CREDIBLE COMMITMENTS IN INTERFIRM RELATIONSHIPS:
THE "SHADOW OF THE FUTURE" AND THE "SHADOW OF THE PAST"

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Abstract

Credible commitments in the form of specific investments are recognized as important building blocks of interfirm relationships. In the past, such commitments have frequently been analyzed from the perspective of how they "bond" the investor to particular courses of action. Our focus is on the effects of credible commitments on the receiver. First, we consider the possibility that the receiver can opportunistically expropriate credible commitments, due to their idiosyncratic nature. Then, drawing on emerging economic and sociological theory, we consider whether conditions exist under which the investor's credible commitment may actually bond the receiver and reduce opportunism. Specifically, we propose that when relationships possess a future ("shadow of the future") or a past ("shadow of the past"), the effect of credible commitments changes from that of expropriation to bonding. We test our hypotheses empirically by parallel analyses on each side of 198 matched buyer-supplier dyads. These parallel tests permit us to ascertain whether trading partners differ in their reports on the effects of credible commitments. The results show strong support for our hypotheses, but also reveal differences between buyers and suppliers. The implications for theory and practice are discussed.

I.   INTRODUCTION

Much of the emerging research on interfirm relationships addresses the general question of how particular relationship behaviors can be promoted or discouraged. For instance, a considerable body of research in the "economics of organization" tradition (John 1984; Wathne and Heide 2000; Williamson 1985) has focused on strategies for limiting opportunistic behavior between exchange partners.

The general spirit of much of this research is captured by the term "private ordering," which describes how firms manage relationships through self-enforcing agreements, rather than through "legal centralism" or explicit contracts (Dutta, Bergen and John 1994). One of the pillars of private ordering is so-called credible commitments. Typically, such commitments involve some form of a "hostage" (Williamson 1983) or idiosyncratic asset whose value is partly forfeited if the exchange fails to continue. For instance, retailers make investments in specialized data interchange hardware and software in supplier relationships which are not easily redeployed. In essence, it is the purposeful "weakening" of one's own position (Anderson and Weitz 1992) and the possibility of an economic loss which makes a particular commitment "credible."[1]

The above argument, which describes the so-called "bonding" effect of credible commitments, pertains to the party making the commitment in question, i.e., the "investor." Interestingly, however, several authors (e.g., Anderson and Weitz 1992; Jap and Ganesan 2000) have noted that credible commitments may also serve to bond the "receiver" of the investment. For instance, to the extent that the specialized assets in question produce above-normal returns, the receiver may refrain from opportunistic actions which could cause relationship termination. At the same time, given that the

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[1]   Throughout this paper, we will use the term "commitment" to describe the managerial *action* of making an investment in a particular relationship. This is distinct from another use of the term commitment, which pertains to a particular relationship *state*. This important distinction was originally made by Anderson and Weitz (1992).

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specialized investments serve to lock-in the investor, they also permit the receiver to make opportunistic demands and enhance individual profit at the investor's expense (Klein 1996). Anderson and Weitz (1992) explicitly acknowledged this expropriation scenario, and raised the question of when the benefits of credible commitments would outweigh the risks created by "tying one's hands."

This paper has four objectives. First, we identify conditions under which the bonding and expropriation effects of credible commitments will emerge. Drawing on economic and sociological theory (e.g., Axelrod 1984; Coleman 1990; Fudenberg and Maskin 1986; Takahashi 2000), we argue that a firm's (i.e., the receiver's) choice to pursue or refrain from opportunistic actions is influenced by the characteristics of the exchange situation at hand. Specifically, we suggest that particular aspects of the relationship as it has evolved historically (the "shadow of the past"), and/or the possibility of future exchanges (the "shadow of the future"), may motivate a firm to refrain from opportunism.[2]

Second, we explicitly link credible commitments with opportunism. While prior work has suggested the theoretical possibility that credible commitments are associated both with bonding and expropriation, most empirical studies of credible commitments have not measured opportunism per se. This has precluded both 1) a formal test of the expropriation hypothesis, and 2) an explicit comparison with the bonding effect.

