	2.60 (1.27)	**2.92** (1.23)	2.66 (1.19)	**2.98** (1.19)	2.94 (1.36)	3.14 (1.34)	3.05 (1.23)	3.25 (1.45)
47* Telling a lie can be justified depending on the circumstance.	1.68 (0.92)	**2.29** (1.29)	1.74 (0.86)	**2.65** (1.35)	2.46 (1.29)	**3.19** (1.45)	2.00 (1.05)	**2.92** (1.43)
62 I don't want to act dishonestly under any circumstances.	3.31 (1.28)	**3.68** (1.22)	3.57 (1.13)	3.78 (1.25)	4.07 (1.04)	**4.47** (0.84)	4.08 (1.09)	**4.60** (0.77)
63 I am mindful not to forget the spirit of fair play under any circumstances.	3.46 (1.23)	**3.91** 0.99)	3.66 (1.05)	3.74 (1.04)	4.13 (0.97)	**4.40** (0.72)	4.21 (0.83)	4.49 (0.71)
70* Being overly concerned about fairness deprives a society of its vigor.	2.66 (1.23)	**3.16** (1.15)	3.11 (1.21)	**3.64** (0.94)	3.04 (1.35)	**4.01** (1.17)	3.33 (1.36)	**4.14** (1.07)
72 I am trustworthy.	3.15 (1.31)	**4.51** (0.95)	3.25 (1.08)	**4.67** (0.58)	3.92 (0.96)	**4.82** (0.50)	3.79 (0.98)	**4.84** (0.37)

[a]Standard deviations within parentheses. The reported means for the items with an asterisk are based on reversed scores, such that greater values indicate greater honesty. Bold numbers indicate that they are significantly higher than the mean in the other country within the subsample.

Our effort to solve this puzzle, and the resulting theory development, required us to abandon this conception of trust. Instead, we adopted an important distinction between trust and assurance. Trust requires the existence of social uncertainty; without social uncertainty trust has no independent role to play. The emphasis on social uncertainty as a prerequisite for trust is in sharp conflict with the aforementioned conception of trust according to which the lack of social uncertainty in close and stable relations is the source of trust. This paradox that trust requires the existence of social uncertainty on the one hand, and yet trust requires the lack of it, on the other, can be resolved only when it is recognized that trust used in these two contexts are qualitatively different. The former, we defined, is trust or general trust, and the latter assurance. *Trust requires social uncertainty, and assurance requires the lack of it.* What is conventionally considered to characterize Japanese society is *mutual assurance* (or the lack of social uncertainty) derived from the stability of interpersonal and/or inter organizational relations. In contrast, what has been found to be higher in the United States than in Japan is *general trust* in situations lacking such assurance.

Starting with this critical distinction between trust and assurance, we have developed the following theory of trust, assurance, and commitment: (a) Commitment formation is the standard solution to the problem caused by social uncertainty. (b) This solution, which has dominated most societies at most historical periods, becomes a liability rather than an asset when opportunity costs increase. (c) Facing the rising opportunity costs, dealing with outsiders with a reasonable reputation can be profitable. (4) Trust helps people move out of committed relations; it provides the booster power needed for taking off the secure ground of committed relations. On the basis of this theory, and on an assumption that networks of committed relations play a more prominent role in Japanese society than in American society, we came up with a set of predictions which we then tested in a cross-national questionnaire survey.

Several of our results merit emphasis. First, the survey result indicates that Japanese see more utility in dealing with people through relations or "connections. " This result is consistent with the conventional view of Japanese society, and provides at least partial support to the assumption concerning the prominence of networks of committed relations in Japanese society. Second, our survey results clearly replicate our previous finding concerning the cross-national difference in trust. That is, American respondents were much higher in general trust than Japanese respondents. In contrast to this clear, cross-national difference in trust, no systematic cross-national difference was observed with regard to the Caution Scale, which measures how strongly people feel that caution is needed in dealing with

others. This result is not inconsistent with our theory, because the combination of trustfulness and caution can be a good trait for those who are prompted to move out of committed relations. Another finding consistent with our prediction was that Americans consider reputation more valid and important than do Japanese. Finally, as predicted, honesty is considered more important by American respondents than by Japanese respondents. Thus, all the predictions concerning the U.S.–Japan differences derived from our theory of trust were supported by the results of this study, though some predictions were more strongly supported than others.

