RESEARCH NOTES AND COMMENTARIES

TRUST OVER TIME IN EXCHANGE RELATIONSHIPS: META-ANALYSIS AND THEORY

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A common premise in prior research is that trust increases over time in relationships. Through a meta-analysis of 39 studies, we find that the bivariate correlation between trust and relationship duration (1) is on average positive and small, and (2) varies significantly across studies indicating the presence of unobserved moderators. We therefore build a theoretical framework to specify four different mechanisms—initial bias correction, change in relationship value, identification, and trust-based selection—that may affect the development of trust. We then argue that the relative strength of these mechanisms should influence whether trust increases, remains constant, or decreases over time. © 2013 The Authors. *Strategic Management Journal* published by John Wiley & Sons Ltd.

INTRODUCTION

Trust is a key factor in understanding performance variation among relationships between organizations (Granovetter, 1985; Lado, Dant, and Tekleab, 2008; Li, Poppo, and Zhou, 2010; Luo, 2008; Poppo and Zenger, 2002; Uzzi, 1997) as well as within them (e.g., Davis *et al.*, 2000; Fang *et al.*, 2008; Wang, He, and Mahoney, 2009). Beyond its performance effects, trust (or the lack thereof) is also used to explain the structure of exchange relationships (Bradach and Eccles,

1989; Granovetter, 1985; Gulati, 1995; Gulati and Nickerson, 2008; Puranam and Vanneste, 2009; Reuer and Ariño, 2007; Ring and Van de Ven, 1992; Shah and Swaminathan, 2008; Uzzi, 1997; Williamson, 1975).

Scholars have often assumed that interactions over time affect trust in a relationship (Ring and Van de Ven, 1994). Many empirical studies measuring trust predict it to increase with the duration of a relationship (e.g., Anderson and Weitz, 1989; Chua, Ingram, and Morris, 2008; Doney and Cannon, 1997; Ganesan, 1994; Gulati and Sytch, 2008; Wang, Tomlinson, and Noe, 2010). Others not measuring trust may use relationship length as a proxy (or assume that trust increases over time) when examining the effects of relationship duration (e.g., Corts and Singh, 2004; Greve *et al.*, 2010; Gulati, 1995; Parkhe, 1993; Vanneste and Puranam, 2010). Yet, different studies report a

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positive regression coefficient between trust and duration (e.g., Anderson and Weitz, 1989), a negative one (e.g., Poppo, Zhou, and Ryu, 2008), or no relation (e.g., Doney and Cannon, 1997).

We study the evidence on trust and relationship duration through a meta-analysis of 39 studies. We extend prior meta-analyses in several ways. Colquitt, Scott, and LePine (2007), Geyskens, Steenkamp, and Kumar (1998), and Swan, Bowers, and Richardson (1999) do not explore relationship duration as an antecedent of trust. Dirks and Ferrin (2002) meta-analyze the link between trust and duration in the context of leadership using five studies. Our more comprehensive aggregation of results shows that the correlation between trust and relationship duration is positive but small (Cohen, 1992), and we find that the correlation varies more across studies than expected by sampling error alone—suggesting that unobserved moderators matter.

We also build a set of theoretical arguments on why and how the relation between trust and relationship duration may vary. Using Coleman's (1990) formal description of trust, which captures both rational and heuristic-based trust (McEvily, 2011), we show that common trust conceptualizations imply at least four mechanisms influencing the development of trust over time: initial bias correction, change in relationship value, identification, and trust-based selection. Our framework links trust and relationship duration via the relative strength of these potentially countervailing mechanisms.

