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Cooperation and Compliance in Non-Equity Alliances

Siegfried P. Gudergan, University of Newcastle

Timothy M. Devinney, University of Leeds

R. Susan Ellis, Macquarie University

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Corresponding author: Siegfried P. Gudergan, University of Newcastle, University Drive, Callaghan NSW 2308, Australia (siggi.gudergan@newcastle.edu.au). Timothy M. Devinney, University of Leeds, Maurice Keyworth Building, Leeds LS2 9JT, UK

(T.Devinney@leeds.ac.uk). R. Susan Ellis, Macquarie University, MGSM, Sydney NSW, 2109, Australia (susanellis1@gmail.com).

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Abstract

This study clarifies cooperation and compliance in non-equity alliances. Partial least squares structural equation modeling findings show how social interaction and risk-based reasoning are both facets of interorganizational decision making. In line with the notion that behaviors follow intentions, partners' risk-taking tendencies (i.e., intentions to cooperate) and compliance tendencies both explain the effort that partners devote to an alliance.

Keywords: alliance; PLS-SEM; cooperation; compliance

1. Introduction

As the scope of business collaboration expands, equity-based and non-equity alliances intensify (e.g., Gomes, Weber, Brown, & Tarba, 2011). The latter alliance type proliferates, yet failure rates are notable: Most alliances fail, even with equity ownership (Das & Teng, 2000), and non-equity partnerships have particular difficulty succeeding (Gunasekera, 1997). Part of this failure might be due to moral hazard problems (Reuer & Ragozzino, 2006), in that partners' behaviors rarely are observable, and opportunism costs can be high (Gulati & Singh, 1998). In equity alliances, ownership facilitates some control, which incentivizes partners to devote effort to making the alliance work (Gulati & Singh, 1998). No such incentives exist for non-equity alliances, which creates a need for other mechanisms to engender compliance with the alliance agreement and cooperation among the partners (Hardy & Nelson, 1998).

Despite considerable advances in research into alliance governance, two inherent aspects limit relevant knowledge about non-equity alliances. First, research on alliances exhibits various focuses on economic and social dimensions. For example, studies with a transaction cost perspective emphasize economic dimensions (Oxley, 1997); other authors (e.g., Ring & Van de Ven, 1994) instead stress social interactions and sense-making processes and relate alliance functioning to implicit obligations. These diverging perspectives create a need to clarify the economic and social dimensions of a partner's decision to allocate effort to an alliance and explain the resulting cooperation and compliance more fully. Second, prior literature lacks empirical studies that focus unequivocally on cooperation or compliance in non-equity alliances. Without a comprehensive assessment of the theoretical question of what constitutes decision making, research cannot explain cooperation or compliance in non-equity alliances effectively.

This study focuses on the decision-making processes underlying cooperation and compliance in non-equity alliances. The proposed argument is that interorganizational decision making encapsulates procedural rationality and social interactions. Cooperation and compliance, and thus a partner's decision to expend effort, reflect behavioral decision making and social interaction processes.

2. Model and hypotheses

The theory of reasoned action (Ajzen & Fishbein, 1980) specifies that intentions precede actual behaviors. A partner's effort implies cooperative and compliance behaviors, including tendencies to engage in potentially risky activities or comply with the alliance agreement, which then determine the actual effort expended. Building on an adapted notion of reasoned risk-taking behavior (Carpenter, Pollock, & Leary, 2003), this paper advances a model of partners' risk-taking tendencies that determine cooperation in non-equity alliances. In line with work on social dilemmas and compliance behaviors (e.g., Brewer & Kramer, 1986), the model depicts partners' compliance tendencies. Intentions to cooperate and to comply within the alliance ultimately shape partners' actual effort.

