Abstract

This paper develops a model based on elements of transaction cost economics (TCE) and the trust literature to explain how managers’ perceptions of goodwill trust, competence trust and characteristics of the relation will influence perceptions of relational risk and performance risk, and lead to a choice of an equity or non-equity alliance form and management control system.

A case study of an alliance in the construction industry is drawn on to examine these relationships. The case focuses on the first twelve months of the pre-alliance and the interim phase of the relationship. The processes that were used to trust and risk during the pre-alliance are outlined and the choice of the alliance structure is compared to the model. Where there is high uncertainty and high asset specificity, control should be more difficult to achieve in a non-equity alliance, compared to an equity alliance. However, this case outlines the practices and activities that were used to develop trust, reduce risk and achieve control in a non-equity arrangement.
Trust, Risk and Control in Strategic Alliances: A Case Study in the Construction Industry

1. Introduction

Strategic alliances are not new. They have been with us for many decades. However, there is a renewed interest and awareness of these types of activities, in many cases due to increased opportunities provided by developments in global markets and technology (Nooteboom, 2004). Also, pressures for organizations to improve their competitiveness have encouraged them to seek collaborations with other organizations, to access complementary competences that would otherwise be too difficult or time consuming to develop in-house.

Since the 1980s, strategic alliances have been the subject of research interest in a variety of different literatures. Both empirical and theoretical papers cross many academic fields including engineering, management, marketing, accounting and international business. Strategic alliances account for a large proportion of organizational activity, yet there is relatively limited empirical research has been devoted to understanding governance\(^1\) and control of these arrangements. Much of the research has been normative or anecdotal. The aim of this paper is to draw on this literature and on a case study to consider how trust and risk influence the choice of alliance structure and control system.

Strategic alliances are interfirm cooperative arrangements aimed at achieving the strategic objectives of the partners (Das and Teng, 2002). They provide a way for organizations to pool their resources to create value that each partner could not achieve if they acted alone (Inkpen and Ross, 2001). These voluntary organizational relationships involve meaningful and durable exchange, sharing, or co-development of new knowledge, products, services or technologies (de Rond, 2003, p. 90). Strategic alliances come in many forms, including horizontal alliances between competitors, vertical alliances between buyers and suppliers, and diagonal alliances between firms in different industries (Nooteboom, 1999, p. 1).\(^2\) They can take

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\(^1\) The literature uses the term governance in several ways: in a narrow sense to indicate the ownership structure/formal contract of an alliance, or more broadly to describe both the structure and the MCS. To reduce ambiguity, in this paper in most cases the two terms governance structure and control systems/MCS will be used separately.

\(^2\) In the literature the terms alliance and strategic alliance seem to be used interchangeable, and there appears to be no difference in the two terms (Inkpen and Ross, 2001)
the form of outsourcing, franchises, joint ventures, joint product development, joint research and
development and joint marketing arrangements. However, to describe an alliance in these ways
does not always capture the essence or scope of the arrangements, and is not very helpful when
the focus is on analysing the relationships and understanding the nature of alliance structure and
control systems. A common way of viewing alliances is to represent them as equity or non-
equity alliances, and this implies certain governance and control arrangements. Alliance structure
is not predetermined by the purpose of the alliance and various forms can be used to achieve the
same strategic objectives (Das and Teng, 2001b).

Strategic alliances are said to be a source of competitive advantage (Ireland et al., 2002;
Das and Teng, 2000). However, there is also a growing body of evidence of a high failure rate in
such arrangements (Gerwin, 2004; de Rond, 2003). One cause is the high level of risk associated
with alliances, compared to “in-house” activities (Das and Teng, 2001a). Risk may be caused by
the difficulties inherent in gaining cooperation with partners who have different objectives and
orientations, and the potential for partners to opportunistically exploit the dependence
relationship (Dekker, 2004). It has been argued that appropriate governance structures and
management control systems (MCS) and trust, may work to reduce risk and decrease the
probability of failure (Das and Teng, 2001a; Speklé, 2001; Dyer, Kale and Singh, 2001;
Nooteboom, 2004), and there have been several calls to extend the domain of MCS to consider
the nature of these inter-firm control arrangements (Otley, 1994; Hopwood, 1996; Speklé, 2001).

In recent years, the relationship between MCS and trust in outsourcing and supplier
relationships has been the focus of several case studies (Seal and Vincent-Jones, 1997; van der
Meer-Kooistra and Vosselman, 2000; Das and Teng, 2001a, 2001b; Mouritsen, Hansen and
Hansen, 2001; Langfield-Smith and Smith, 2003; Dekker, 2003, 2004; Cooper and Slagmulder,
2004). There is also theoretical work that has focused on risk and control (Das and Teng, 1996;
McCutcheon et al., 2004) or on risk, trust and control (Das and Teng, 2001b; Nooteboom, 2004)
in strategic alliances. However, there are limited empirical studies that have considered the role
that trust and risk plays in influencing the choice of governance structure and the design of
management control systems (MCS) under various forms of strategic alliances. Thus, the aim of
this paper is to draw on these theoretical and prior empirical studies, to consider how trust and
risk influence choices of governance structures and control systems in strategic alliances. A case
study of a strategic alliance in the construction industry will be drawn on to illustrate the relationships.

This paper is structured as follows. In the following section, concepts from transaction cost economics are considered, and combined with theories of trust and risk to form a model of the relationships between trust, risk, relational characteristics, alliance governance structure and MCS. The next section describes a case study of an alliance in the construction industry which focuses on the processes of forming and managing the relationship in the pre-alliance and interim alliance stages. The case is then analysed to consider the relations in the theoretical model. In the final section contributions of this research are summarised and areas for further research are presented.

2. Theoretical Framework
The most common theoretical framework used in research on strategic alliances is transaction cost economics (TCE) \(^3\) (Anderson and Sedatole, 2003) and this has been used as a context for viewing the choice of control systems in various outsourcing and strategic supplier relationships, which are forms of strategic alliances (see, for example, Gietzmann, 1996; Seal, Cullen, Berry and Ahmed, 1999; van der Meer-Kooistra and Vosselman, 2000; Speklé, 2001). In this section, basic concepts from TCE will be outlined and combined with ideas from the trust and risk literature to explain how they influence the choice of governance form and management control systems in strategic alliances.

Transaction cost economics
Under TCE, governance structures can be characterised as one of three forms: markets, hybrids (including most strategic alliances) and hierarchies (Williamson, 1991). Three aspects of transactions\(^4\) determine the appropriate mode of governance: the frequency of the transaction, the uncertainty encompassed in those transactions, and the asset specificity of the transactions (Williamson, 1979). In strategic alliance research Nooteboom (2004) suggests that the level of

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\(^3\) The resource-based view or competency perspective (Prahalab and Hamel, 1990; Hodgsen, 1998; Teece, Pisonano and Shuen, 1997) is another common perspective, where strategic alliances are considered vital to extending a firm’s distinctive competences (Colombo, 2003). Social exchange theory, resource dependence and bargaining theory have also been used in the study of strategic alliances.

\(^4\) A transaction is an event that takes place during a process of exchange, which includes either a claim to profits and/or decision rights (Nooteboom, 1999, p. 17).
analysis is the *relation*, not the transaction, and thus these three aspects can be renamed as characteristics of the relation. Uncertainty is often captured as the predictability of the outcomes of the transaction (task programmability) and the measurability of the transaction, or in this case, the relation.

TCE assumes that managers make their governance decisions to minimise costs, and to reduce risk (risk will be considered in more detail in a later section). These costs include the search cost to find a partner and the costs of preparing, executing and monitoring a contract or agreement, including the cost of enforcement and applying sanctions and loss of specific investments if the relation is terminated. Rational behaviour by managers is assumed, but cannot be achieved as managers are limited by behavioural and environmental uncertainty (Nooteboom, 1999, p. 17). Behavioural uncertainty relates to the intentions and uncertainties of the partners. Environmental uncertainty is concerned with conditions that may affect the execution of agreements and the outcomes of cooperation. Contracts that foresee and regulate all possibilities cannot be written and partners are likely to take advantage of any loopholes in contracts to pursue their own self-interest. Opportunistic behaviour is “self-interest with guile” (Williamson, 1975, p. 9) and will include behaviours such as shirking, withholding or distorting information, failure to fulfil promises, and appropriation of partners’ technology, information or staff (Parkhe, 1993; Das and Teng, 2001b).