META-ANALYSIS

Identification of studies

To identify studies for our meta-analysis, we first searched the Business Source Complete and PsycINFO databases for the period 1887–2010. We used the keywords trust* (to capture studies on trust or trustworthiness) together with at least one of history, duration, length, time, and frequency as well as at least one of data, empirical, test, statistical, finding*, result*, and evidence. This filtering resulted in 1,435 and 2,351 articles (respectively) culled from the two databases. Second, we considered all articles published since 1980 that mentioned "trust" (or a variant thereof) in the following journals (based on Geyskens, Steenkamp, and Kumar, 2006): *Academy of Management Journal*, *Administrative Science Quarterly*, *International Journal of Research in Marketing*, *Journal of Applied Psychology*, *Journal of Business Research*, *Journal of International Business Studies*, *Journal of Management*, *Journal of Marketing*, *Journal of Marketing Research*, *Journal of Personality and Social Psychology*, *Management Science*, *Marketing Science*, *Organizational Behavior and Human Decision Processes*, *Organization Science*, *Personality & Social Psychology Bulletin*, *Psychological Science*, and *Strategic Management Journal*. Third, we examined the references listed in review articles on trust (Colquitt *et al.*, 2007; Dirks and Ferrin, 2002; Ebert, 2007; Geyskens *et al.*, 1998; Swan *et al.*, 1999). Fourth, we sent a request for unpublished studies to approximately 350 trust researchers. Finally, we went through the reference section of each relevant paper identified previously.

We included a study if it met three conditions. First, it had to employ a construct of trust or trustworthiness broadly consistent with the definitions of Mayer, Davis, and Schoorman (1995) and Rousseau *et al.* (1998), see the Theory section. Second, it had to report the sample size and pairwise correlation between trust and relationship duration; these values are required for conducting a meta-analysis. Third, the study had to be at the interpersonal or interorganizational level (we shall report any differences in findings for these two levels).

Data set

We used three procedures to achieve independence among the correlation coefficients in our meta-analysis. First, for studies with multiple independent samples, we separately included the correlation from each sample. Second, for samples with more than one correlation per unit of analysis (i.e., interpersonal or interorganizational) due to multiple operationalizations of a trust construct, we calculated a single composite correlation (for the formulas used to make this calculation, see Hunter and Schmidt, 2004). Third, for studies based on the same or overlapping data sets, we included only one correlation in our meta-analysis. We chose the correlation from the study with the largest sample or, if the sample sizes were equal, from the oldest article.

We used standard meta-analytical procedures to establish that the most influential studies did not

Table 1. Meta-analytic results for correlation between relationship duration and trust

k	N	r	$\widehat{\rho}$	95% confidence interval ($\widehat{\rho}$)	95% credibility interval (ρ)	% variance accounted for	Q
47	9,632	0.11	0.12	0.09–0.16	-0.08–0.32	22.5	209.2***

k = number of effect sizes; N = total number of observations; r = sample size–weighted average observed correlation; $\widehat{\rho}$ = estimate of corrected average population correlation; % variance accounted for = percentage of observed variance accounted for by statistical artifacts; Q = chi-square test for homogeneity.
***$p < 0.001$.

clearly increase or decrease the sample weighted average correlation (Huffcutt and Arthur, 1995). These procedures—along with those already discussed under "Identification of studies"—yielded a final set of 39 studies reporting $k = 47$ effect sizes with a total of $N = 9,632$ observations. Studies included in the meta-analysis are preceded by a * in the References.

Meta-analytic calculations

We follow the Hunter and Schmidt (2004) approach, which allows for the correction of statistical artifacts in an attempt to estimate the population correlation. We correct the observed correlation coefficients (r) for biases arising from three statistical artifacts: (1) dichotomization of the relationship duration variable, (2) measurement error in the trust variable, and (3) sampling error.

For each relationship duration variable, we know whether it is dichotomized and, if so, at what percentage the cutoff occurs (artifact 1). We have information on the reliability of nearly all trust variables (artifact 2). We lack information on four effect sizes; for these, we take the average reliability for the trust variable. For artifacts 1 and 2, we correct each correlation coefficient following Hunter and Schmidt (2004). We then meta-analyze the resulting corrected correlations to obtain a sample-weighted average correlation and variance. The variance is also corrected for sampling error (artifact 3).

Finally, we investigate publication bias, which exists if published studies systematically report effect sizes that differ from those reported in unpublished studies. Because the number of unpublished studies in our data set is small (with $k = 2$), we instead compare studies that use trust and relationship duration as independent variables with studies with one construct (i.e., trust) as the dependent variable. It is unlikely that a single correlation between two independent variables systematically affects the probability of publication. If this is true, then comparing the two sets of studies gives an indication whether publication bias is present. The 29 effect sizes reported when trust is the dependent variable are, on average, 0.02 higher than the 18 effect sizes reported when both trust and relationship duration are independent variables. A t-test reveals that this difference is not significant ($p = 0.53$), so we find no evidence of publication bias.