The argument of reasoned risk taking (Carpenter et al., 2003) emphasizes the context specificity of such behaviors. As Sitkin and Pablo (1992) posit, risk-taking tendencies differ with varying conditions. The proposed model adopts three characteristics delineated by Sitkin and Pablo (1992): (1) partner characteristics, including perceived risk and risk-taking propensity; (2) decision context characteristics, which relate to the situation in which the decision to expend effort occurs; and (3) parent characteristics, including sunk costs that may result from investments in the alliance and cultural risk values. By studying these characteristics, this study

examines the processes underlying the decision to devote effort even if the payoff is risky, which shapes cooperation in non-equity alliances.

Because an alliance is a social contract (Ring & Van de Ven, 1994), partners should not act in self-interested ways (e.g., Das & Teng 1998) but rather should comply with the alliance agreement. In following Brewer and Kramer (1986), this study asserts that such an alliance setting represents a social dilemma. For example, reasoned risk-taking tendencies might suggest lower cooperative efforts than specified by the alliance agreement, but the partner still might comply with the alliance agreement and devote the agreed-on level of effort. The rationale underlying this compliance reflects social psychology (Kelman, 1961). Social interaction process characteristics influence compliance tendencies, such as the partner's notion of obligation or sense of accountability. Through interactions for example, partners might develop an alliance identity that in turn influences the partners' sense of obligation to achieve alliance-specific objectives and devote appropriate levels of effort, as well as attitudes toward being held accountable for dedicating these higher levels of effort and achieving objectives. Partners then likely honor their obligations and expend actual effort, despite the apparent costs of doing so. Therefore, the proposed model includes the social reasoning underlying compliance and the ensuing effort in non-equity alliances. Figure 1 illustrates the theoretical arguments, and Table 1 contains the construct definitions.

Figure 1 and Table 1 about here

2.1. Reasoned risk-taking behavior in non-equity alliances

2.1.1. Partner characteristics

The environments in which non-equity alliances operate are not necessarily stable. Change can produce uncertainty when it is difficult to predict the future components of the environment

(Milliken, 1987). Ring and Van de Ven (1994) suggest that alliances also create behavioral uncertainty, such as one partner's difficulty predicting the extent to which the other partner will comply with the obligations specified in agreements (i.e., moral hazard). Formally, an alliance partner's perceived behavioral uncertainty is that partner's difficulty predicting the other partner's effort or fully understanding how that effort will lead to specified objectives. Trust mitigates behavioral uncertainty (Das & Teng, 1998). The degree of trust—or a partner's confidence that the other partner devotes appropriate effort—relates negatively to perceived behavioral uncertainty.

Also, risk influences decision making (Sitkin & Pablo 1992). Perceived risk in non-equity alliances, according to Baird and Thomas (1985), is a partner's assessment of how risky the particular consequences of effort are, in terms of the extent of uncertainty and confidence in conjectures. In an alliance context, perceived risk is a consequence of environmental uncertainty and trust in partner effort.

***H1a:** The greater the environmental change, the greater a partner's perceived risk.*

***H1b:** The less predictable the environmental change, the greater a partner's perceived risk.*

***H1c:** The greater a partner's trust, the lower that partner's perceived risk.*

Partners in alliances collaborate to achieve objectives and increase revenues. Agency theory suggests that outcome-based revenue sharing mitigates moral hazard potential (Jensen & Meckling, 1976). Partners that share revenues, as opposed to arrangements in which one partner compensates the other on the basis of expended effort, perceive payoff consequences as more risky (Bloom & Milkovich, 1999).

***H1d:** With a greater proportion of revenue sharing in alliances, partners' perceived risk increases.*

Risk propensity, which reflects the partner's risk-taking tendencies, also influences effort decisions. This study's conceptualization of risk propensity departs from definitions that imagine a stable dispositional attribute (Rowe, 1977) and therefore accounts for how the decision context affects the propensity to take risks.