This study, however, does not directly test one important theoretically possible prediction: the prediction that the level of assurance would be higher in Japanese society than in American society. Assurance is the feeling of security based on the knowledge that there exists no social uncertainty *in a particular relation.* One who feels secure in one relation may not feel the same way in another. This relation-specific nature of assurance makes its measurement through a paper-and-pencil method extremely difficult. What is predicted to be different between American and Japanese societies is not the level of such subjective security felt within a specific relation. Americans may feel as secure as do Japanese in the same kind of stable relations; there is no theoretical reason to predict otherwise. Instead, what is predicted to be different is the weight such relations play in each society. The Utility of Relations Scale that partly measures acceptance of in-group favoritism can be considered to represent our first step toward measuring assurance in this sense. More work needs to be done, however, before we are fully prepared to test this prediction.

A remaining issue that needs to be addressed in future study, theoretically as well as empirically, concerns the role that knowledge-based trust plays in the overall theoretical picture. In our current theoretical scheme, knowledge-based trust is simply a by-product of close and stable relations and does not play an independent role in the theory. The relationship between commitment and knowledge-based trust, however, may not be so straightforward. On surface, committed relations seem to nurture knowledge-based trust. On the other hand, knowledge-based trust is conceptually distinct from assurance, which is another derivative of committed relations. (What is often treated as personal trust or trust in closely related people is actually a combination of assurance and knowledge-based trust. Future studies should investigate the nature of the intricate relationship between the two in the close relationship.) Information required to build knowledge-based trust is hard to obtain in a mutually committed relation when assurance is provided by the nature of a surrounding incentive structure. "Honest" behavior in such a relation reveals simply that the partner is prudent (cf. Frank, 1988). Knowing that a person has behaved honestly in a

situation where doing so is in his or her own interest (i.e., in a situation where assurance is provided) is of no use in predicting whether or not the person will act honestly when he or she can benefit from acting dishonestly. From this perspective, committed relations are in fact expected to *reduce* development of knowledge-based trust. More theoretical work is definitely needed here.

The findings reported in this paper, taken by themselves, potentially have various limitations. For example, responses to the current questionnaire may reflect factors other than those specified in our theory, factors such as the greater tendency of Americans in comparison to Japanese to see themselves in a positive light (Markus & Kitayama, 1991). This difference in self-esteem between Americans and Japanese may at least partly explain some of the cross-national differences observed in our study. On the other hand, we would like to emphasize that the survey research reported here is a part of our continuing research effort that include laboratory experiments and computer simulations as well. Results of our laboratory experiments have successfully validated the predictive power of our trust scale and previous versions of the trust scale (Sato & Yamagishi, 1986; T. Yamagishi, 1986, 1988a, 1988b, T. Yamagishi & Cook, 1993; T. Yamagishi & Sato, 1986; T. Yamagishi et al., in press). Furthermore, we are currently successfully testing a set of predictions derived from our theory of trust in a new series of experiments and computer simulations.[15] No single methodology, whether it is questionnaire survey or experimentation, is sufficient for testing a comprehensive theory as our theory of trust. The fact that the results of these divergent studies consistently support our theory, we believe, provides the best kind of security against methodological shortcomings inevitably involved in a single study.

Many of the findings of this study are consistent with previous findings related to collectivism/individualism. Japanese society (especially in comparison to American society) is often characterized by a culture of collectivism (e.g., Hofstede, 1980), one aspect of which is emphasis on group boundary and preferential treatments given to in-group members (e.g., Triandis, 1989, 1990). Using our terminology, members of a collectivist culture provide mutual assurance in committed relations. Our research findings are not unique in this context. Rather, what makes our study unique among many so called "cross-cultural" studies is that our predictions concerning the U.S.–Japan differences have been derived from a general theory of trust, the logic of which applies equally to Japanese and American societies.

[15]Result of the initial experiment in this series is reported in T. Yamagishi and Yamagishi (1993), and those of the second experiment in N. Hayashi, Takahashi, Watabe, and Yamagishi (1994). These results demonstrate that commitment is facilitated by social uncertainty and by the lack of general trust.