Asset specificity is of particular significance in explaining the choice of governance structure. Asset specificity is the degree to which an asset that is dedicated to the alliance can be redeployed to some alternative use without sacrifice of productive value. This is sometimes called switching costs and can be also viewed as an opportunity loss associated with the early termination of a relationship (Speklé, 2001). Asset specificity can take several forms: site or location specificity, physical assets specificity, human assets specificity (training, knowledge), brand name or reputational capital, and dedicated capacity (Williamson, 1991; Nooteboom, 2004). Under TCE, it is assumed that a high level of asset specificity creates dependency between the parties in a relationship, which increases switching costs and leads to difficult governance situations.

Markets, hybrids and hierarchies rely on different control mechanisms to enable successful contracting. Whereas markets rely on free competition to ensure control and hierarchies rely on authority, hybrids generally entail long-term contracts. Hybrids arise when
transaction costs are sufficiently high to make market transactions too costly, but not high enough to lead to vertical integration (hierarchies). Hybrid governance structures are long term contractual relations that preserve autonomy by providing added relation-specific safeguards (Williamson, 1996, p. 378). The safeguards often include “hostage arrangements”. For example, a party to the relationship may invest in assets that can only be fully recovered if the contract is executed successfully. High levels of uncertainty associated with hybrids, may make it difficult to specify ex ante performance criteria within contracts, and in the face of high asset specificity, compensating control mechanisms such as specialised dispute resolution mechanisms may need to be put in place.

TCE was not developed to specifically address control in strategic alliances. Hence, it is incomplete or weak in providing explanations for the choice of governance arrangements or the design of control systems (de Rond, 2003, p. 10). TCE models have been criticised for not considering adequately the social context within which transactions are embedded. It has been argued that social embeddedness not only influences the design of the control systems, it also influences the relationship and each party’s behaviour, including the level of opportunism (Granovetter, 1985; van der Meer-Kooistra and Vosselman, 2000). While TCE has been used widely to guide alliance research, it has been criticised as being unable to explain how the relational aspects of cooperation evolve over time and for ignoring the effect of trust, implicit modes of governance and reputation as a means for reducing the risk of opportunism (de Rond, 2003; Faulkner and de Rond, 2000; van der Meer-Kooistra, 2000). In particular, trust has emerged as an important way of reducing opportunism, and as a factor in the design and study of control systems (Ring and Van de Ven, 1992; Gietzmann, 1996; Nooteboom Berger and Noorderhaven, 1997). Thus, several researchers have used a modified form of TCE to studying strategic alliance and the design of MCS, which takes account of the role of trust (Nooteboom et al., 1997; van der Meer-Kooistra and Vosselman, 2000; Langfield-Smith and Smith, 2003; Nooteboom, 2004). This is the approach that is taken in this paper.

Types of alliance structures
Several typologies of alliance structures have been theorised to organise and research the large number of different types of alliance forms. While, most of these typologies have not been
widely accepted in the literature, the equity versus non-equity dichotomy is used frequently in management and control research (Das and Teng, 2001b).5

Equity and non-equity alliances

An equity alliance (also called an institutional or hierarchical alliance) operates as either a distinct operating entity (e.g. joint venture) with its own authority structure, or involves an equity investment by one of one partner in the other (Doz and Hamel, 1998; Gerwin, 2004). Some authors distinguish between joint ventures and other types of equity arrangements. Joint ventures involve the creation of a separate entity by two or more partners, so that control of the alliance resides with the partners and also with the joint venture company. Autonomous management structures and hierarchical control systems found in standalone organizations may be used in such ventures.

A non-equity alliance (or contractual alliance) is formed among otherwise independent partners, based on written agreements and verbal understandings (Doz and Hamel, 1998). These alliances are medium or long-term relationships. An important source of control is the written agreement or contract and typically these alliances lack an ultimate standalone decision-making authority (Gerwin, 2004). Non-equity alliances can take a unilateral or bilateral form (Das and Teng, 2001a; Oxley, 1997; Colombo, 2003).

Unilateral contractual alliances involve well-defined transfers of property rights. Examples include licensing agreements, distribution agreements and some research and development contracts. Each partner undertakes their obligations independently, so contracts tend to be complete and very specific as to the expectations of each party. Limited coordination and cooperation is needed, and partners have limited engagement with each other.

Bilateral contractual alliances involve cooperation and coordination as both parties work together to achieve the alliance outcomes. Examples include joint research and development, joint marketing, joint product development, and some forms of supplier partnerships and outsourcing arrangements. The activities of partners are sometimes integrated and linked tightly. Contracts may be open-ended and incomplete. Although not always acknowledged in the

5 Other typologies include the degree of vertical integration, from free market transactions to hierarchical (Lorange and Roos, 1992); ad-hoc pool, consortium, project-based joint venture and full-blown joint venture (Lorange and Roos, 1990); recurrent contracting and relational contracting (Ring and Van de Ven, 1992); unstructured co-production projects, semi-structured projects, business-based joint ventures (Dussauge and Garrette, 1995).
literature, these alliances may contain some of the mechanisms found in equity alliances, such as a dedicated managerial hierarchy, joint work teams and the mutual exchange of hostages (Oxley, 1997). However, in the literature there is also an assumption that these control advantages are more readily available and work more effectively in equity alliances.

The choice of alliance form
Alliance structure is important as it provides a mode of control that is established through some form of ownership or formal contract (Bierly and Coombs, 2004). Note that alliance structure is seen as a management choice and is not predetermined by the purpose of the alliance. Thus, various alliance forms can be used to achieve the same strategic objectives (Das and Teng, 2001b). TCE has been used to explain the equity—non-equity choice.

Under TCE, it is argued that managers will favour an equity arrangement over a non-equity alliance where there are frequent transactions, uncertainty is high, and there is high asset specificity. In these situations the potential for opportunism is high. Equity alliances suit alliances where there are many partners, and where there is broad product, technological or activity scope (Colombo, 2003). These aspects contribute to increasing uncertainty and the frequency of transactions. Equity arrangements are said to lead to lower transaction costs than found in non-equity alliances. The shared ownership is assumed to create incentive alignment and an autonomous hierarchical structure provides superior monitoring and control mechanisms. Thus, equity alliances allow firms to deal effectively with contractual and appropriability hazards that are inherent in many alliances, particular where there is the development, transfer or exploitation of technological knowledge (Oxley, 1997; Gulati and Singh, 1998). Under equity arrangements, goal alignment between the partners minimises opportunism, and there is a mutual hostage situation as both partners have made substantial investments and are dependent on each other’s performance. However, equity arrangements are limited in their flexibility, as they are difficult and costly to terminate. They can also result in unintended knowledge transfer (leakage) among employees of partners who are working closely together, and conflicting organizational cultures and different control system perspectives can create conflict (Bierly and Coombs, 2004).

Under TCE, non-equity alliances are assumed to have weaker and fewer control mechanisms than equity alliances (Poppo and Zenger, 2002; Reuer and Arino, 2002; Lui and Ngo, 2004). Thus, contracts are used to limit opportunism in two ways. First, they can increase
the cost of self-interest activities by including penalties for the violation of contracts. Second, contracts can reduce monitoring costs by explicitly outlining the nature of the relationships between partners and the activities that will be undertaken by each partner (Parkhe, 1993; Lui and Ngo, 2004). However, in non-equity alliances contracts cannot be written to cover every situation and contingency, so other mechanisms must be relied on to effect control, particular when the probability of opportunism is expected to be high.

The delineation between equity and non-equity locates where the decision rights in an alliance reside, and hence, dictates where and how control is exercised. There is an assumption that in non-equity alliances major decisions are exercised by the partners, whereas in equity alliances control resides within the alliance itself. Thus, under TCE, where there are frequent transactions, high uncertainty and high asset specificity, firms will choose to form equity, rather than non-equity alliances. Where there are less frequency transactions, lower uncertainty and lower asset specificity firms will form non-equity alliances. However, it has been argued that minimising transaction costs is just one component of the structural decision, and managers’ perceptions of risk will also drive the choice of alliance structure (Das and Teng, 1996).