Third, we attempt to identify the different effects of a relationship's past and future. Interestingly, the distinction between past and future has often been overlooked in previous research. For instance, Granovetter (1985; 1992) includes *both* past and future in his general concept of "temporal embeddedness." Similarly, Macneil's (1980) notion of relational contracting includes elements which

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[2]   Unlike past research which has drawn on the notions of relationship past and future (e.g., Anderson and Weitz 1992; Heide and Miner 1992), our primary focus is not on the direct effects of these variables per se, but rather on whether past or future considerations may modify the expropriation hazard which specific assets create.

describe *both* a relationship's past and its future. As will be discussed subsequently, the mechanisms through which the past and the future impact firm behavior are quite different.

Finally, from an empirical standpoint, we conduct a *parallel* test of our theoretical predictions on both sides of matched buyer-supplier dyads. We first examine the investor's attributions about the receiver's opportunism, as a function of the investor's credible commitment and the relationship characteristics in question. Next, we compare these results to the receiver's self-report on opportunism. By virtue of this test, we start to examine whether the hypothesized effects of credible commitments are symmetrical across dyads. For instance, if the parties in a given relationship have different perspectives on the relevant effects, it raises important questions about the general value of credible commitments as means of private ordering.

The paper is organized in the following fashion: In the next section, we present our conceptual framework and research hypotheses. We then describe the research method used to test the hypotheses and present the results. The final section details the implications of the paper.

II. THE EFFECTS OF CREDIBLE COMMITMENTS

In this section, we describe the expected effects of credible commitments on the receiver. We start by describing the possible expropriation effect, and then identify conditions which may cause a shift toward a bonding effect.

Baseline Prediction: Expropriation Effects

The defining feature of a credible commitment is the deployment of assets which are specialized to a particular purpose. As described by Williamson (1985, p. 62), "inasmuch as the value of that capital in other uses is, by definition, much smaller than the use for which it has been intended, the investor is effectively committed to the transaction to a significant degree." Hence, the relevant investment decision is "sticky", or reversible only subject to switching costs (Jackson 1985).

As shown in past research (e.g., Ganesan 1994), the particular properties of such investments serve to "bond" the investor. It is noteworthy, however, that their specialized nature also creates important efficiency effects for the *receiver*. For instance, Ghosh and John (1999) describe how specific investments over time create value through cost reductions or service improvements. Similarly, Ganesan and Jap (2000) discuss how idiosyncratic investments improve coordination and presence in the end market.

Importantly, while specific investments have value-creation effects, they may also lead to difficulties in terms of value-claiming. Specifically, the receiver of the investment may be in a position to opportunistically expropriate more than his/her share of the total value (Ghosh and John 1999). The greater the investment, the greater the switching costs facing the investor, and the greater the ability of the receiver to expropriate the investor's returns.

For our present purposes, the key question is whether the expropriation *potential* which is created through credible commitments will in fact be *exercised* through opportunistic actions by the receiver. Transaction cost theory, from which most of the current thinking about opportunism originates, suggests that opportunistic behavior is likely to take place in general when such behavior is feasible and profitable for a party (Williamson 1985). Consistent with this perspective, we propose that increasing levels of credible commitments in themselves will prompt opportunism. In hypothesis terms:

Hypothesis 1:   Increases in the investor's credible commitments in the form of specific assets will increase the receiver's opportunism.

The "Shadow of the Future" and Bonding Effects

Hypothesis 1 is based on the assumption that the party receiving the investment will actually pursue the immediate gains from opportunistic behavior. To place this assumption in perspective, consider the so-called "Prisoner's Dilemma" game (Axelrod 1984; Rapaport 1989). The structure of this game is such that 1) "players" gain more from joint cooperation than from joint defection, but 2) they

gain even more individually if they defect while the partner cooperates. While this game is a theoretical abstraction, its structure illustrates the inherent problems of credible commitments. Specifically, the deployment of a credible commitment can be viewed as a (unilateral) cooperative move, which in a one-shot or finite game creates an incentive for exploitation or defection on the part of the receiver.