RESULTS

Table 1 presents the meta-analytic findings. The sample size–weighted average observed correlation between trust and relationship duration is 0.11. The estimate of the average corrected population correlation is 0.12 (the 95% confidence interval ranges from 0.09 to 0.16). The correlation between trust and relationship duration can therefore be classified as small (Cohen, 1992). Furthermore, statistical artifacts (sampling and measurement error) explain only 22.5 percent of the variance in observed correlations. The chi-square test for homogeneity is significantly different from 0 ($p < 0.001$), which indicates that the observed variation is greater than what would be expected to arise from chance alone. Taken together, these findings suggest the presence of unobserved moderator variables—as does the so-called 95 percent credibility interval (within which 95% of the population correlations lie (Hunter and Schmidt, 2004). It ranges from -0.08 to 0.32, which implies significant variation in population correlations (and not merely variation in estimates of the mean). Because this credibility interval is large and (unlike the confidence interval) includes 0, it suggests that the calculated average correlation is more likely to be the average of subpopulations (some of which exhibit a negative correlation) than the average of a single population (Whitener, 1990).

In short, our meta-analysis reveals that (1) the bivariate correlation between trust and relationship duration is, on average, positive but small; and (2) there are indications that unobserved factors moderate this relationship. In two robustness tests, our results are unaffected by the unit of analysis (interpersonal versus interorganizational) or the measurement of "trust" (trust versus trustworthiness).

THEORY

Prior literature suggests that trust and relationship duration are positively correlated; our meta-analysis shows that the correlation is positive but weak. Moreover, this correlation is likely moderated by unobserved factors, so that it could be 0 or even negative under some conditions. We theorize about these conditions by focusing on the mechanisms affecting the association between trust and relationship duration.

What is trust?

Scholars working within different literatures have converged on a common meaning of trust. Rousseau *et al.* (1998: 395) capture this consensus in their definition of trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." Similar definitions appear in Mayer *et al.* (1995: 712), Bhattacharya *et al.* (1998: 462), and Coleman (1990: 99).

To systematically analyze how trust changes over time, we use Coleman's (1990) formal description of trust that captures these key features (see also Nooteboom, 2002, who uses the same description). Consider a trustor who must decide whether or not to establish a relation with a trustee of unknown trustworthiness. To begin with, we assume that trustworthiness does not change during such a relation (we relax this restriction later). Because trustworthiness is not directly observable, the trustor can at best assign some subjective probability that the trustee will act in a trustworthy manner. This *perceived trustworthiness* (at the beginning of period t) is denoted p_t. Suppose that the trustor's interest in entering such a relationship is increasing in its expected payoffs. We use A_t to denote the trustor's gains in period t from its relation with a trustworthy trustee ($A_t > 0$); conversely, B_t denotes the trustor's losses in period t from its relation with an untrustworthy trustee ($B_t < 0$).

Following Coleman (1990) and Nooteboom (2002), we write the trustor's expected payoff from relationship R in period t as

$$E_t[R] = p_t A_t + (1 - p_t) B_t. \quad (1)$$

A trustor's willingness to engage in a relationship relative to not engaging in a relationship increases in the expected payoffs as given in Equation 1. Hence, trust increases with $E_t[R]$, because trust is the willingness to be vulnerable to the actions of another party, i.e., the willingness to engage in a relationship with the other party.[1]

This description embodies four key ingredients of trust common to existing definitions. First, trust is the *willingness to engage in a relationship* with the other party (i.e., an intention to act), not the actual decision to engage in the relationship (i.e., accepting vulnerability) (Mayer *et al.*, 1995; Rousseau *et al.*, 1998). Second, trust as the *trustor's* willingness to engage in a relationship, which increases with $E_t[R]$, is different from the perception of the trustee's trustworthiness (p_t) (Colquitt *et al.*, 2007; Hardin, 2002; Mayer *et al.*, 1995). Third, trust is formed under *uncertainty* because the trustor can only guess the other's trustworthiness (as reflected in $0 < p_t < 1$). Because A_t and B_t are uncertain to occur, there is vulnerability, without which the role of trustworthiness (and trust) is limited (Yamagishi and Yamagishi, 1994). Hence, trust is different from the "shadow of the future" effect that arises in repeated games (e.g., Vanneste and Frank, 2013), where a long-time horizon or a low discount rate may guarantee cooperation even among untrustworthy partners because it is in their best interest (Friedman, 1971). Fourth, trust as an intention to act depends on the *context-dependent* payoffs A_t and B_t. We may trust a partner in one situation but not in another (Bhattacharya *et al.*, 1998; Coleman, 1990; Deutsch, 1958).