Risk and alliance structure
All strategic alliances entail risk, and alliance structures provide a source of control as different forms can mitigate or add to the total risk of the alliance. Thus, managers’ perceptions of the risk inherent in a prospective alliance can drive the choice of alliance.

Relational risk is said to be unique to collaborative ventures, and is the probability and consequences of not having satisfactory cooperation with alliance partners (Das and Teng, 1996). Opportunistic behaviour by any partner is a source of relational risk. Another source of relational risk can arise from expected inequities in payoffs to partners in alliances. Equity is often interpreted as the proportionate payoff, given ones input. Some researchers argue that a high level of perceived inequities may even discourage firms from entering into alliances. Nooteboom (2004) outlines four types of relational risk: loss of resources, hold-up risk, spill-over risk and psychological/social risk.

Performance risk is more externally-focused and is the risk of not achieving the alliance objectives, even when the partners do cooperate fully (Das and Teng, 2001a). Unlike relational risk, this form of risk is present in all types of business operations, and can relate to financial risk.
and technological risk. Performance risk can arise from adverse government regulations, volatility of the market and a lack of competence within the partners. These two forms of risk are independent of each other, but together make up the total risk of the alliance.

Das and Teng (1996, 2001b) claim that firms will choose certain structural arrangements depending on which risk is perceived to be the greater threat. Equity alliances are said to be better at mitigating relational risk and so will be chosen \textit{when relational risk of the prospective alliance is perceived to be high}. The control opportunities, alignment of interests and reduced performance ambiguities that accompany equity structures will allow a firm to reduce the level of relational risk. Relational risk may be high when firms have committed property resources to the alliance (high asset specificity) that need protection, and where there is high uncertainty and frequent interactions. In these cases, the potential for opportunistic behaviour is high and equity, contractual and managerial control mechanisms may all be used to reduce relational risk and provide control. Bierly and Coombs (2004) and McCutcheon \textit{et al}. (2004), like many other researchers, focus on equity arrangements as a means of reducing risk, achieving control and ensuring success. Non-equity alliances tend to escalate the level of relational risk, so if managers perceive relational risk in a prospective alliance is high, then choosing a non-equity alliance will make this an even greater problem.

Where \textit{performance risk is the major exposure}, whether due to lack of partner competence, regulation change or other external shocks, flexibility may need to be high to allow for adaptation and change in the alliance arrangements. Non-equity alliances are more flexible, and the level of commitment needed by the partners is less than for an equity alliance. Short term contracts associated with non-equity alliances allow the firm to change the partner, change the contract or even terminate the alliance (Anderson and Sedatole, 2003). Equity alliances tend to escalate performance risk due to the high asset specificity and high costs of governance and high costs of failure, and so would not be chosen if initial perceptions of performance risk in a prospective alliance were high. While task uncertainty and asset specificity may influence the level of perceived relational risk, they do not impact on perceived performance risk.

In summary, managers will choose to form an equity alliance if they assess relationship risk to be is more dominant than performance risk, and will choose to form a non-equity alliance if performance risk is considered more dominant than relationship risk.
Trust and risk

Trust is said to be an important determinant of both alliance governance structure and the subsequent design of control systems. Several researchers have focused on the role of trust in interfirm relationships and control (see, for example, Zaheer and Venkatraman, 1995; Chiles and McMackin, 1996; Gietzmann, 1996; Nooteboom et al., 1997; Seal and Vincent-Jones, 1997; Dekker, 2004; Chenhall and Langfield-Smith, 2003; Langfield-Smith and Smith, 2003). However, it can be argued that trust influences the choice of alliance structure through managers’ perceptions of risk.

Trust may develop over time through processes of learning and adaptation, which are essential to the strengthening of the relationship between partners, making the relationship more durable in the face of conflict and encouraging interactions between partners involving knowledge exchange and promotion of each other’s interests (Johanson and Mattsson, 1987). Close relationships with alliance partners may involve the sharing of information, joint product and process development and joint cost improvement activities, and trust allows such alliances to flourish. It has been argued that certain minimum levels of trust are essential in all inter-firm relationships, as trust reduces the possibility of opportunistic behaviour (Axelrod, 1984; Bradach and Eccles, 1989; Birnberg, 1998). In addition, trust may increase the predictability of mutual behaviour through each party honouring commitments and allowing partners to deal with unforeseen contingencies in mutually acceptable ways (Sako, 1992, p. 37).

Trust is a difficult concept to study as it has been defined and classified in many ways. Most definitions of trust focus on exposing oneself to vulnerability. A simple definition is that trust is having confidence that one’s expectations will be realised (Luhmann, 1979). Other definitions suggest that trust entails positive expectations regarding the other in a risky situation (Gambetta, 1988), and includes adopting a belief, without having full information to confirm that belief (Tomkins, 2001). It has been argued that trust is particularly relevant to alliances, as trust is only important in situations where there is risk (Luhmann, 1988; Coleman, 1990; Sako, 1992), and risk management is a critical aspect of alliances (Ring and Van de Ven, 1992; Das and Teng, 2001b).

While many definitions of trust exist, two definitions of trust have emerged as particularly relevant to the formation and management of strategic alliances. These are
competence trust and goodwill trust (Sako, 1992).\textsuperscript{6} \textit{Competence trust} focuses on perceptions of ability and expertise, and is the “expectation of technically competent role performance” (Barber, 1983, p.14). In an alliance, competence trust relates to a partner’s ability to perform according to the specified agreement or contract (Nooteboom, 1996). In contrast, \textit{goodwill trust} can be defined as perceptions of a partner’s intention to perform in accordance with those agreements (Ring and van de Ven, 1992; Nooteboom, 1996). Goodwill trust is associated with integrity, responsibility and dependability (Das and Teng, 2001a). While these forms of trust will be present to some extent in the early stages of an alliance, they can also develop over time through repeated interactions and experiences.

Das and Teng (2001b) argued that certain forms of trust are important in reducing risk. Specifically, managers’ initial assessment of goodwill trust in partners is important in reducing perceived relational risk, and initial assessments of competence trust can help reduce perceptions of performance risk. Goodwill trust is likely to develop over time, but this may be more important to the success of equity alliances, compared to non-equity alliances, due to non-equity alliances greater reliance on contractual control (Das and Teng, 2001b). Equity alliances are said to entail greater interdependencies and interactions, so goodwill trust can become more relevant to ensuring success. When competence trust is perceived to be high, this may reduce performance risk, which is important in both equity and non-equity alliance.

Thus, high levels of goodwill trust will reduce perceived relational risk and high levels of competence trust will reduce perceived performance risk.

\textbf{Alliance structure and control systems}

The prior sections have proposed that managers’ perceptions of trust and risk at the start of an alliance relationship may influence the choice of alliance structure. As different alliance structures encompass certain control opportunities, the control system design may differ for each type of alliance. Das and Teng (2001a) provide an analysis of the dimensions of trust, risk and control that suit different alliance types. They suggest that high relational risk associated with an equity alliance can be reduced through the development of goodwill trust, behaviour controls and

\footnote{A third form of trust that has been referred to in strategic alliance research is \textit{contractual trust}, which is based on the moral standard of honesty, and rests on an assumption that the other party will honour the agreement, whether the agreement is in writing or not (Sako, 1992; van der Meer-Kooistra and Vosselman, 2000). The higher the level of contractual trust that a firm has in a partner, the less need there is to gather information to prevent or reduce opportunistic behaviour. Contractual trust is not included here as it may not be distinct from goodwill trust.}
social controls. Also, perceived performance risk, often associated with a non-equity alliance can be reduced through the development of competence trust, output control and social control.

**Summary**

In this section the relations between the relation characteristics, trust, risk, choice of alliance structure and design of MCS have been proposed. These relations are summarised in Figure 1. The focus of this analysis is on managers’ perceptions of trust and risk in the *pre-alliance stage*. It is generally assumed that optimum choices are made prior to forming the alliance, and the choice of design of management control systems is made by taking into account that structural choice. However, trust will continue to develop over time as the alliance proceeds, to further reduce both perceived and actual relational risk and performance risk, and this will impact on the effectiveness of the management control package. Control in an alliance is achieved through a combination of the control aspects inherent in the chosen structure, specifically designed control mechanisms and the operation of trust.