In most relationships, exchange parties have a non-trivial expectation that they may interact again in the future. However, the specific length of the future time horizon is difficult to predict (Hill 1990). This raises the important question of whether a more realistic assumption about time than in the one-shot Prisoner's Dilemma game may impact the receiver's behavior, and whether short-term opportunities for individual payoffs may be ignored when a relationship is expected to extend over time.

A considerable body of evidence suggests that in repeated games with indeterminate ending points, the incidence of cooperation between parties rises substantially (Fudenberg and Maskin 1986; Heide and Miner 1992). Intuitively, this is because on-going interactions permit the parties to reward and punish each other's moves (Axelrod 1984). As a consequence, parties in an ongoing relationship will not only consider the immediate gains from behaving opportunistically, but they will also compare these gains to the possible sacrifices of future returns (Telser 1980). As described by Parkhe: (1993, p. 799-800) "Through expectations of reciprocity…the future casts a shadow back upon the present, affecting current behavior patterns. This bond between the future benefits a firm can anticipate and its present actions is called the 'shadow of the future'."

The specific effect of adding a future time horizon is to transform the expropriation scenario from Hypothesis 1 into a bonding scenario, wherein one party's investment actually reduces the partner's opportunistic tendencies. In Klein's (1980, p. 358) terms, "a transactor will not cheat if the expected present discounted value of the quasi rents he is earning from a relationship is greater than the immediate hold-up wealth gain. The capital loss that can be imposed on the potential cheater by the withdrawal of expected future business is then sufficient to deter cheating." Thus, in a relationship with

a significant extendedness, refraining from short-term opportunistic exploitation of the specific investments in question increases the chances of reaping their long-term efficiency benefits. In hypothesis terms:

Hypothesis 2:   Increases in the investor's credible commitments in the form of specific assets will lower the receiver's opportunism for higher levels of relationship extendedness.

We note that in both H1 and H2 the firm's behavior is driven by individual self-interest. In H1, which corresponds to an "arm's length" relationship or a one-shot game, the inherent incentive structure is such that individual payoffs are maximized through opportunism. In contrast, in on-going games, as per H2, the possibility of repeated play changes the underlying incentive structure. Basically, the future creates an enforcement device by virtue of permitting strategies based on reciprocity. In the next section we consider a different mechanism by which opportunism can be constrained, namely exchange norms based on solidarity. In contrast with the preceding discussion whose focus was on the *future*, these norms originate from *past* interaction between a set of parties.

The "Shadow of the Past" and Bonding Effects

When two parties interact over time, it permits exposure to each other's value systems. Specifically, it allows for on-going socialization between the parties (Chatman 1991). Socialization, in turn, facilitates the emergence and internalization of particular norms of exchange (Coleman 1990). In general, norms are shared codes of conduct, which either 1) *prescribe* particular relationship behaviors for parties, and/or 2) *prohibit* others by defining them as illegitimate in the context at hand (Coleman 1990; Field 1984).

Past research has identified a number of different relationship norms (e.g., Kaufmann and Stern 1988; Macneil 1980). Our focus is on a particular relationship norm which directly influences a firm's choice to either 1) *exploit* a credible commitment in an opportunistic fashion, or 2) support the

relationship by *refraining* from opportunism. Specifically, our focus is on the norm of *solidarity*, which is defined as the willingness of parties to strive for joint benefits (Antia and Frazier 2001; Heide and John 1992). Such a norm is unique in that it goes beyond prescribing or restricting behavior per se. In fact, the behaviors in question are intrinsically linked to particular *outcomes*, namely utility maximization at the relationship level (Macneil 1980).