How trust develops over time

Given this conceptualization of trust as an increasing function of the left-hand side of Equation 1,

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[1] In other words, trust can be described as a monotonically increasing function f of $E_t[R]$ such that $\partial f(E_t[R])/\partial E_t[R] > 0$. Variations in the propensity to trust (see Colquitt, Scott, and LePine, 2007; Ortmann, Fitzgerald, and Boeing, 2000), can be captured through a less or more steep (but always increasing in $E_t[R]$) function f.

changes in trust must follow when the right-hand side changes. This can occur through at least four different mechanisms: initial bias correction, change in relationship value, identification, and trust-based selection. In the real world these mechanisms may co-occur, but we discuss each mechanism separately to enhance clarity. Consequently, our propositions have the usual *ceteris paribus* interpretation. Table 2 gives an overview of the mechanisms and their effect on the association between trust and relationship duration.

Mechanism 1: initial bias correction

Before entering any relationship, a trustor may be pessimistic, unbiased, or optimistic about the partner's trustworthiness (in the formal description, this is denoted by p_1). A pessimistic (optimistic) trustor is one who underestimates (overestimates) that trustworthiness; an unbiased trustor makes the correct estimation. The trustor's initial bias has an effect not only on the willingness to begin a relationship but also on the evolution of trust within a relationship once it is established, as we explain next.

Engaging in a relationship provides the trustor with firsthand evidence, influencing the trustor's estimate of its partner's trustworthiness. Thus, the trustor gradually revises its assessment of the trustee to approach the true level of trustworthiness. For a pessimistic initial assessment, this may lead to increasing trust (Anderson and Weitz, 1989; Lewicki and Bunker, 1995; Shapiro *et al.*, 1992). Conversely, an initially optimistic trustor is more likely to revise its beliefs downward, decreasing trust over time. For unbiased trustors, trust will remain constant over time on average. Because trust increases in the perceived trustworthiness of the trustee, initial bias correction will affect whether trust increases or decreases over time.

> *Proposition 1a: With an optimistic (pessimistic, unbiased) initial belief about the other's trustworthiness, on average trust will decline (increase, not change) over time.*

As an illustration, suppose initial beliefs about trustworthiness are more optimistic when an acquirer and its target are from the same industry than when they are from different industries. Such optimism could be explained by an in-group bias

by which people ascribe better qualities to others from the same group (Tajfel, 1982). One such quality is trustworthiness (Brewer, 1996; Platow, McClintock, and Liebrand, 1990). If post-merger integration carries informative signals about firms' trustworthiness, the optimistic initial bias should result in trust forming more rapidly (or decreasing less rapidly) after between-industry than after within-industry acquisitions.[2]

The research of Pillutla *et al.* (2003) and Weber *et al.* (2005) suggests a moderator of Proposition 1a.[3] Trusting acts (by the trustor) may affect trustworthiness (of the trustee). For example, a decision by the trustor to engage in a relationship with the trustee may make the trustee more trustworthy. Hence, a more optimistic trustor may endogenously lead to a more trustworthy trustee. As long as the endogenous increase in trustworthiness does not lead to a reversal in the bias (i.e., optimistic becomes pessimistic, or vice versa), Proposition 1a holds. The effect of Proposition 1a will be weaker in the presence of the moderator and stronger in its absence.

> *Proposition 1b: If the trustor's trusting acts affect the trustee's trustworthiness, then the effect of initial bias correction on trust is weakened: an optimistic bias will lead to a smaller reduction in trust, whereas a pessimistic bias will lead to a smaller increase in trust.*

If the trustor can expand or shrink the scope of the relationship, then a change in perceived trustworthiness has an additional effect on trust. Consider a relationship in which the trustor can either choose project 1 with a large scope or project 2 with a small scope. The interesting case is when both the upside and downside of project 1 are greater (i.e., $A1_t > A2_t$ and $|B1_t| > |B2_t|$). If a project has a greater upside and smaller downside, then that project is preferred regardless of perceived trustworthiness, and project choice will not change over time. In contrast, the choice between the projects 1 and 2 above depends on

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[2] A reviewer pointed out that, if people entering relationships tend to be positively biased in their expectations regarding trustworthiness or gains from the exchange, then subsequent corrections should lead to a decline in trust. We believe it is an empirical question whether such a bias is widespread.