2.1.2. *Decision context*

The decision context consists of frames, according to whether the decision signals gains or losses. According to prospect theory (Kahneman & Tversky, 1979), positively framed situations lead to risk-averse behavior, whereas negatively framed situations prompt risk-seeking behavior. An aspiration reference point also is central to theories of organizational risk-taking behavior (Shoham & Fiegenbaum, 2002). Partners in alliances likely define aspiration levels for alliance performance objectives. When anticipated performance falls below targeted levels, partners sense a loss context; when anticipated performance rises above such levels, partners infer a gain context.

H2a: *A partner's risk-taking propensity in an alliance increases (decreases) with a performance loss (gain) frame.*

Partners in non-equity alliances with revenue-sharing agreements similarly may perceive losses, because of the challenge associated with satisfying their income objectives. Partners that receive compensation for their expended effort within the alliance realize their aspiration level of total income without any risk, and this level corresponds to their anticipated overall income level. If some proportion of income depends on revenues earned through alliance performance though, partners judge the revenue-dependent proportion as risky. The difference between the level of income received for expending effort and the overall level of income anticipated from the alliance becomes manifest as an implied loss for the partner.

H2b: *A partner's risk-taking propensity in an alliance increases (decreases) with the*

revenue-sharing loss (gain) frame.

2.1.3. Parent characteristics

Three parent firm characteristics affect risk taking in alliances: organizational culture, the importance of the alliance, and the level of alliance-specific investments. Investments that are highly specific to an alliance, with little external value, represent sunk costs (Rindfleisch & Heide, 1997).

Thaler (1980) argues that sunk costs lead to risk-seeking behavior.

H3a: *The greater a partner's alliance-specific investment, the greater its risk-taking propensity in the alliance.*

Organizational tendencies to seek or avoid risk reflect an organization's cultural risk values (Douglas & Wildavsky, 1982). Deal and Kennedy (1982) argue that an organization's cultural risk values systematically encourage or discourage risk taking.

H3b: *The greater the overall tendency to take risks within a partner's organizational culture, the greater that partner's risk-taking propensity in an alliance.*

Drawing on resource dependence theory (Pfeffer & Salancik, 1978), this study includes a third parent characteristic to reflect the importance of the alliance to the parent. If the alliance is of critical relevance, the partner takes greater risk to meet alliance objectives. That is, risk-taking propensity increases with the overall value the parent assigns to the alliance outcomes.

H3c: *The greater the importance of an alliance to a partner, the greater that partner's risk-taking propensity in the alliance.*

2.2. Social reasoning in non-equity alliances

2.2.1. Interaction process characteristics

The interaction processes underlying social reasoning refer to partners' compliance tendencies, as well as their sense of accountability and obligation. Partners in reciprocal exchange

arrangements develop implicit understandings about the latter (Ring & Van de Ven, 1994). These understandings stem from interactions within the alliance (e.g., Endler & Magnusson, 1976; Kelman, 1961), so partners in non-equity alliances develop a sense of obligation that reflects their impression of being obliged to achieve alliance-specific objectives or expend appropriate levels of effort, prompted by their explicit or implicit arrangements with partners and the interaction processes.

Partners also perceive accountability, which involves justifying prior and ongoing actions. Accountability arises from a set of established procedures and relationships that vary in formality; an alliance member is accountable to its partner in the sense that the former has the right to call on the partner to justify agreed activities (Jackson, 1982). External or internal institutions, such as contractual agreements, impose such accountability. That is, a partner in a non-equity alliance forms a sense of accountability, which reflects its assessment of having to justify and being held accountable for expending effort or accomplishing objectives.

Compliance tendency is the third element of the social interactive process. Compliance is behavioral adherence to the wishes of an influential source, without necessarily changing attitudes. According to Hunt, Mentzer, and Danes (1987), compliance tendency reflects a partner's inclination to adhere to obligations and intentions to comply with elements of the alliance arrangements. In contrast, a sense of obligation or accountability reflects attitudes, rather than intentions. According to the theory of reasoned action (Ajzen & Fishbein, 1980), attitudes influence behavioral intentions, so a partner's senses of obligation and accountability should affect its compliance tendencies.