We propose that norms of solidarity may alter the effect that credible commitments have on firm behavior. This is because solidarity norms impact both 1) the manner in which one party *views* the other's investment, and 2) the *selection* of an appropriate course of action for oneself. Recall our earlier discussion of the Prisoner's Dilemma game. While one party can enhance individual payoffs through defection (i.e. by exploiting the investor's commitments), the resulting *combined* payoffs for the parties is less than the joint gains from cooperation. Hence, even in a finite game, to the extent that a norm of solidarity and its inherent joint utility function have been internalized, the deployment of a credible commitment will be viewed by the receiver as evidence of the investor's intention to enhance joint relationship value. The receiver, in turn, will pursue the norm-prescribed behavior required to achieve the joint payoffs. Conversely, the presence of a solidarity norm means that normative constraints will exist on a party's tendency to exploit another's credible commitment for individual gain. Rather, solidarity norms prescribe "forbearance" behavior and prohibit exploitative actions such as opportunism (Ullmann-Margalit 1977). Thus, given a strong norm of solidarity, the effect of one party's specific investment is to reduce the likelihood of opportunism, and to produce a "bonding" scenario whose ultimate objective is the realization of joint gains.

Importantly, while the above arguments invoke the sociological notion of norms, the particular codes of conduct under the above scenario are explicitly tied to economic incentives. We briefly mention one additional effect of norms, which does not invoke incentives per se, but which nevertheless supports the theoretical prediction developed above.

In some sociological accounts, parties are viewed as complying with an existing norm, not because of the norm's ability to produce economic rewards, but because compliance is a goal in itself (Opp 1979). More specifically, acting in accordance with a norm may be intrinsically rewarding, just as norm violation may be psychologically costly (e.g., Coleman 1990; Takahashi 2000). As noted earlier, one of the defining features of a solidarity norm is bilateral behavior. Thus, if one party, due to the prevailing norm, views the other's investment as a cooperative action, s/he may be compelled to reciprocate with a cooperative action, regardless of the payoffs involved. As noted by Elster (1989), this is a manifestation of "homo sociologicus", whose behavior is "pushed" by quasi-inertial forces (in contrast with "homo economicus" who is "pulled" by instrumental rationality). Under this view of norms, the greater one party's investment in relationship-specific assets, the greater the subsequent negative effect on the receiver's opportunistic tendencies. Again, the effect of one party's specific investments on the other is that of bonding, provided that norms exist which prescribe bilateral behavior. We summarize the preceding discussion in the following testable hypothesis:

Hypothesis 3:   Increases in the investor's credible commitments in the form of specific assets will lower the receiver's opportunism for higher levels of norms of solidarity.

III.   RESEARCH METHOD

Research Context

The empirical context for this study is relationships between manufacturers of building materials and their independent distributors. The specific unit of analysis is the relationship between an individual manufacturer (the supplier) and a specific distributor (the buyer) for a particular product. Two main criteria were used in selecting the empirical context. First, all of our main independent variables had to manifest themselves in the setting to varying degrees. Most important, the context needed to exhibit substantial variation in the levels of credible commitments (our key independent

variable). Secondly the supplier and the downstream buyer had to be independent (i.e., not integrated, no equity cross-holdings, etc.). Both criteria were met in the chosen context.

Questionnaire Development

The questionnaires were developed using the procedures recommended by Churchill (1979) and Gerbing and Anderson (1988). Initially, we conducted in-depth interviews with managers at both sides of the buyer-supplier dyad. In total, more than 15 hours were spent on personal interviews. Based on these interviews and a review of previous research on buyer-supplier relationships, preliminary versions of the questionnaires were developed. Subsequently, the questionnaires were pre-tested, and no particular problems appeared to exist with the terminology, instructions, or response formats.