[3] We thank a reviewer for encouraging us to explore this moderator.

Table 2.   When does trust increase over time?

Mechanism	Element: $E_t[R] = p_t A_t + (1 - p_t)B_t$	Over time, on average, trust	
		Decreases	Increases
1. Initial bias correction	p_1	Optimistic: trustor overestimates the level of trustworthiness	Pessimistic: trustor underestimates the level of trustworthiness
2. Change in relationship value	A_t, B_t	A_t: decreases upside	A_t: increases upside
		B_t: increases downside	B_t: decreases downside
3. Identification	Trustor: higher A_t and lower B_t Trustee: p_t increases		Trustor: obtains higher utility from trusting Trustee: becomes more trustworthy
4. Trust-based selection	$E_t[R] > E_t[NR]$		Trustor terminates relationships if perceived trustworthiness is low

perceived trustworthiness: project 1 is preferred if perceived trustworthiness is high, else project 2 (as long as project 2 provides more value than not being in the relationship).[4] A pessimistic trustor may initially prefer project 2, but after awhile the trustor may prefer project 1 as the beliefs about trustworthiness are revised upward. If so, then trust not only increases because perceived trustworthiness increases (Proposition 1a), but also because for the new level of perceived trustworthiness, the expected value from project 1 is greater than that of 2 (else, the trustor would not have switched). The trustor's willingness to engage in the relationship (i.e., trust) goes up even more. Likewise, an optimistic trustor may over time reduce the perception of trustworthiness, and consequently prefer project 2 over 1, leading to a lesser decline in trust (relative to the situation where project 1 could not have been abandoned).[5]

Proposition 1c: The possibility to adjust the scope of the relationship positively moderates the effect of an initial bias on trust: an optimistic bias will lead to a smaller reduction in trust, whereas a pessimistic bias will lead to a greater increase in trust.

Mechanism 2: exogenous change in relationship value

Trust is context specific (Bhattacharya et al., 1998; Coleman, 1990; Deutsch, 1958); hence, a party might be trusted in one context but not in another. This intuition is captured by Equation 1, where the level of trust is a function of the relationship's value (i.e., payoffs A_t and B_t). So, if a trustor and trustee interact in different contexts over time, then trust can change even when perceived trustworthiness in the relationship remains constant.

Suppose that, in each period, a trustor and a trustee engage in a task with given payoffs. Then, all else (including perceived trustworthiness) being equal, trust is increasing in A_t and decreasing in B_t. Changes in relationship value thus imply the following statements:

Proposition 2a: If the gains from a partner's trustworthy behavior increase (decrease) over time, then trust will likewise increase (decrease) over time.

Proposition 2b: If the losses from a partner's untrustworthy behavior increase (decrease) over time, then trust will decrease (increase) over time.

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[4] If the trustor prefers the highest expected value, then project 1 is chosen for high p, project 2 for intermediate p, and no relationship for low p. Formally, she will choose project 1 over 2 if $pA1_t + (1 - p)B1_t > pA2_t + (1 - p)B2_t \Leftrightarrow p > (B2 - B1)/(A1 - A2 + B2 - B1)$. Project 2 is preferred over no relationship if $pA2_t + (1 - p)B2_t > 0 \Leftrightarrow p > B2/(-A2 + B2)$. To ensure that project 2 is preferred for some intermediate p, it must be that the threshold p for project 1 is greater than the threshold for project 2: $(B2 - B1)/(A1 - A2 + B2 - B1) > B2/(-A2 + B2)$, which is the case as long as $A1/B1 \neq A2/B2$.

[5] We thank a reviewer for suggesting this mechanism.

It is important to note that these propositions refer to trust—the trustor's willingness to engage in a relationship with the trustee (i.e., an intention to act)—as distinct from a trusting act—which occurs when the trustor actually engages with the trustee (i.e., the actual accepting of vulnerability). A situation with high vulnerability (i.e., low A_t and/or high B_t) will lead to a low willingness to engage in a relationship (i.e., low trust), see Propositions 2a and 2b. However, a trusting act in a situation with high vulnerability must imply high perceived trustworthiness.