This feature of our approach makes it possible to predict the long-term consequences of some macro changes. For example, the prominence and the stability of networks of committed relations in Japanese society and business are currently being challenged by the internationalization of the economy and society.[16] Once networks of committed relations lose their current power in providing mutual assurance, Japanese society will face a major challenge of nurturing general trust. According to our theory, the opening-up of the closed nature of Japanese society and business has to be accompanied by the nurturing of general trust to fill the chasm created by the demise of the once so strong committed relations. In contrast, American society seems to show signs of retreat to committed relations in response to increasing social uncertainty such as increasing crimes. Either way, our theory asserts that a society founded on general trust rather than committed relations is precarious; it requires a delicate balance between carefully orchestrated nurturing of general trust and the provision of effective and fair social institutions. (We are currently investigating the relationship between trust in people and trust in social institutions.) Japanese society currently faces the problem of creating that balance in response to the pressure for opening-up of the society and the economy, whereas American society faces the problem of maintaining it in the face of increasing social uncertainty.

REFERENCES

Abegglen, J. C. (1958). *The Japanese factory: Aspects of its social organization.* Glencoe, IL: Free Press.

Akerlof, G. (1970). The market for "lemons": Qualitative uncertainty and the market mechanism. *Quarterly Journal of Economics, 84,* 488-500.

Asanuma, B. (1989). Manufacturer-supplier relationships in Japan and the concept of relation-specific skill. *Journal of the Japanese and International Economics, 3,* 1-30.

Axelrod, R. (1984). *The evolution of cooperation.* New York: Basic Books.

Barber, B. (1983). *The logic and limit of trust.* New Brunswick, NJ: Rutgers University Press.

Bhide, A., & Stevenson, H. (1990). Why be honest if honesty doesn't pay. *Harvard Business Review* (September-October) pp. 121-129.

Bhide, A., & Stevenson, H. (1992). Trust, uncertainty, and profit. *The Journal of Socio-Economics, 21,* 191-208.

Brandach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual Review of Sociology, 15,* 97-118;

Clark, R. (1979). *The Japanese company.* New Haven, CT: Yale University Press.

Cole, R. E. (1972). Permanent employment in Japan: Facts and fantasies. *Industrial and Labor Relations Review, 26,* 615-630.

Coleman, J. S. (1990). *Foundations of social theory.* Cambridge, MA: Harvard University Press.

[16]For example, the exclusive networks among business and between business and the government have been the major target of the "American pressure" in the "structural impediment talks."

Cusmano, M., & Takeishi, A. (1991). Supplier relations and management: A survey of Japanese, Japanese-transplant, and U.S. auto plants. *Strategic Management Journal, 12,* 563-588.

Dasgupta, P. (1988). Trust as a commodity. In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 49-72). Oxford: Basil Blackwell.

Dawes, R. M., McTavish, J., & Shaklee, H. (1977). Behavior, communication and assumptions about other people's behavior in a commons dilemma situation. *Journal of Personality and Social Psychology, 35,* 1-11.

Dawes, R., Orbell, J., Simmons, R., & van de Kragt, A. (1986). Organizing groups for collective action. *American Political Science Review, 80,* 1171-85.

Deutsch, M. F. (1983). *Doing business with the Japanese.* New York: New American Library.

Dore, R. (1983). Goodwill and the spirit of market capitalism. *British Journal of Sociology, 34,* 459-482.

Dyer, J. (1993). *The Japanese vertical keiretsu. How they give Japanese companies a competitive advantage.* Paper presented at the Network Conference, September 10-12, Whistler, BC.

Frank, R. H. (1988). *Passions within reason: The strategic role of the emotions.* New York: W. W. Norton.

Gellner, E. (1988). Trust, cohesion, and the social order. In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 214-237). Oxford: Basil Blackwell.

Gerlach, M. (1987). Business alliances and the strategy of the Japanese firm. *California Management Review, 30,* 126-142.

Hardin, R. (1991). Trusting persons, trusting institutions. In R. J. Zeckhauser (Ed.), *Strategy and choice* (pp. 185-209). Cambridge, MA: MIT Press.

Hardin, R. (1992). The street-level epistemology of trust. *Politics and Society, 21,* 505-529.

Hawthorn, G. (1988). Three ironies in trust. In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 111-126). Oxford: Basil Blackwell.