Measures

The key variables in our conceptual framework were operationalized using multi-item reflective scales.[3] *Supplier Opportunism.* This scale describes the extent to which the supplier engages in behaviors contrary to principles of the relationship (Wathne and Heide 2000). The items were in part derived from the ones used by John (1984) and Gundlach, Achrol, and Mentzer (1995), and adapted to the context at hand. *Buyer Credible Commitments.* The scale describes the investments made by the buyer dedicated to the relationship with the particular supplier. The items are based on the ones developed by Anderson (1985). *Extendedness* is defined as the expectation that the relationship will continue into the future with an indeterminate end point (Macneil 1980). The items were derived from the ones used by Heide and Miner (1992). *Norm of Solidarity* describes the willingness of the parties to strive for joint benefits (Macneil 1980). More specifically, the items describe expectations that behaviors will be chosen which support the relationship as a whole. The items are based on the ones

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[3]   Descriptions of response formats and specific items for each scale are available upon request. Parallel versions of the items were used for the buyer and the supplier.

used by Heide and John (1992), and Gundlach, Achrol, and Mentzer (1995). *Control Variables*. In addition to the focal theoretical variables, four control variables were included in the model, namely 1) relative firm size, 2) number of employees in firm, 3) concentration of exchange, and 4) supplier credible commitments.

Data Collection

In order to test the hypothesized relationships on both sides of the buyer-supplier dyad, measures of all variables were obtained from the buyer as well as from the supplier side.

Suppliers. The sampling frame for the study was a national database containing names of managers of independent manufacturers of building materials. A random sample of 1300 names drawn from the sampling frame was contacted personally by telephone in order to 1) screen their firm for eligibility, and 2) to locate a key informant. Campbell's (1955) criteria of being 1) knowledgeable about the phenomena under study, and 2) able and willing to communicate with the researcher (i.e., complete the questionnaire), constituted the criteria for selecting informants. Ultimately, we identified 550 managers who met Campbell's criteria and worked in companies judged appropriate for the study (i.e., companies that sold to independent distributors).[4] As an additional step toward increasing the quality of the informant reports, each questionnaire included a *post hoc* check on the informant's knowledge about the buyer relationship (7-point scale).

213 questionnaires from suppliers were returned through the mail, and 129 questionnaires were filled out over the phone, for a total response rate of 62% (of the 550 mailed out). The average

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[4]   Given the relatively low response rates in studies which have involved matched buyer-supplier dyads (e.g., Heide and John 1992), we anticipated difficulties in collecting a sufficient amount of data to conduct a meaningful parallel test. To overcome these potential problems, each informant who agreed to participate in the study was mailed a questionnaire packet, and if the informant desired, an appointment was made to conduct a telephone interview which completely paralleled the survey instrument (Yu and Cooper 1983).

knowledge score for the informants was 6.5 (s.d. = .75), indicating that the selected informants were highly qualified to report on their firm's relationship with the buyer.[5]

Buyers. A similar procedure to the one described above was used to identify an informant within the buyer firm. The informant from the supplier's firm was asked to identify a person in the buyer firm who was knowledgeable about his/her firm's relationship with the supplier. In total, 281 names were obtained and subsequently contacted with the objective of verifying the identity of the key informant. Of the 281 buyers that were contacted, 226 agreed to participate, and were mailed a questionnaire. 95 questionnaires were returned through the mail, and 111 questionnaires were filled out over the phone, for a total response rate of 73%. The final score on the knowledge scale for the buyers was 6.4 (s.d. .83), again suggesting that the selected informants were highly qualified to report on the focal relationship.[6] Ultimately, we ended up with a final sample of 198 matched buyer-supplier dyads.

Measure Validation Procedure

Each set of items was initially subjected to an examination of item-to-total correlations, in order to identify items that did not belong to the specific variable domain. The items that were deleted from the initial set were examined and compared to the original conceptual definitions of the constructs. In each case it was concluded that deleting the item did not significantly change the domain of the construct. The resulting pool of items was subsequently subjected to confirmatory factor analysis (CFA) using LISREL 8.3 (Jöreskog and Sörbom 1995) to verify unidimensionality (one factor model for each of the two samples). The fit indices from LISREL indicated a good fit to the data for both the buyer and

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[5] Based on the post hoc test of informant quality, only 3 companies, with a score lower than four on the knowledge scale, were eliminated. To assess whether there were any systematic differences between the questionnaires administered by phone and mail, we tested the null hypothesis of no mean difference across the two groups (using *t*-tests) with respect to our study variables. No significant differences were found between the two groups on any of the variables.