Propositions 2a and 2b describe exogenous changes in relationship value. Proposition 1c is about endogenous changes in relationship value. Their implications differ in the following way. If we consider the earlier projects 1 and 2 where 1 has a greater upside and downside (i.e., $A1_t > A2_t$ and $|B1_t| > |B2_t|$), then exogenously forcing the trustor to switch projects may lead to lower or higher trust depending on perceived trustworthiness. In contrast, if the trustor is free to choose, then she will only switch projects if that makes her more willing to engage in the relationship; trust will necessarily go up.

Relationship-specific investments affect gains and losses in an exchange relation (Bidwell and Fernandez-Mateo, 2010; Williamson, 1975, 1985). For instance, B_t (the trustor's potential loss in period t) would increase in response to an increase in the possibility of being "held up" by an opportunistic partner. Consider a company that has invested in a relationship with supplier S1 but could transfer its investment to supplier S2 at some cost, and at higher cost to supplier S3 (but not elsewhere). Now assume that S2 is no longer an option because of some exogenous event (e.g., bankruptcy). We can then expect that, since B_t has increased (because S1 can now inflict larger damages by acting opportunistically), the firm's trust in the relation with S1 may decrease. Suppose now that a change in regulations or in consumer demand exogenously increases the supplier's potential profits A_t from the relation (and its investment) but not the losses from the buyer acting opportunistically (Zajac and Olsen, 1993); trust should now increase.

Mechanism 3: identification

Identification can work in both directions: a trustee may identify with a trustor and/or vice versa. Shapiro *et al.* (1992) and Lewicki and Bunker (1995) argue that interactions lead people to identify with each other over time as they internalize each other's preferences. Hence, as X and Y interact with each other repeatedly, X begins to care about good and bad outcomes for Y and considers them as also being good and bad for himself (and vice versa). This dynamic leads to increased trustworthiness (Kramer, 1999; Lewicki and Bunker, 1995; Poppo *et al.*, 2008; Shapiro *et al.*, 1992). As X begins to care about Y receiving good outcomes, X becomes more trustworthy from Y's perspective. If perceived trustworthiness (eventually) adjusts towards actual trustworthiness, then over time Y finds X more trustworthy and will have a higher level of trust in him. This process essentially increases the benevolence and possible integrity of the trustee (Mayer *et al.*, 1995). The faster the trustee identifies with the trustor and the more the trustor recognizes this identification, the more rapidly trust increases over time.

Interacting repeatedly can also induce a trustor to identify with the trustee—the trustor cares also about the trustee's payoffs. Identification then increases the trustor's payoffs as they become an increasing function of the trustee's (positive) payoffs. In Equation 1, this is equivalent to increasing trust by increasing A_t or by decreasing B_t, where either change is endogenous to the relationship (unlike our previous mechanism involving exogenous changes in relationship value). Note that identification can lead to an increase but never decrease in trust over time.

Proposition 3: If partners identify more with each other over time, then trust will increase over time.

One implication of this claim is that trust develops differently across contexts in which the rate of identification differs. Consider the difference between services being outsourced offshore versus onshore (Srikanth and Puranam, 2011). For contracts of identical duration between the same client and vendor, the frequency of interaction is probably higher with onshore than with offshore outsourcing because of the geographical distances involved. If identification increases with the number of face-to-face interactions (Lewicki and Bunker, 1995; Shapiro *et al.*, 1992) and if there are more interactions in onshore than offshore outsourcing, then identification between client and

vendor personnel will develop more rapidly in onshore settings. Similarly, trust between the personnel involved should develop more quickly for onshore than for offshore outsourcing.

Mechanism 4: trust-based selection

Dealing with unsuccessful relationships plays a crucial role in the evolution of trust over time. Given the possibility of exit, a trustor will continue to interact only with partners that are trusted (Gambetta, 1988). Hence, such partners are more likely to continue the relationship (Anderson and Weitz, 1989; Doney and Cannon, 1997; Ganesan, 1994). A trustor's long-lived relationships will then be primarily with trustworthy partners because untrustworthy ones are deselected over time. Therefore, trust should be high in long-lived relationships.