Insert Figure 1 here

**3. Case Study: WaterCom Wastewater Alliance**

The focus of this case study is on the events leading up to the alliance, the processes that took place during the interim alliance and the early days of the formal alliance. These events are summarised in Table 1.

Insert Table 1 here

**Background**

In 2002, managers at WaterCom considered the various organizational and contractual arrangements that could be used to undertake the upgrade of three waste water plants. WaterCom is a public sector entity and so operates with accountabilities to several stakeholders: the WaterCom Board, the local government authority (AB Council) that owns it, and the community. It has a strong engineering focus and a history of large scale asset construction and management.

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7 This case is based on interviews with managers who were involved in the formation of the alliance and were part of the alliance management team, that were conducted in April and May 2004. These managers were employed by WaterCom and one of the partners. The researchers were also able to view the workshop orientation material, the workings of the total cost estimate, and on-line material that related to the alliance. Several details of the alliance have been changed to protect confidentiality.
WaterCom is responsible for delivering the capital programme and maintenance program for water supply and sewerage for the AB Council, which covers one of the largest local government areas in Australia.

Historically, WaterCom delivered all construction projects in-house. In the 1980s, they had a large design capacity and large labour construction force. However, over time it became difficult to compete financially with the large privately-owned construction companies, and WaterCom started to enter into design and development contracts. In these collaborations WaterCom completed the process design, and the design and construction of the plants were contracted out, using a fixed cost contract. The contractors were responsible for delivering plants that met specifications, and WaterCom was responsible for making sure that the plant operated as required for AB Council. Some of these contracts were successful but others resulted in cost overruns and contractual issues, as well as performance disputes. The next stage was to use formal partnering. This involved working with facilitators to develop communication strategies and ways of operating as a partnership with the construction companies. The major problem with this approach was that when there were problems and disputes, all parties reverted to the contract for resolution and the atmosphere tended to be antagonistic.

Thus, WaterCom had a long history of completing construction contracts using partnering arrangements, and sometimes joint ventures for non-construction projects. These collaborations had only achieved varying levels of success, and there was some debate within WaterCom about the deficiencies of the past contracting arrangements. However, some managers in WaterCom and the parent body were aware that an alliance model had been used successful in some very high profile major construction projects, involving public and private companies. One of these projects was an inner-city bypass, completed by another arm of AB Council, so there was considerable support by some Council managers for using an alliance model for the proposed wastewater processing plants. However, the move was viewed by some WaterCom managers with scepticism, as it entailed a very different mode of thinking and managing.

**Phase 1: The pre-alliance and partner selection**

A consultant who specialised in alliance structuring was engaged, and he helped managers at WaterCom and AB Council review the spectrum of possible arrangements that could be used to manage the construction of the wastewater plants—from in-house construction through to an
alliance. This involved a series of workshops, and there was some agreement that a “pure alliance” was the way to proceed. Three new plants were needed and for efficiency reasons a decision was made to form a single alliance to cover all three projects.

AB Council gave WaterCom permission to proceed with the alliance, and a commitment was made by managers in AB Council and WaterCom to participate in the selection process and to allow alliance principles to govern the selection process and operations of the alliance. These principles encompassed some of the following: a focus on business outcomes where all partners collectively either win or lose, collective responsibility of all partners, clear accountabilities within a no-blame culture, open-book principles, and open and honest communications (Ross, 2003). Key managers in WaterCom underwent training to introduce them to alliance principles and to educate them as to what it would mean for WaterCom.

Key stakeholders, such as WaterCom Board members, senior AB Council managers and councillors assisted in the partner selection, which did not follow the usual tendering process. WaterCom worked within a range of legislative restrictions that limited its flexibility, and consultation and due process were important. A formal public tendering process was required for all contracts in excess of $100,000. However, for this project permission was sought to follow a different process. A formal Request for Proposal was issued to attract consortiums of companies to apply for the work. As a WaterCom manager explained, only limited details of the proposed project were provided:

The scope of work was quite broad. It said we've got 3 plants, we want to upgrade their capacity from X to Y, we want to get nitrogen of 5 milligrams per litre and want to finish by October 2005. That was pretty well the scope of the work. No money. No details. And by the way we haven't got final development approvals, license standards, and things like that. It also had the selection procedures and criteria—5 major areas and sub-areas, but it didn't have weightings.

A public briefing was held for potential consortiums, who were asked to put in a proposal of 35 pages, which is considered very brief in the construction industry. WaterCom announced which of their own staff would be working within the alliance—they had strengths in the design of waste water treatment plants and project management—and as the industry consisted of a limited number of major companies, many of whom had worked with WaterCom in the past, most consortium members were familiar with these WaterCom staff. Thus, consortiums could
assess the complimentary skills that they needed to contribute, and also whether or not they wished to work with those particular people in the alliance. Seven consortia submitted proposals. Consortia consisted of process engineering consultants, design consultants, construction companies and specialised engineering design companies.

Some of the companies that formed consortia had undertaken work for WaterCom in the past, and many of them were interested in the new project that was being proposed. A manager in one of the construction companies explained how a consortium was brought together, which indicates the level of familiarity within the industry:

*When the document came out the project was much larger than we expected and we had developed a small team that included ourselves, BN and KQ, who is a designer...we re-looked at our group and we said “no, we're don't have the resources to deliver it”, so we looked for another design group .. NX had strength in design, but also they're multinational and they've done alliances before so we saw a big strength in what they could bring to the team. So we introduced them into the alliance.*

*We'd worked with BN on a sewerage treatment plant; they worked with us as a subcontractor. And with KQ we worked together previously...so we knew each other's strengths and weaknesses to a degree, but not entirely. NX also had a previous alliance with UG, which is another construction group, so we brought them in...That was beneficial as well because we were now able to draw on resources from quite a number of organizations instead of just one or three.*

The selection panel held half-day interviews with the four best proposals, to allow the consortia to sell their skills and abilities. A key focus was to outline the principles of the alliance model, assess the consortia’s understanding and suitability for working within this model, and their potential to commit to the alliance. This was followed by separate two-day workshops for the two final short-listed consortia. One of the successful consortium members explained the approach taken in the application process and the workshop:

*In 35 pages we had to sell our track record, our people and sell our ability to rise to the occasion and it was about changing your mindset about how you deliver these things. Our history was working as a contractor to our client WaterCom, and now we were going to work as partners. So they knew what our capabilities were in terms of contract work but they were not involved in the day to day activities so they didn't really...*
understand our true capabilities and our weaknesses as well. There were a number of questions that for us were difficult to answer, especially as we had never worked in an alliance before. If we had answered those questions now they'd be easy... We just couldn't get our heads around what this really meant, and what we needed to achieve as an alliance team and how we could engage WaterCom and their expertise. Anyway we succeeded in getting to stage one which was a 4 hour interview ...

We had a two day workshop at which we had to do presentations explain to our potential client what our views were and how we would deliver a complex project which we knew nothing of! It [the workshop] was structured and we talked about expectations. We didn't focus on the technical detail. We focused on the warm and fuzzys, how we would work together as a team, how we would benchmark ourselves, and how we would deliver outstanding outcomes, and what we could we do as a team achieve that. If you haven't worked in an alliance before it is very difficult to answer those questions but we got through and I think it was due to the honesty of our team and the passion of our team.

The purpose of the workshops was for the members of each consortium team and WaterCom’s alliance members to effectively start working together as the alliance. It was important for all of the potential alliance members to experience what it would be like to work closely together, and for WaterCom to gauge the potential of each consortium to deliver on the outcomes. This process was viewed as “a test of relationships”. Thus, it was made very clear to the two consortiums that they could only send their intended alliance team to the workshop—“the A-team not the B team”. After each workshop, the four members of the selection panel individually scored each consortium, and after considerable debate among the panel members, the final consortium was chosen.

After the selection of the winning consortium there were two weeks of commercial negotiations between the consortium partners and WaterCom. Up to this stage, commercial arrangements for the alliance had not been discussed. This was to make sure that the selection process could focus on selecting partners in accordance with the criteria and conducting activities that would give WaterCom assurance that the chosen consortium would be able to hold to the principles of the alliance.