***H4:** The greater a partner's sense of (a) obligation and (b) accountability, the greater that partner's compliance tendency.*

2.2.2. *Partner effort*

In accordance with Ajzen and Fishbein (1980), intentions to comply and cooperate precede actual behaviors, such as the exertion of effort. Specific to the current study context, partners expend greater actual effort to leverage alliance capabilities (Gudergan, Devinney, Richter, & Ellis, 2012), when their compliance tendency (i.e., intention to comply) and cooperation tendency, encapsulated in their risk-taking inclination (i.e., intention to expend effort despite perceptions of risky consequences of that effort), are greater. The latter reveals the related influence of perceived risk and risk-taking propensity.

H5a: The greater a partner's compliance tendency, the greater that partner's effort.

H5b: Partner effort relates negatively to the perceived risk associated with the consequences of that effort.

H5c: Partner effort relates positively to risk-taking propensity.

H5d: The positive relationship between risk-taking propensity and partner effort is moderated by the perceived risk associated with the consequences of that effort.

3. Method

3.1. *Sample*

Data about 146 alliances among a sample of 1,500 organizations provide the basis for the empirical analysis. The response rate of 10% is suitable for assessing the hypotheses. A follow-up analysis shows that 29% of nonparticipants did not respond because their firm did not currently engage in any non-equity alliance. A comparison of early and late respondents does not indicate any significant differences. Therefore, nonresponse bias does not appear to be a concern.

The key informants are managers with operational responsibility for and knowledge about an alliance. They identified one non-equity alliance in which they participated, which

served as the point of reference for answering all questions. Harman's ex post one-factor test (Podsakoff & Organ, 1986) uncovers no "general factor" in the data. This confirmation implies the likely absence of any common method bias. The data quality thus appears sufficient for the empirical study. Significant multivariate skew and kurtosis measures (DeCarlo, 1997) indicate violations of the normality assumption.

3.2. *Construct measures*

Formative measurement models apply to partner effort, alliance-specific investments, sense of accountability, sense of obligation, performance loss/gain context, perceived risk, risk-taking tendency, compliance tendency, predictability of environmental change, environmental change, and trust. The remaining constructs—cultural risk orientation, revenue sharing, and revenue-sharing loss/gain context—use reflective measurement models. The measure of alliance importance uses a single item.

Regarding the reflective measurement models, the Cronbach's α and composite reliability values exceed the .5 threshold for exploratory research, indicating their reliability (Hair, Sarstedt, Ringle, & Mena, 2012). The average variance extracted (AVE) exceeds .5, in support of convergent validity; each model's AVE is greater than its squared correlation with any other model, indicating discriminant validity (Hair et al., 2012). For the formative models, variance inflation factors do not exceed 5 (Hair et al., 2012), and the weights are significant and positive. Therefore, the measurement models are suitable.

A confirmatory tetrad analysis (CTA) (Gudergan, Ringle, Wende, & Will, 2008) supports the measurement modes, with one exception. The unidimensionality and reliability assessments confirm the reflective mode for organizational risk-taking values, but the CTA does not offer clear support. The theoretical conceptualization suggests maintaining the reflective mode though.

3.3. *Estimation method*

This study draws on partial least squares structural equation modeling (PLS-SEM), in PLS-Graph 3.0 (Chin, 2001)—a well-substantiated method for models of high complexity but low theoretical support (Hair et al., 2012). In the relatively underdeveloped field of non-equity alliance research, relevant characteristics remain unclear, so this study involves theory building, rather than theory testing.

4. Results

Table 2 summarizes the results. The predictive constructs explain the dependent constructs adequately and provide significant support for most of the hypothesized relationships.