The shorter relationships in which a trustor is involved will feature a mix of trustworthy and untrustworthy partners because, in such relations, the trustor has not yet gathered enough information on whether or not the trustee is trustworthy. Deselection implies that trustors will, on average, have more trust in long-lived than in short-lived relationships. Note that this mechanism affects the average level of trust in a portfolio of relationships of a single trustor because it results in that portfolio including mainly trustworthy partners. However, trust-based deselection does not affect the level of trust in a given relationship between a trustor and trustee.

> *Proposition 4: With deselection of untrustworthy partners, the average trust in a portfolio of relationships will increase over time.*

One implication of this statement is that the rate of trust development in a portfolio of relationships depends on the presence of exit barriers. The easier it is to cancel contracts and discard untrustworthy partners, the faster is the increase in partners' average trustworthiness. So, if contract workers are more easily laid off than employees, then a firm's average trust may increase more rapidly in contract workers than in regular employees. Similarly, you may increase trust in friends more rapidly than in your family members because only the former can be deselected ("you can choose your friends but you can't choose your relatives").

DISCUSSION AND CONCLUSION

Our analysis indicates that numerous possible moderators of the relationship between trust and relationship duration exist because multiple (and sometimes opposing) mechanisms link the two. Mechanisms 3 and 4 lead to the prediction that trust increases with relationship length, while mechanisms 1 and 2 do not generate unambiguous predictions. Unless we know the mechanisms' direction and relative strength, we cannot predict whether trust increases or decreases over time.

This paper makes both theoretical and empirical contributions. Empirically, we assess evidence on the link between relationship duration and trust more comprehensively than prior work has done. Theoretically, we build on established trust definitions to clarify known and to suggest new mechanisms that influence how trust develops over time. Thus, we can distinguish among several related constructs: trust, trustworthiness, context, uncertainty, and propensity to trust.

Two established mechanisms (identification and trust-based selection) are readily represented in our formalization. It also advances our understanding of two novel mechanisms via which trust develops over time. First, trust between parties may increase as they learn about each other's trustworthiness (Anderson and Weitz, 1989; Lewicki and Bunker, 1995; Shapiro *et al.*, 1992); however, learning leads to more trust only in the case of pessimistic initial beliefs about such trustworthiness. Second, exogenous changes in relationship value also affect trust as a situation-specific construct. Situations can differ in the potential gains (or losses) arising from a relation with a trustworthy (or untrustworthy) partner. For instance, exogenous changes in the value of relationship-specific investments or in the availability of alternative partners may lead to either an increase or a decrease in trust. If such changes occur systematically over time, then relationship duration and trust may be correlated.

Perhaps the most important implication of our results for future research is that merely correlating trust and relationship duration yields limited insight because a number of mechanisms could have either negative or positive (or no) effects. The net effect is indeterminate *a priori*. Further, the available evidence is seldom sufficient to determine which mechanisms are at play. Our

meta-analytic results are consistent with multiple combinations of different mechanisms.

This difficulty in extracting the underlying mechanisms from available data suggests that examining moderators of the association (between trust and relationship duration) is more promising than looking at the main effect. While others may exist, we identify four classes of constructs that could be measured: initial beliefs, situational payoffs, mutual identification, and deselection. Isolating these would provide researchers the opportunity to study them in combination. For example, if trustworthiness is domain specific, then how does a changing situation affect the value of the relationship *and* the level of trustworthiness, and ultimately how trust develops? Finally, it would be illuminating to study how trustors revise their opinion as well as how (if at all) they generalize experiences with partners to their initial beliefs about new partners from the same population.

We acknowledge certain limitations. First, our meta-analysis relies on nonexperimental data. Using pairwise correlations between trust and relationship duration implies that uncontrolled factors (of which we identify some in our theory) may influence these correlations. Second, the studies we analyze use cross-sectional data. Although our theoretical mechanisms should be reflected in such data, inferring their existence or strength is difficult. Third, we conceptually distinguish different mechanisms affecting the development of trust over time, but the data at hand do not let us distinguish them empirically. Despite these limitations, a meta-analysis can better separate true effects from noise (i.e., sampling error) than individual studies.

How trust develops in the course of a relationship is key to many studies on the performance and structure of exchange relationships, including alliances, organization design, contracting, and social embeddedness. We propose ways in which a more sophisticated understanding of this relationship can be built. Because mechanisms likely have an unequal impact across domains, identifying when which mechanisms matter the most may enrich the theory specific to each.

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