The successful consortium consisted of five partners, including WaterCom. The commercial negotiations included assessing the “normal” profit margins for each partner, which
were used to determine part of the reimbursement schedule. These discussions were conducted on an open-book basis and WaterCom was also able to send in probity auditors to each partner to examine their books. Interestingly, the partners were very willing to share information about costs, overheads and profit margins. The final reimbursement schedule was discussed, and the risk and reward aspects and governance arrangements were determined. The outcome of this discussion was an interim project alliance agreement (IPAA) of only 10 pages. An important aspect of this agreement was that the five partners agreed to work together within the alliance over the next nine months to develop a target cost estimate for the project.

**Phase 2: The interim alliance and development of the TC**

In December 2002, immediately after the IPAA was signed, work began on the target cost estimate (TC). There were 30 to 40 staff in the interim alliance and they worked on the TC over the next nine months. The alliance was governed by a project alliance board (PAB), and day-to-day management was under the direction of an alliance management team (AMT) located within the alliance. (Governance arrangements are explained in a later section.) The alliance was totally self-managing and alliance management had free rein to use any techniques or processes that they saw fit to develop the TC and then later to manage the alliance and the construction project.

**Creating an alliance perspective**

Not surprisingly it was initially very difficult for the alliance members who had come from each of the partners to work together as an alliance, and to understand how to do this. The alliance manager explained.

> That was a real challenge for us. What do we do? How do we get to the next level? How do we become an outstanding team? These are all issues that we had to deal with and we looked at other alliances but there were no clear directions for us that we could see. So we ended up doing a lot of it ourselves.

One initial problem was that work on the TC commenced before the alliance staff had completed current projects in their home organization and before formal training and alliance orientation had taken place. Alliance roles had also not been finalised. There were some conflicts and issues to be worked through, and external facilitators were brought in to assist.
During the TC estimation process the different perspectives held by designers versus construction people needed to be managed and directed. Within the construction industry these different orientations are not unusual. However, in this alliance the design of the plants were developed at the same time as the construction and operations processes, to achieve the overall lowest cost over the life of the project. In many cases designers tend to focus on delivering a design, without full consideration of the cost associated with building or operating that design. However, for this project the focus was on delivering a design that had the lowest total capital cost and operating cost. This outcome was achieved by sharing a single office and through continual interactions between all groups from the start of the interim project period.

Another important issue was the setting up of a separate office...which is absolutely essential. You can’t work out of the offices at one of the companies. We had the designers and estimators and constructors, all together while we were developing the target cost estimate, and we had the constructors in here all the time with their input. And that’s the big difference between a hard money contract and an alliance...normally you go through your design bit and then the constructors come along. In our case we were looking at constructability issues at the same time as we were looking at design issues.

A related issue was the difficulty getting all groups in the alliance to accept the notion of stretch targets. Target setting was not unusual in the construction industry, but was not the norm for designers—and stretch targets were even more unusual. This was handled by formulating milestones, celebrating success and then setting the next (stretch) milestone. There was a belief among alliance management that to develop the TC at the level of detail required, to withstand the scrutiny of all partners, a professional, consistent and carefully managed team approach was needed.

Estimating the total cost
The estimation of the TC involved estimating and negotiating the risks and opportunities of the project. This was a very detailed and sophisticated process. For every cost component an estimated cost was developed, a minimum and maximum cost, the likelihood of each risk was assessed, and the overall net risk (risk less opportunity) was simulated using Monte Carlo analysis. The risks consisted of a list of all of the things that could go wrong in the operation,
such as bad weather, foreign exchange movements in costs, the impact of new engineering methodologies, or breakthroughs in design. Initially, a total of 180 different risks were identified, costing $35 million, on a total project cost of $122 million. However, opportunities of $5 million were also identified. There were many rounds of reviews by the PAB and by the partners, and eventually net risks were brought down to $9 million.

There were several techniques that the alliance members used to encourage the identification of the risks. During the TC estimation period, the alliance team met every morning at 7.30am for about 20 minutes to discuss the project and to manage the project against the agreed TC.

We talked about the project. Where we were at, what we needed from each other. And we had one person who was handling the risk and opportunities. His job was to identify the risks in the discussions...

Another method was to keep a book, where everybody wrote down anything they could think of. We had this big document full of peoples’ handwriting and then we went through each individual item to make sure that it was either no longer a risk, it was in the TC, or we don't have to worry about it. So we kept a running tab ...and I guess the outstanding part of all of this is that we didn't put it [the book] aside. We've used it extensively during the project delivery process as well. We actually revisit all the risks on a regular basis, reassess them, eliminate them if they're no longer there and introduce new ones if there are new ones.

The development of innovative thinking and of innovative outputs was considered to be an important part of the estimation process. Innovations were needed to reduce risk, and hence reduce the target cost, and these opportunities were far more difficult to identify than the risks. A facilitator was engaged to run a workshop to try to encourage innovation, which was needed to take the risk out of the project. An important innovation that resulted was the development of a new filter eliminated a $1.5 million potential risk from the project. Another innovation was a change in design at one of the sites, which involved building one long plant, rather than building two plants side by side. In the development of the TC, a series of innovations were considered and then probabilities were assigned to each, which sometimes was based on whether or not it was likely that the innovation could be evaluated and acted upon, perhaps because of time constraints.
During the development of the TC, an independent expert continually completed reviews of all the proposed costs. The alliance manager explained:

_We had numerous internal reviews. More than we would normally do to make sure that the costs were right and that people couldn’t throw stones at the way we had approached it and the philosophies and principles that were used. And at the end of all of this we then did a corporate review, we invited all the partners to come in and say “OK, this is our target cost, now guys, this is yours. This is what we’re going to build”. [we told the partners] “You've all got to commit to it, so you need to review it and make sure that you're happy that we've done everything right”._

__Agreeing on the final TC__

The TC took nine months to develop and negotiate with all parties. The TC went through three stages, each stage was communicated to all partners, including WaterCom, and then reworked. On October 2003, the TC was signed by all parties. This signing indicated acceptance of the total cost estimate as well as all other targets for non-financial indicators. These included safety, employee satisfaction, environmental outcomes, construction time, and quality of the water outputs. However, this was not a smooth process.

For WaterCom the adoption of an alliance model was very different from the sometimes confrontational hard contracting approach of the past, and there were tensions within WaterCom as to whether a competitive alliance, rather than a collaborative alliance should have been chosen. When the total cost estimates were being prepared and needed to be approved by WaterCom, and when cost reimbursement claims came to WaterCom for reimbursement to the partners, the old mode of thinking would have been for Water Com managers to challenge each one of the costs. However, this was not the ethos or the approach agreed to under the alliance model.

The use of an independent assessor to validate each of the initial design quantities and costs was not sufficient to satisfy some of the WaterCom managers. They questioned whether the WaterCom managers who were assigned the responsibility of assessing the components of the TC and working with the alliance partners, had been sufficiently challenging and tough in scrutinizing those costs. Under former construction contracts, there were expectations that every cost would have been questioned: “Are we sure that this is the best value. Is the price sharp?
Let's look at the person that should be doing the work.” Some managers thought that the TC had to be inflated, and this created some tensions between WaterCom and the PAB. However, the process of developing and eventual accepting the TC was stressful for all parties. A WaterCom manager explained:

There was probably a pretty clear expectation by all participants that the non acceptance of the total cost estimate would signal a failure for all parties. We would have had to turn around and say that the alliance methodology had failed, and then revert to another model to get better value for the organization. So that would have had to have been pretty damning indicating (a) that we didn't manage the relationship or (b) that we didn't think this through initially.

Stage 3: Commencement of the formal alliance

Once the interim alliance was complete the design phase of the project began. During this time there was comprehensive monthly reporting to the PAB, which tracked costs and non-financial KPIs (key performance indicators) against estimated risks and opportunities and milestones. Details of the progress of the design and eventually the early construction phase were also reported. This report was also received by senior managers at WaterCom. A significant part of the partners’ remuneration was tied to achievement of non-financial and financial KPI targets, which were audited at various intervals. However, there were also financial penalties for not achieving KPI targets. Not all of the KPIs flowed through to the financial outcomes of the project. For example, some KPIs addressed community and environmental impacts, which were part of the charter of WaterCom and AB Council.

While KPI targets were initially developed by the PAB, the detailed working of the KRAs (key performance areas) was undertaken by the AMT.