Hayashi, C., Suzuki, T., Suzuki, G., & Murakami, M. (1982). *A study of Japanese national character* (Vol. 4). Tokyo: Idemitsushoten. (In Japanese with an English summary)

Hayashi, N., Jin, N., & Yamagishi, T. (1993). Prisoners dilemma networks: A computer-simulation of strategies. *Research in Social Psychology, 8,* 33-43. (In Japanese)

Hayashi, N., Takahashi, N., Watabe, M., & Yamagishi, T. (1994). *An experimental study of commitment formation and trust.* Paper presented at the XIIIth World Congress of Sociology, Bielefeld, Germany.

Helper, S., & Levine, D. (1992). Long-term supplier relations and product-market structure. *Journal of Law, Economics and Organization, 8,* 561-581.

Hofstede, G. (1980). *Culture's consequences.* Beverly Hills, CA: Sage.

Holzner, B. (1973). Sociological reflections on trust. *Humanitas, 9,* 333-47.

Jin, N., Hayashi, N., & Shinotsuka, H. (1993). An experimental study of prisoner's dilemma network: The formation of commitment in selective dyads. *Japanese Journal of Experimental Social Psychology, 33,* 21-30. (In Japanese)

Kaplan, R. M. (1973). Components of trust: Note on use of Rotter's scale. *Psychological Report, 33,* 13-14.

Kelley, H. H., & Stahelski, A. J. (1970). The social interaction basis of cooperators' and competitors' beliefs about others. *Journal of Personality and Social Psychology, 16,* 66-91.

Kollock, P. (1993). "An eye for an eye leaves everyone blind": Cooperation and accounting systems. *American Sociological Review, 58,* 768-786.

Kollock, P. (in press). The emergence of exchange structures: An experimental study of uncertainty, commitment, and trust. *American Journal of Sociology.*

Komorita, S. S., Hilty, J. A., & Parks, C. D. (1991). Reciprocity and cooperation in social dilemmas. *Journal of Conflict Resolution, 35,* 494-518.

Lewis, J. D., & Weigert, A. (1985). Trust as a social reality. *Social Forces, 63,* 967-985.

Lincoln, J. R., & Kallenberg, A. L. (1985). Work organization and workforce commitment: A study of plants and employees in the U.S. and Japan. *American Sociological Review, 50,* 738-760.

Luhmann, N. (1979). *Trust and power.* Chichester, U.K.: Wiley.

Luhmann, N. (1988). Familiarity, confidence, trust: Problems and alternatives. In D. Gambetta (Ed.), *Trust: Making and breaking cooperative relations* (pp. 94-107). Oxford: Basil Blackwell.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224-253.

Marsh, R. M., & Mannari, H. (1976). *Modernization and the Japanese factory.* Princeton, NJ: Princeton University Press.

Marwell, G., & Ames, R. E. (1979). Experiments on the provision of public goods, I: Resources, interest, group size, and the free-rider problem. *American Journal of Sociology, 84,* 1335-1360.

Messick, D. M., Wilke, H., Brewer, M. B., Kramer, R. M., Zemke, P. E., & Lui, L. (1983). Individual adaptations and structural change as solutions to social dilemmas. *Journal of Personality and Social Psychology, 44,* 293-309.

Miwa, Y. (1990). *Firms and industrial organization in Japan.* Tokyo: University of Tokyo Press. (In Japanese)

Orbell, J. M., & Dawes, R. M. (1991). A "cognitive miser" theory of cooperators' advantage. *American Political Science Review, 85,* 515-528.

Orbell, J. M., & Dawes, R. M. (1993). Social welfare, cooperators' advantage, and the option of not playing the game. *American Sociological Review, 58,* 787-800.

Oskamp, S. (1971). Effects of programmed strategies on cooperation in the prisoner's dilemma and other mixed motive games. *Journal of Conflict Resolution, 15,* 225-229.

Ouchi, W. G. (1981). *Theory Z: How American business can meet the Japanese challenge.* Reading, MA: Addison-Wesley.

Rempel, J. K., & Holmes, J. G. (1986, February). How do I trust thee? *Psychology Today,* pp. 28-34.

Rosenberg, M. (1957). *Occupations and values.* Glencoe, IL: Free Press.

Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality, 35,* 651-665.

Sako, M. (1991). The role of "trust" in Japanese buyer-supplier relationships. *Ricerche Economiche, 45,* 449-474.

Sako, M. (1992). *Prices, quality and trust: Inter-firm relations in Britain and Japan.* Cambridge, U.K.: Cambridge University Press.