Table 2 about here

4.1. *Effects on partner effort*

Partner effort results from risk-related behavioral decision-making processes, as well as social processes. A partner's effort increases with a greater risk-taking tendency, but the perceived risk associated with that effort moderates the effect. That is, the interaction of perceived risk and risk-taking propensity (H5d) influences the effort a partner contributes to an alliance. Neither perceived risk (H5b) nor willingness to take risk (H5c) matter separately. The partner's compliance tendency explains additional variation in the effort expended (H5a).

Models that attempt to explain partner effort solely on the basis of either risk- or social process-related aspects cannot capture all the intricacies. Estimations stemming from alternative models that focus on one perspective or their partial aspects explain less variance in partner effort. The proposed model of reasoned cooperation and compliance overcomes this limitation by addressing both aspects and thereby explaining the determinants of partner effort more comprehensively.

4.2. *Perceived risk*

A partner's perception of the risks that characterize the effort contributed to an alliance reflects three factors: unpredictability of environmental change, trust, and level of revenue sharing. Environmental change in itself does not influence a partner's perception of risk (H1a); the degree to which such change can be predicted matters instead. The unpredictability of environmental change thus explains the level of risk associated with the output of effort, as a result of not being able to predict changing environmental circumstances (H1b). Trust explains this level of risk as a result of confidence in the partner's contributions (H1c). Both general business and alliance-specific aspects thus influence perceived risks. The level of revenue sharing also has a significant, positive effect on perceived risks (H1d), related to the allocation of payoffs to accomplish outcomes or encourage the input of effort. This aspect is alliance specific. Although perceived risks in non-collaborating organizations result from the unpredictability of environmental change, in alliances, both trust and the level of revenue sharing exert additional significant effects.

4.3. *Risk-taking tendency*

A partner's loss/gain context, alliance importance, alliance-specific investment, and organizational risk-taking values affect its tendency to take risk. The results support the relationship between the revenue sharing loss/gain context and risk-taking tendency (H2b), but limited support arises for the relationship between the performance-related loss/gain context and risk-taking tendency (H2a). A partner's willingness to take risk in an alliance increases with a greater reliance on revenue sharing and, possibly, lower performance levels. The results also suggest that a partner takes greater risk when the importance of the alliance (H3c) and alliance-specific investments (H3a) of the parent are greater. Organizational risk-taking values (H3b) have a significant effect on the partner's propensity to take risk. Thus, regardless of the alliance

conditions, a partner's organizational culture pre-establishes its tendency to avoid or take risks in the alliance.

4.4. *Compliance tendency*

The estimations show that both a partner's sense of accountability (H4a) and sense of obligation (H4b) affect its compliance tendency.

4.5. *Summary*

The findings provide partial support for prospect theory and strong support for interactional- and social psychology-based perspectives on decision making in alliances, including notable substantiation of the hypothesized model of reasoned cooperation and compliance in non-equity alliances. A closer examination of the direct, indirect, and total effects of the antecedents in this study (see Table 3) reveals that social processes that lead to a tendency to comply have a greater effect on the partners' contributions of effort to the alliance than does risk-based reasoning. The total effects of a sense of accountability and sense of obligation on partner effort are considerably greater than those of any other factor. Also, organizational risk-taking values have a strong total effect, reflecting the parent-specific state that affects partner effort in non-equity alliances.

Table 3 about here

5. **Discussion**

5.1. *Contributions to theory*

This investigation of a theoretical model of reasoned cooperation and compliance in non-equity alliances supports the thesis that both procedural rationality and social interaction processes matter for alliance decision making. The findings provide evidence of influences of risk-based and social interaction aspects; both the interaction of risk-taking tendency and

perceived risks, as well as compliance tendency, enter alliance decision-making processes that determine partners' input of effort. These decision-making processes constitute social rationality. The results, which establish the existence of and some insights about the partners' cooperation and compliance, as well as their antecedents, support the theory of planned behavior as a means to explain decision making in non-equity alliances. The findings are consistent with the adapted notion of reasoned risk-taking behavior articulated by Carpenter et al. (2003) and research on social dilemmas and compliance behavior (e.g., Brewer & Kramer, 1986).