We've set ourselves some pretty tough challenges. [For example] In terms of safety we looked at other alliances and what they were doing. We benchmarked ourselves against the D alliance, which is a $1.4 billion project. We went up there to see how they operate and what they did and then we took some of those learnings. We’ve set ourselves a very difficult audit program which focuses primarily on management involvement and demonstration by management that safety is important. And we are actually going to score ourselves how well we do, how often we attend safety committee meetings, how
often we go out on site and do safety walks... so it's really a top down approach in terms of demonstration out commitment to these targets.

The KRAs that were developed by the AMT were very comprehensive and they were designed to influence behaviour and to feed through to the KPIs. KRAs were assigned to individuals in the alliance, depending on what they could influence or control. In aggregating KRAs, greater weightings were given to proactive and training activities, as opposed to reactive activities.

Retaining an alliance perspective

Managers and other key staff were seconded full-time to the alliance. A key principle of the alliance was that partners would select staff for the alliance in line with what was best for the project. While staff worked in the alliance it was intended that they should be loyal to that alliance, not the partner. The alliance manager explained:

I made a conscious decision when I joined this alliance that I am the alliance manager. It's my virtual organization. So I treat it as such and I try to have no bias whatsoever with any of the parties and I've tried to deliver the outcomes and the goals that we've set ourselves.

Joining the alliance also required a new perspective and rethinking about the previous client-relationship with WaterCom:

[The deputy alliance manager seconded from WaterCom] is considered to be an alliance team member; he's not considered a client anymore. Our client in reality for us now is really the production group—the people who are going to take over the plant at the end, so we see them more as the client now.

However, retaining commitment to the alliance and the alliance principles was a continual challenge. As the project progressed, designers were looking ahead to the end of their time in the alliance and thinking and planning for the next job. From time to time partner organizations tried to entice their employees to return to their home organization to participate in formulating and winning the next alliance bid, and then to work on those other projects. The partners, through the PAB had agreed to supply the best people for each job in the alliance. However, this promise was often difficult to deliver, with partner firms being involved in many
other competing projects. The members of the PAB often had difficulties in undertaking their commitment to the alliance, while at the same time being employees of the partner organizations—sometimes these two interests conflicted.

At the completion of the design stage phase many of the designers returned to their home organization and new staff who would manage the construction stage joined the alliance. The AMT remained, but the staff changeover brought new challenges for the AMT in managing the alliance team and establishing the alliance perspective.

**Governance and organizational arrangements**

During the workshop and commercial negotiations many aspects of governance and management of the alliance were decided. The alliance was not incorporated as a separate entity, but was managed by a Project Alliance Board (PAB). The PAB consisted of representatives from each of the five partners, as well as the AB Council. The role of the PAB was to deliver resources, set policies and make decisions that might be difficult for the alliance management to make. For example, such decisions may relate to a particular alliance partner. Sometimes PAB members needed to make decisions that were not in the best interests, or which were contrary to their particular partner’s interests. During the interim alliance and the development of the total cost estimate, the PAB met every two weeks. Once the alliance had been formed it met monthly.

The alliance was located at separate offices in a location away from the partners and while staff from the five partners was seconded full-time to work in the alliance, their salaries continued to be paid by the partner organization. An alliance management team (AMT) was formed to manage the day-to-day operations, headed by an alliance manager (from one of the partners) and a deputy alliance manager (from WaterCom). There were two distinct, but overlapping stages for the project: design and construction. The design team operated for about the first two years, and then most returned staff to their home organization. The majority of the construction team operated for the following two years. However, some staff were there for the duration of the project.

Major decisions concerning the alliance were made by the PAB, not the partners, almost without exception. However, any variations in the total cost estimate would have been WaterCom’s sole decision, and would have needed approval by the AB Council. However, new
design proposals or other changes and issues were handled by the PAB. The PAB was given the task of managing the alliance risk, through the AMT.  

As the alliance was not a separate entity, partners’ progress payments were submitted to the alliance management team for approval and reimbursement by WaterCom. Thus, WaterCom had a curious status within the alliance. It was effectively the client, but it was also a partner. However, it was not the dominant voice on the PAB, and WaterCom as the client did not have any veto or majority decision rights. Any decision made by the PAB had to be unanimously supported by all members of the PAB, and some of the members of the PAB were very senior managers in the partner organizations. A member of the alliance selection panel explained the approach taken in selecting members of the PAB.

One of the questions we asked at the half day interviews was “tell me why you have been nominated as a board member” and a few of them gave what we considered was the right answer which was “because I can make decisions that commit my company”. And that's why you've got to have senior members on the board. The alliance board is a consensus and unanimous. There are no votes, there are no split decisions. You stay in that room until you come up with an answer. It's a binding decision for the board, and if you haven't got people in there who can make decisions then it can't work, because they would have to go away and get approvals and get things ratified [by the partner organization] and then the other board members would have to get things ratified as well…but its important that the board member can made binding decisions.

However, the PAB was not the same as a typical corporate board of directors. The PAB also had a leadership role in the alliance. Each PAB member was given a specific role to champion in the alliance, such as safety, environment, community, people and lifestyle. While all PAB members would spend time on the construction site and the office reviewing these aspects, each member would give particular attention to that aspect that they were championing. For example, the PAB member who focused on safety, attended safety meetings, conducted safety walks on the construction site, and was particularly visible in participating in the management of safety.

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8 This referred to performance risk.
Shared responsibility and risk

Under traditional construction contracts, responsibilities and risk are allocated to each party and there are legal consequences for those parties that do not manage those risks or who fail to deliver on their contractual obligations. However, under the type of alliance adopted by WaterCom, there was a difference in that the partners agreed to:

1. Assume collective responsibility for delivering the project;
2. Take collective ownership of all risks and opportunities that are associated with the delivery of the project; and
3. Share the ‘pain or gain’ that results from the comparison of the project outcomes with the agreed targets that they jointly committed to achieve. (Ross, 2003)

Thus, WaterCom chose to set up an alliance where specific aspects of risk were not transferred to individual partners—it was shared jointly by the alliance members. There was one exception to this which related to the risk of gaining of EPA approval for the project, which WaterCom agreed to separate from the alliance and assume total responsibility. The risk of getting EPA approval to commence the project and for project upgrades was considered major, and could result in costly delays in the project start and commissioning. This separation of the risk was negotiated between the PAB and WaterCom during the TC phase. It arose from a concern that the quality of the wastewater input to the plants, which affected the quality of the plant outputs could not be controlled by the alliance.

Also, each party choose to waive their common law rights to sue each other partner. This was initially difficult to accept, particularly at WaterCom, but it was an important principle in the alliance model. Any disagreements were to be resolved within the alliance itself.

A large and innovative construction project often gives rise to new processes and techniques—new intellectual property. In the interim project agreement and alliance agreement it was expected that the alliance would develop IP output, but no firm decision was made in relation to the ownership of IP.

Remuneration: risk and reward

Alliance partners were reimbursed under a ‘three limb structure’, and the details of this structure were agreed to and included as part of the interim project alliance agreement.
• Limb one consisted of payments to partners for all out-of-pocket costs associated with the alliance, and these were reimbursed to each partner as the costs were expended. These costs were those estimated in the total cost estimate.

• Limb two was reimbursement to cover corporate overhead costs associated with the direct costs, including an allowance for “normal” profit.

• Limb three was a series of payments which related to each partners’ agreed share of “pain or gain” associated with the project. This consisted of the variance against the project’s financial and non-financial KPI targets, which all partners had made a joint commitment to achieve. Non-achievement of targets led to financial penalties for all alliance partners, and any superior performance led to a sharing of the rewards by all partners.

4. Case Analysis
As argued in an earlier section of this paper, managers will choose to enter into an equity alliance when there is high uncertainty, high asset specificity, and high frequency of interactions (transactions). Equity alliances may also be appropriate when there is a technological component, many partners and a broad span of activities. These features suggest that there is a high probability of opportunistic behaviour by partners and, hence, a high level of relational risk. Equity arrangements provide superior monitoring and control mechanisms, and shared ownership creates incentive alignment, so can deal more effectively with contractual and appropriability hazards, compared to a non-equity alliance. However, if perceived performance risk is more dominant than relational risk, then a non-equity alliance may be favoured. Goodwill trust and competence trust in the partners may also influence the choice of alliance structure and control system, through managers’ perceptions of relational risk and performance risk.