[6] Five cases were eliminated based on the post hoc test of informant quality. As in the supplier sample, no significant differences were attributable to the mode of data collection.

supplier samples (Buyer sample: GFI = .90, CFI = .96, NFI = .90, RMSEA = .05. Supplier sample: GFI = .91, CFI = .97, NFI = .90, RMSEA = .04).[7]

Next, we assessed the reliability of the scales. We calculated coefficient alpha (Cronbach 1947) as well as composite reliability (Fornell and Larcker 1981). We also examined the parameter estimates and their associated t-values and assessed the average variance extracted for each construct (Gerbing and Anderson 1988). All coefficient alpha's exceeded the .7 level recommended by Nunnally (1978). Further, all the factor loadings for the multi-item scales were significant, and the composite reliabilities ranged from .75 to .91, indicating acceptable levels of reliability for the scales (Fornell and Larcker 1981). Lastly, the average variances extracted ranged between 54% and 77%; all above the recommended .50 level (Fornell and Larcker 1981).[8]

Finally, we established discriminant validity by calculating the shared variance between all possible pairs of constructs and verified that they were lower than the average variance extracted for the individual constructs. All possible pairs of constructs passed Fornell and Larcker's (1981) test, evidencing discriminant validity among the measures.[9] These results, in combination with the fit indices for each factor model, suggest that the measurement scales are reliable and valid.

Hypothesis Tests

Two ordinary least squares (OLS) regression models were estimated to test the hypotheses. The first of these models was estimated using the buyer sample, and captures the perspective of the party

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[7]   The χ^2 fit index was statistically significant in both samples (χ^2 = 172.67, p. < .01; χ^2 = 216.59, p. < .01). However, due to the acknowledged problem with the χ^2 index, other fit indices were given greater weight (Jöreskog and Sörbom 1995).

[8]   Coefficient alpha's, composite reliabilities, average variance extracted, factor loadings, and factor correlations are available upon request.

[9]   In line with the suggestions of Gerbing and Anderson (1988), we also assessed pairs of scales in a series of two-factor confirmatory models using LISREL. We respecified the two-factor models by restricting the factor intercorrelations to unity, and then performed χ^2 difference tests (with 1 degree of freedom) on the values obtained for the constrained and unconstrained models. In all cases, the χ^2 was significantly higher in the constrained models, thereby indicating discriminant validity between the constructs.

making the credible commitment (i.e., the "investor"). The second model was estimated in the supplier sample, and captures the perspective of the receiver of the credible commitments. Table 1 and 2 shows the estimated coefficients and associated t-statistics for Model 1 and 2, respectively.

Consider first Model 1. The main effect of buyer credible commitments on supplier opportunism is significant and positive (t = 5.21, $p < .025$), providing support for Hypothesis 1. Second, the interaction between extendedness and buyer credible commitments is significant and negative (t = -1.67, $p < .05$), providing support for Hypothesis 2. The corresponding prediction for Hypothesis 3 is captured by the interaction between solidarity and buyer credible commitments. As can be seen in Table 1, this interaction is also significant and negative (t = -2.33, $p < .025$). None of the control variables have significant effects.

Consider next Model 2. As for Model 1, the main effect of buyer credible commitments on supplier opportunism is significant and positive (t = 3.35, $p < .025$), consistent with Hypothesis 1. Further, the interaction between solidarity and buyer credible commitments is significant and negative (t = -2.60, $p < .025$), providing support for Hypothesis 3. The corresponding prediction for Hypothesis 2, however, is not supported in the supplier sample. As can be seen in Table 2, the interaction between credible commitment and extendedness is not significant. As with Model 1, none of the control variables have significant effects. We discuss these results and their implications below.

IV. DISCUSSION

Credible commitments are commonly recognized as key building blocks of interfirm relationships. In the past, they have often been examined from the viewpoint of the investor, and in terms of how they bond the investor to certain courses of action (Ganesan 1994; Williamson 1983). Recently, it has also been suggested that the bonding effects may extend to the receiver, due to the efficiency implications of the relevant investments (e.g., Jap and Ganesan 2000).