Sato, K., & Yamagishi, T. (1986). Psychological factors in the public goods problem: Free-riding and the lack of trust. *Japanese Journal of Experimental Social Psychology, 26,* 89-95. (In Japanese)

Shapiro, D. L., Sheppard, B. H., & Cheraskin, L. (1992). Business on a handshake. *Negotiation Journal, 8,* 365-377.

Sullivan, J., & Peterson, R. B. (1982). Factors associated with trust in Japanese-American joint ventures. *Management International Review, 22,* 30-40.

Sullivan, J., Peterson, R. B., Kameda, N., & Shimada, J. (1981). The relationship between conflict resolution approaches and trust: A cross cultural study. *Academy of Management Journal, 24,* 803-815.

Thibaut, J. W., & Kelley, H. H. (1959). *The social psychology of groups.* New York: Wiley.

Triandis, H. C. (1989). Self and social behavior in differing cultural contexts. *Psychological Review, 96,* 269-289.

Triandis, H. C. (1990). Cross-cultural studies of individualism and collectivism. In J. Berman (Ed.), *Nebraska Symposium on Motivation, 1989* (pp. 41-133). Lincoln: University of Nebraska Press.

Triandis, H. C. (1994). *Culture and social behavior.* New York: McGraw-Hill.

Tyszka, T., & Grzelak, J. (1976). Criteria of choice in non-constant zero-sum games. *Journal of Conflict Resolution, 20,* 357-376.

Vaughan, F. T. (1971). Joint ventures in Japan. *Bulletin No. 30.* Tokyo: Sohia University Socio-Economic Institute.

Wada, K. (1991). The development of tiered inter-firm relationships in the automobile industry: A case study of Toyota Motor Corporation. *Japanese Yearbook on Business History, 8,* 23-47.

Watabe, M., Hayashi, N., Jin, N., Takahashi, N., Yamagishi, T., & Yamagishi, M. (1993). Particularistic trust and generalized trust: A questionnaire survey. *Proceedings of the 41st Annual Meetings of the Japanese Group Dynamics Association* (pp. 126-127). (In Japanese)

Williamson, O. E. (1975). *Market and hierarchies: Analysis and antitrust implications.* New York: Free Press.

Williamson, O. E. (1985). *The economic institutions of capitalism.* New York: Free Press.

Wilson, W. (1971). Reciprocation and other techniques for inducing cooperation in the prisoner's dilemma game. *Journal of Conflict Resolution, 15,* 167-195.

Wrightsman, L. S. (1974). *Assumptions about human nature: A social-psychological analysis.* Monterey, CA: Brooks/Cole.

Yamagishi, M., & Yamagishi, T. (1989). *Trust, commitment, and the development of network structures.* Paper presented at the Workshop for the Beyond Bureaucracy Research Project, December 18-21, Hong Kong.

Yamagishi, T. (1986). The provision of a sanctioning system as a public good. *Journal of Personality and Social Psychology, 51,* 110-116.

Yamagishi, T. (1988a). The provision of a sanctioning system in the United States and Japan. *Social Psychology Quarterly, 51,* 265-271.

Yamagishi, T. (1988b). Seriousness of social dilemmas and the provision of a sanctioning system. *Social Psychology Quarterly, 51,* 32-42.

Yamagishi, T., & Cook, K. S. (1993). Generalized exchange and social dilemmas. *Social Psychology Quarterly, 56,* 235-248.

Yamagishi, T., Hayashi, N., & Jin, N. (1994). Prisoner's dilemma networks: Selection strategy versus action strategy. In U. Schulz, W. Albers, & U. Mueller (Eds.), *Social dilemmas and cooperation* (pp. 233-250). Berlin: Springer-Verlag.

Yamagishi, T., & Sato, K. (1986). Motivational bases of the public goods problem. *Journal of Personality and Social Psychology, 50,* 67-73.

Yamagishi, T., & Yamagishi, M. (1993). *Trust and commitment as alternative responses to social uncertainty.* Paper presented at the Network Conference, September 10-12, Whistler, British Columbia.

Yamagishi, T., Yamagishi, M., Hayashi, N., Takahashi, N., & Watabe, M. (in press). Trust and commitment: An experimental study. *Japanese Journal of Experimental Social Psychology.* (In Japanese)

Zucker, L. (1986). Production of trust: Institutional sources of economic structure, 1840–1920. *Research in Organizational Behavior, 8,* 53-111.