This section contains a discussion of the factors and processes that influenced perceived risk, governance structure and control in the case study. First, factors that influenced perceptions of risk will be explained, by focusing on the following questions. How did the characteristics of the relation influence risk? How was trust assessed and developed in the early stages of the alliance? How critical was perceived risk and what were the activities that increased or decreased perceptions of risk? Next, the issues that influenced the choice of governance structure will be considered. Finally, the features of the control package used in the alliance will be outlined.
Factors that influenced perceptions of risk

Characteristics of the transaction

Many of the transactional features of the WaterCom alliance suggest that WaterCom might have chosen to form an equity alliance, rather than a non-equity alliance. *Asset specificity* was high for all parties, but particularly so for WaterCom. WaterCom had committed significant funds to the alliance, as well as many dedicated staff (human asset specificity). It had full ownership of the waste water plants that were being built, contributed the greatest share of the costs of construction, and there was high brand specificity relating to the reputational aspects of the waste water project. *Uncertainty* can be characterised by output measurability and task programmability, and in this alliance both can be regarded as difficult and ambiguous. There were many partners in the alliance, and there was a technological component. *Transactional interactions* between the partners were frequent and significant, extending over many years and covering many different issues and activities.

Thus, according to TCE, these features suggest high levels of relational risk which can best be controlled through an equity alliance. However, perceived trust in the partners can also influence perceptions of risk, and hence the choice of alliance structure.

Competence trust and goodwill trust

In an earlier section, it was suggested that in a prospective alliance high levels of goodwill trust will reduce perceived relational risk and high levels of competence trust will reduce perceived performance risk. In assessing the levels of trust in the wastewater alliance, it is relevant to consider perceptions of trust not only in the pre-alliance stage, but during the interim alliance, when there were opportunities to further develop trust prior to the signing of the alliance agreement.

Prior to the selection of the successful alliance consortium, members of the selection committee had certain perceptions of both goodwill trust and competence trust for each of the potential partners. The industry was relatively small, consisting of only a handful of major participants, and many of those organisations had worked together on projects which created high degree of familiarity with both the organisations, and also the key individuals in those organisations. However, as stated in the case, working with the consortium members in a contractual partnership did not always give WaterCom or the consortium members insights into
what is would be like to work with the partners in an alliance—the interviews and workshops were designed to assess these issues. The underlying principles of the “pure” alliance form that had been chosen by WaterCom were heavily dependent on there being a reasonable level of goodwill trust between partners. The extensive interview process and workshops were described as providing an opportunity to “test the relationships”, so WaterCom could assess if the short-listed consortia could potentially work within the alliance principles. This implies that the successful consortium was chosen because the selection committee believed they had a certain level of goodwill trust that could be developed further.

During the interim alliance there were several opportunities to further develop goodwill trust. So by the completion of the interim stage, the level of goodwill trust had increased, and was sufficiently strong to allow the formal alliance to proceed. However, how was that trust developed?

It has been suggested that goodwill trust can be established and strengthened through the following mechanisms: developing mutual interests, building individual and team-level trust, building institutional trust and joint dispute resolution (Das and Teng, 2001a). Each of these will be discussed. Developing mutual interests reduces the potential for conflict (Creed and Miles, 1996) and leads to partners caring about each others’ interests, perceiving greater reliability in the other partner, and hence goodwill trust increases. Inter-firm trust depends on the level of trust between individuals (Ring and Van de Ven, 1994), which can then develop into trust at the team or firm levels. Thus, developing individual-level trust can lead to trust between partners and is vital to the promotion of goodwill trust. The more closely partners in a strategic alliance work together, the greater is the scope for the development of interpersonal trust, such as goodwill trust. Institutional trust provides another avenue for building goodwill trust, and may develop through common membership of formal social structures, such as professional or trade associations, as members will have better information about each other and be less likely to undertake opportunistic behaviour as their reputation can be damaged more easily (Zucker, 1986). WaterCom and the partners worked in the same industry and had common industry networks. Finally, joint dispute resolution can provide partners with the opportunity to understand each other better and to appreciate differences in perspectives, ideas and approaches, leading to the development of goodwill trust (Ring and Van de Ven, 1994; Das and Teng, 2001a).
Das and Teng (2001a) argued that in non-equity alliances establishing mutual interests and institutional trust are particularly important sources of goodwill trust, while the other two sources are less critical. However, they also argued that in non-equity ventures, goodwill trust is not as critical as competence trust.

Competence trust may be determined more objectively than goodwill trust. Competence trust can be assessed through the proactive collection of information about partners (Das and Teng, 2001a), through direct and open communications with the partners, and through networking with other firms to gain inside information about a firm’s competence and background (Creed and Miles, 1996). In the case study, there is evidence of a high degree of familiarity with participants in the construction industry, partners were asked to relate their experience and skills in the Request for Proposal, and WaterCom had worked with several of the consortium firms on prior projects. Thus, WaterCom was able to assess competence and worries about competence of the selected consortium did not appear to be a major issue for managers at WaterCom.

WaterCom managers had initial perceptions of trust during the selection process, the interview and the workshop. During the interim alliance there were also many opportunities for trust development, up to the time where the formal alliance was constituted.

**Relationship risk and performance risk**

It has been argued that an important driver of the choice of equity structure is whether perceived relational risk is more dominant than perceived performance risk. Was this the situation in the WaterCom alliance?

In a prior section it was argued that in the wastewater alliance, the characteristics of the relation would have contributed to increasing WaterCom’s perceptions of relational risk. The complexity of the projects and the mix of partners from a variety of organizations, all with their own cultures and systems, could also have increased perceptions of both relational risk and performance risk. However, there were several other aspects which would have acted to reduce relational risk.

The Australian construction industry consists of a limited number of large players, which are all well known to each other and there was a history of past contracts and collaborations between most of the partners and WaterCom. These past experiences may have favourably
disposed WaterCom to some of the partners. Alliance history is said to encourage high levels of goodwill trust, and hence lead to lower perceived relational risk (Gulati, 1995). Repeated alliances between known partners is said to reduce the perceptions of opportunistic behaviour (Das and Teng, 2001b). WaterCom had not always had successful relations with all of the partners, and these experiences could have created unfavourable perceptions of the propensity for opportunism and relational problems. However, in those projects they may also have developed knowledge of where potential opportunistic exposures might occur, which could have been accounted for in any new relationship. It has been argued that even unfavourable histories with former partners may not necessarily lead to a high probability of opportunism, or higher relational risk, as shortcoming are known and can be accounted for (Das and Teng, 2001b).

The difficulty in protecting propriety knowledge can increase relational risk (Das and Teng, 1996). This “dissemination risk” (Brouthers, Brouthers and Wilkinson, 1995) is the unintended loss of control of technology or knowledge that can often arise through poorly conceived contractual arrangements. In the case study, the partners did not see this as a threat. In fact, the creation of new knowledge and processes was encouraged, and was shared by the partners. The PAB had decided to defer any decisions about the ownership of any new proprietary processes to the end of the project. Another driver of relational risk is perceived inequities in the future pay-offs from the alliance (Das and Teng, 1996). This may have been an initial concern in this case, as during the commercial negotiations meetings there was considerable information sharing and discussion to arrive at a firm agreement about reimbursement and the share of profit and loss that would be allowed to each partner.

WaterCom managers may have initially perceived performance risk to be high, because of the complexity of the project and the range of unidentified activities that would be undertaken over the course of the project. The long and detailed process of formulating the TC was to guard against performance risk, while as the same time it assisted in the reducing relational risk. Many of the activities that were undertaken in phase 1 of the alliance implies that there was a recognition that both forms of risk needed to be reduced before all partners entered into the contractual agreement to undertake the project. The interviews and workshops allowed WaterCom to assess the ability of potential partners to work in harmony and to commit to the goals of the alliance, and relational risk was assessed and minimised during the interim alliance phase.
Summary
In summary, the characteristics of the relation would have contributed to increase perceptions of relational risk, while activities in the pre-alliance and interim alliance were undertaken to reduce both relational and performance risk, so that effective control within the non-equity alliance was achievable.