Sitkin and Pablo (1992) propose that decision making in risky situations and the associated risk-taking behavior depend on several factors; this study offers some empirical support for those predictions. For example, characteristics related to the partner's risk perceptions and risk-taking propensity matter; decision context characteristics related to the framing of the situation in which the decision takes place matter too; and parent characteristics related to perceptions of sunk costs that may result from investing in the alliance and the cultural risk values of the parent organization make a difference.

This study offers partial support for prospect theory as a behavioral theory of risky decision making. The results indicate significant support for the relationship between a revenue-sharing loss/gain context and risk-taking tendency but only limited support for that between a performance-oriented loss/gain context and this tendency. Prospect theory suggests that sunk cost perceptions foster risk taking, and the present results support this notion; alliance-specific investment has a significant positive effect on the partner's risk-taking tendency.

5.2. *Managerial implications*

Alliance managers' intentions to meet the terms of an alliance agreement relates to their willingness to exert effort, even if the outcomes are risky. Some managers might believe or

intend to make decisions purely on the basis of their evaluation of risky outcomes, and others claim that they always comply with specified agreements, but most combine risk-based assessments with a tendency to act in accordance with agreements when determining how much effort to devote to an alliance. Managers should expect that partners in a non-equity alliance might deviate from agreements, according to their risk-based assessment. Notwithstanding these conclusions, social processes underlying compliance have a greater role than the risk-based decision-making processes. Thus, alliance managers should seek to manage social dimensions within an alliance.

Building trust in alliances is important; greater confidence in a partner reduces the risk associated with devoting effort and increases cooperative behaviors. In turn, positive effects accrue for the amount of effort a partner contributes. Managers should behave in ways to improve their trustworthiness, as well as interact with others to strengthen their sense of obligation and accountability, which should then strengthen compliance.

5.3. *Conclusion*

This study specifies the determinants of cooperation and compliance in non-equity alliances. The findings stress the need to understand the components of bounded and social rationality in decision-making processes and thus clarify the intricacies of decision making in non-equity alliances.

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Figure 1. Model of reasoned cooperation and compliance in non-equity alliances