Importantly, a competing scenario to the bonding effect has also been suggested, namely that credible commitments represent a transactional hazard. This is because credible commitments involve sunk assets whose value can be expropriated by the receiver. Surprisingly, while both the expropriation and bonding scenarios have been recognized as theoretical possibilities, empirical evidence which compares the two is scarce. As a consequence, there is some ambiguity surrounding the value of credible commitments as relationship-building devices in the first place.

In this study, we examined the choice made by a firm (i.e., the receiver) to either 1) exploit a credible commitment in an opportunistic fashion, or 2) support the relationship by refraining from opportunism. Our particular focus was on the specific conditions which influenced a firm's choice. In general, our results show strong support for transaction cost theory's (Anderson 1988; Williamson 1983) prediction that credible commitments by themselves will give rise to expropriation problems. In both samples, increases in credible commitments were found to increase the receiver's opportunism, as per Hypothesis 1. Importantly, however, our results also suggested that this effect only holds for "spot market" types of transactions, which have neither 1) an interaction history, nor 2) an expectation of future exchange.

Consistent with sociological theory, which suggests that particular aspects of a relationship's history may dampen opportunistic tendencies (e.g., Coleman 1990; Takahashi 2000), we found that in relationships characterized by strong solidarity norms, the effect of the investor's credible commitment was to reduce, rather than increase, the receiver's opportunism. Hence, a strong norm of solidarity causes a shift in the effect of credible commitments, from that of expropriation to bonding. This pattern of results was evident in both samples.

Our results in the buyer sample also suggest that the "shadow of the future" can serve to mitigate the expropriation risk which credible commitments produce. Again, the positive effect of credible commitments on opportunism actually turned negative given expectations of future exchange.

This is consistent with the game-theoretic notion that a future time horizon creates enforcement opportunities, which in turn mitigate short-term incentives to maximize individual payoffs at the partner's expense.

While both the "shadow of the future" and the "shadow of the past" pertain to a relationship's time dimension, they represent theoretically distinct aspects of a relationship's context. This distinction has often been overlooked in past research (e.g., see Granovetter 1985; 1992). While both past and future are capable of suppressing opportunism, they operate in very different ways. To the best of our knowledge, this is the first attempt to 1) theoretically compare, and 2) jointly test the arguments pertaining to relationship past and future.

Interestingly, the test of the "shadow of the future" in the supplier sample did not show the predicted effect. In fact, neither the main effect of extendedness on opportunism nor the interaction with credible commitments was significant. Why may this be the case? At a first glance, it may seem as if the discrepancy between the buyer and supplier samples could be attributable to perceptual differences between the parties in question regarding the level of the focal variables.

While we agree that dyads may exhibit perceptual divergence, it is not clear that this in itself can explain our pattern of results. Interestingly, the suppliers in our study did have strong expectations of continuity, as evidenced by the mean score on the extendedness scale ($\bar{x}_S = 6.15$, on a 7 point scale). In fact this score is quite close to the mean score for the buyers ($\bar{x}_B = 5.84$), and the two reports show a reasonable degree of convergence (r = .30, $p < .01$). In spite of this, the actual *effect* of extendedness was insignificant in the supplier sample; both in itself (i.e. the main effect) and in the interaction with credible commitments. In other words, while the suppliers expected that the relationships would go on, these expectations did not mitigate the expropriation hazard of the credible commitments, like they did in the buyer sample. In principle, one could therefore find *convergent*

perceptions between a set of parties regarding certain relationship phenomena and still observe different *effects*.

While firm conclusions require additional evidence, we believe that the different effects of extendedness require a different explanation than a lack of perceptual convergence per se. We offer two possible explanations. First, it is possible the parties may have inherently different perspectives of the *value* of the credible commitments or their future returns. The results suggest that buyers view their own credible commitments as being associated with long-term payoffs for the supplier. In contrast, the suppliers themselves did not seem to make similar attributions, as evidenced by the non-significant interaction between credible commitment and extendedness in that sample.[10]

Alternatively, it is conceivable that suppliers do in fact value future relationship returns, but use a different *discount rate* than their buyer counterparts in judging their present value. In other words, short-term payoffs may be inherently more valuable to suppliers than to buyers. If this is the case, it could explain both the insignificant main and interaction effects in the supplier sample.