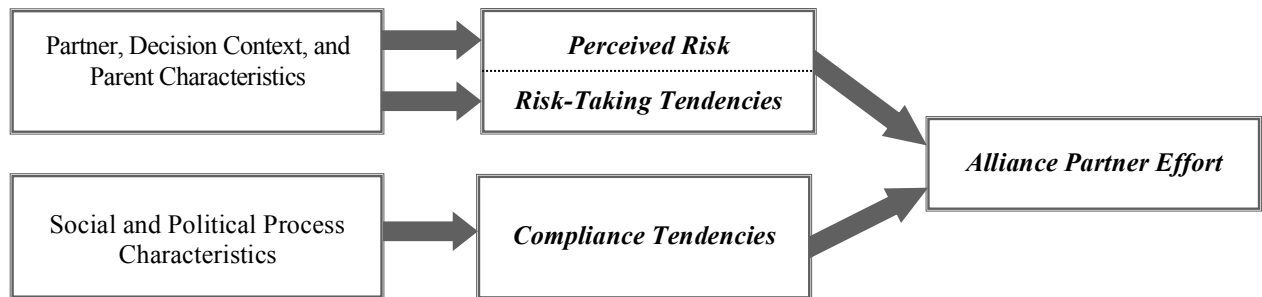


Table 1. Constructs

Construct Name	Construct Definition
Partner Effort	A partner's activities enabling the execution of alliance-specific activities.
Environmental Change	A partner's judgment of changes in components of the environment in which the alliance operates.
Unpredictability of Environmental Change	A partner's difficulty to predict future changes in components of the environment.
Trust	A partner's faith that the other partner is devoting appropriate effort to assist in the achievement of specified objectives.
Perceived Risk	A partner's assessment of how risky particular consequences of effort are in terms of probabilistic estimates of the degree of consequence uncertainty, controllability of that uncertainty, and confidence in those estimates.
Risk-taking Propensity	A partner's current tendency to take risks.
Loss/Gain R-S Context	A partner's perception of partnership-specific certain revenues below/above aspiration levels.
Loss/Gain Performance Context	A partner's perception of alliance-specific performance below/above anticipated aspiration levels.
Alliance-specific Investment	Initial investments made that are necessary to form a foundation for alliances and that cannot be employed easily in other domains of a partner's business.
Alliance Importance	The extent to which the alliance is of particular relevance to an organization.
Organization's Cultural Risk Values	Organizational tendencies to prefer uncertainty versus certainty and risk seeking versus risk avoidance.
Sense of Obligation	A partner's feeling of being obliged to achieve alliance-specific objectives and/or to devote appropriate levels of effort.
Sense of Accountability	A partner's perception of having to justify and be held accountable for devoting effort and/or accomplishing objectives.
Compliance Tendency	A partner's inclination to honor obligations.

Table 2. Structural model results

	Hypothesis	Proposed effect	Path coefficient	Sig. level
Effects on Partner Effort			[R ² =0.43]	
Perceived Risk [PR]	<i>H5b</i>	–	–0.22	ns
Risk-Taking Tendency [RTT]	<i>H5c</i>	+	0.19	ns
Interaction PR * RTT	<i>H5d</i>	+	0.12	*
Compliance Tendency	<i>H5a</i>	+	0.36	***
Effects on Perceived Risk			[R ² =0.45]	
Environmental Change	<i>H1a</i>	+	0.21	ns
Unpredictability of Environmental Change	<i>H1b</i>	+	0.31	**
Trust	<i>H1c</i>	–	–0.32	***
Revenue-Sharing	<i>H1d</i>	+	0.26	****
Effects on Risk-taking Tendency			[R ² =0.44]	
Loss/Gain Context Rev./Sharing	<i>H2b</i>	+	0.13	**
Loss/Gain Context Performance	<i>H2a</i>	–	–0.03	ns
Alliance Importance	<i>H3c</i>	+	0.32	****
Org. Risk-taking Values	<i>H3b</i>	+	0.35	****
Alliance Investment	<i>H3a</i>	+	0.13	*
Effects on Compliance Tendency			[R ² =0.44]	
Sense of Obligation	<i>H4a</i>	+	0.38	****
Sense of Accountability	<i>H4b</i>	+	0.35	**

[Significance level (p-value): **** p < .001, *** p < .01, ** p < .05, * p < .1, ns = non significant]

Table 3. Direct, indirect, and total effects

	Proposed Model		
	Direct Effects	Indirect Effects	Total Effects
Effects on Partner Effort	<i>[R²=0.43]</i>		
Perceived Risk [PR]	-0.22		-0.22
Risk-Taking Tendency [RTT]	0.19		0.19
Interaction PR * RTT	0.12		0.12
Compliance Tendency	0.36		0.36
Effects on Perceived Risk	<i>[R²=0.45]</i>		
Environmental Change	0.21	-0.05	0.16
Unpredictability of Environmental Change	0.31	-0.07	0.24
Trust	-0.32	-0.07	-0.25
Revenue-Sharing	0.26	-0.06	0.20
Effects on Risk-taking Tendency	<i>[R²=0.44]</i>		
Loss/Gain Context Rev./Sharing	0.13	0.03	0.16
Loss/Gain Context Performance	-0.03	-0.01	-0.04
Alliance Importance	0.32	0.06	0.38
Org. Risk-taking Values	0.35	0.07	0.42
Alliance Investment	0.13	0.02	0.15
Effects on Compliance Tendency	<i>[R²=0.44]</i>		
Sense of Obligation	0.38	0.14	0.52
Sense of Accountability	0.35	0.13	0.47