To summarize, our empirical results extend the existing knowledge of credible commitments by suggesting that their effects depends both on 1) the *context* within which they are deployed (i.e., the focal relationship's time dimension), and 2) the *party* who is evaluating the contextual factors. From the standpoint of the party providing the commitment (i.e. the investor), we showed that the frequently mentioned expropriation potential of credible commitments does in fact materialize. Furthermore, our results suggested that although credible commitments can have bonding effects on the receiver, these effects are conditional on certain relationship characteristics. Moreover, the possibility that investors and receivers value credible commitments differently suggest that their deployment should be approached with considerable caution.

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[10] Different perceptions of the value of the buyer's investment could explain the non-significant interaction in the supplier sample, even if the main effect of extendedness (hypothetically) had been significant.

Limitations and Future Research

Some limitations of this research should be pointed out. First of all, we explicitly treated both norms and extendedness as exogenous constructs. This followed from our research questions which pertained to the effects of credible commitments under different relationship conditions (e.g., past and future). While there is considerable precedence for treating both extendedness and norms in this fashion in the extant literature, an important question for future research is how these conditions (e.g., norms) emerge in the first place.

Second, norms are complicated phenomena, and we limited ourselves to examining a single one, namely solidarity. While this particular norm plays a key role in influencing the choice of whether to exploit a credible commitment in an opportunistic fashion or support the relationship by refraining from opportunism, future research should be directed toward exploring the effects of other norm types, and inter-relationships among them.

Finally, the discrepant results across the buyer and supplier samples raise important questions. The fact that the focal effects differed suggests the need for "middle-range" modifications of extant theory. Quite possibly, such modifications will need to account for differences between buyers and suppliers in terms of how relationship valuation takes place. This could explain both the insignificant main and interaction effects of extendedness in the supplier sample. Possibly, such differences in valuation may be due to past experiences accumulated in other relationships. Alternatively, short-term payoffs may be inherently more valuable to suppliers, perhaps due to structural aspects of the supplier industry (Helper 1991). Hopefully, future research will be directed toward resolving these questions.

Table 1
OLS Regression Model
Dependent Variable: Supplier Opportunism, Buyer Sample

Independent Variables	Untandardized Coefficients	Standardized Coefficients	t-value
Buyer Commitments	.42	.35	5.21**
Extendedness	-.39	-.24	-3.34**
Buyer Commitments x Extendedness	-.03	-.12	-1.67*
Solidarity	-.59	-.33	-4.60**
Buyer Commitments x Solidarity	-.06	-.17	-2.33**
Controls			
Relative Size	-.62	-.07	-.95
Number of Employees	-.09	-.02	-.22
Buyer Concentration	.00	.02	.33
Supplier Commitments	-.04	-.04	-.50

$$R^2 \text{ adjusted} = .36$$

*$p < .05$ (1-tailed test), **$p < .025$ (1-tailed test)

Table 2
OLS Regression Model
Dependent Variable: Supplier Opportunism, Supplier Sample

Independent Variables	Untandardized Coefficients	Standardized Coefficients	t-value
Buyer Commitments	.25	.28	3.35**
Extendedness	-.07	-.05	-.64
Buyer Commitments x Extendedness	.02	.08	.94
Solidarity	-.24	-.19	-2.30**
Buyer Commitments x Solidarity	-.06	-.21	-2.60**
Controls			
Relative Size	.11	.02	.24
Number of Employees	-.09	-.03	-.35
Buyer Concentration	-.01	-.06	-.76
Supplier Commitments	.12	.10	1.25

$$R^2 \text{ adjusted} = .10$$

*$p < .05$ (1-tailed test), **$p < .025$ (1-tailed test)

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