Issues that influenced the choice of governance structure
The prior literature and the model in Figure 1 suppose that managers make a rational choice of alliance structure, based on information and perceptions about the risks and advantages of each structural form and trust in the prospective partners. However, other aspects may also drive the choice. The alliance model that was chosen had been used by other large construction ventures in Australia. These successes were well known and had attracted a high profile. The model assumes that initial perceptions of trust and other characteristics of the relation will influence perceptions of risk, and lead to a choice of equity or non-equity governance structure. However, WaterCom and its parent AB Council made a firm commitment to adopt a non-equity alliance before it selected the partners.

This may not be totally inconsistent with the literature. The assessment of relational and performance risk relates more to the project, than to the specific partners, whereas perceptions of goodwill trust and competence trust relates to the specific partners. While the choice of a non-equity alliance was described as a firm commitment for WaterCom and its parent AB Council, there were several stages in the project where there it was possible to change or even terminate the venture: during the interviews, the workshop and at the end of the interim alliance. In particular, if the alliance team had been unsuccessful at arriving at an acceptable TC, or if other problems had occurred to make the project non-viable, the alliance could have been terminated, or the form of the alliance could have been changed. Clearly, the consortium was chosen to fit the initial structural decision and the processes that were followed to select and orient the consortium were designed to develop goodwill trust as well as reduce relational and performance risk, up to then point where the formal alliance was signed.
Management control systems

Equity alliances are said to offer significant control advantages through the alignment of incentives and an autonomous hierarchical structure which provides superior monitoring and control mechanisms. Thus, equity alliances allow firms to deal more effectively than non-equity alliance with contractual and appropriability hazards. In the case study many of these advantages seem to have been created, in a non-equity alliance.

The PAB had many of the responsibilities similar to a board of directors. However, four of the partners did not have legal ownership of the alliance or the assets. While Boards of Directors have clearly defined legal obligations and responsibilities, to safeguard owners and other stakeholders, such remedies do not exist in non-incorporated ventures. However, significant steps were taken to simulate what are claimed to be the positive control features of a stand-alone equity venture.

- These include the requirements for PAB members to have the authority to make binding decisions, and to not have to refer to the partners that they represented.
- The authority to manage the alliance rested with the PAB, not the individual partners.
- Decisions of the PAB needed to be unanimous.
- The risk of the alliance was shared by all partners and not allocated to specific partners.
- There were clear incentives for ‘gain and pain’ to reinforce the shared accountabilities.
- The agreement to drop the common law right to sue each other partner also reinforced the shared responsibilities.
- Other aspects were used to gain the commitment and participation of PAB members. This included the “championing” role, and a high level of involvement and visibility within the alliance.

Thus, there was an autonomous decision making authority within the alliance, the sharing of risk and the relinquishment of the right to sue could, in TCE terms, be likened to a mutual hostage situation that is typically associated with equity alliances. Goal alignment and incentives were encouraged by the risk and reward system, which created a situation of high interdependencies among the partners.

In terms of the formal control systems, there was a high reliance on outcome controls and social controls, which is usually associated with an equity alliance. KPIs were implemented as
part of the alliance agreement and were reported to the PAB each month. The incentive scheme agreed to prior to the commencement of the alliance linked the third limb of the remuneration agreement to the achievement of a series of KPIs. The AMT introduced a series of KRAs that reflected the KPIs, and these were the indicators that were the drivers for the KPIs. Social controls also featured prominently in the operations of the alliance important, and involved meetings, workshops and various activities designed to engender an alliance culture, and promote commitment to the alliance goals. There was limited reliance on behaviour controls.

Thus, it be could argued that WaterCom choose to form a non-equity alliance, but the alliance operations and activities had many features that gave similar control advantages to an equity alliance, while retaining the flexibility of a non-equity alliance. In this alliance it could be argued that transaction costs of forming the alliance were high. The nine month process of developing the TC was considered to be abnormally long by alliance members, and was clearly a great cost to WaterCom in time and dollars. However, it served several advantages. The detailed planning helped ensure that an accurate total cost was developed, that the cost was committed to by all parties to the alliance, the details of the project design were understood by all parties, and it ensured that the alliance members and the PAB could work together as a team through the development of trust. These processes helped to reduce both performance and relational risk of the project.

5. Conclusion

The aim of this paper was to draw on transaction cost economics to consider how characteristics of the relation and perceptions of trust and risk influence choices of governance structure and control systems in strategic alliances. A case study of a strategic alliance in the construction industry was provided to illustrate these relationships. The focus of the case study was on the processes and activities that took place in the pre-alliance and in the interim alliance to develop trust between the partners, manage risk and achieve control.

This case has raised several issues that are relevant for the formation and management of alliances. First, in the case study the choice of alliance structure preceded the selection of the alliance partners. The model in Figure 1 assumes that the structural decision depends on and assessment of the characteristics of the intended alliance and the level of trust in the alliance partners. These two aspects will influence managers’ perceptions of risk and led to the selection
of an alliance form which is will help mitigate that risk. However, the sequencing of events in this case is not consistent with cases in other recent studies. Dekker (2004) presented a case study where the choice of the partner preceded the purpose of the alliance. Also, Das and Teng (2002) and Ring and Van de Ven (1994) highlight the formation stages of alliances as consisting of formal bargaining and informal sensemaking to negotiate the alliance agreement, and then presumably the structural form.

Second, the lengthy pre-alliance period allowed partners to retain flexibility, with the possibility of withdrawing from the alliance, terminating the alliance or changing the structure of the alliance in some fundamental way. The choice of a non-equity alliance contributed to this flexibility. However, in reality the probability of making major changes to the alliance arrangements may have been low, which would have been seem as an admission of failure by all parties. The literature on alliance development is predominantly theoretical and does not seem to describe such a long interim stage. However, in this case it provided the context for developing trust, particularly goodwill trust, and establishing an alliance perspective, which was through to be essential to the success of the project.

Third, it seems that a non-equity alliance can provide a control environment which is comparable to that found in an equity alliance, through the development of goodwill trust and through the structuring of an alliance agreement that emphasises mutual collaboration and shared responsibility and risk. The role of goodwill and competence trust in enhancing formal control mechanisms in strategic alliance is consistent with several recent case studies (van der Meer-Kooistra and Vosselman, 2000; Langfield-Smith and Smith, 2003; Dekker, 2004; Lui and Ngo, 2004), which support the argument that trust and control are complementary mechanisms within a control package.

The findings of the study suggest several areas for future research. The perspective taken in describing the formation processes and perceptions of risk and trust in the case study is that of Water Com, the owner of the alliance. Future studies could consider more fully the perceptions of risk and trust of each partner to the alliance, and how this drives negotiations in the choice of alliance governance and control mechanisms. The case study provides a linear description of the relationships between the key variables and the processes that took place in the formation of the alliance up to the early stages of the alliance. Future research could follow through the way that
trust and perceptions of risk develop over time to from their initial states in the pre-alliance through all of the various stages of alliance development.

References


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### Phase 1: Pre-alliance

**February 2002**  
Consideration of possible structural arrangements for the wastewater projects  
- Consultant  
- Debate within AB Council and WaterCom  
WaterCom and AB Council commit to forming a “pure alliance” to manage the construction projects

**July 2002**  
Selection of consortium  
- Request for proposal  
- ½ day interviews for four best proposals  
- Two-day workshops for two short-listed consortiums

**November 2002**  
Selection of “best” consortium  
Formation of Project Alliance Board  
Two weeks of commercial negotiations

### Phase 2: Interim alliance

**December 2002**  
Signing of Interim Project Alliance Agreement (IPAA)  
Creation of separate alliance office  
- Estimation team  
- Design team  
Development of total cost estimate (TC)  
- Stages 1, 2 and 3  
- Costs, risks, opportunity, probabilities  
- Audit of all estimates

### Phase 3: Formal alliance

**October 2003**  
Acceptance and sign off of TC by all parties  
Commencement of formal design phase of the plants  
Completion of design phase

**July 2004**  
Major construction phase

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**Table 1 Time line of events**
Initial perceptions of trust

- Competence trust
- Goodwill trust

Initial perceptions of risk

- Performance risk
- Relational risk

Characteristics of the relation

- Task uncertainty
- Asset specificity
- Frequency of transactions

Choice of governance structure

- Equity alliance
- Non-equity alliance

Management control systems

- Behavioural controls
- Outcome controls
- Social controls

Figure 1 Choice of alliance structure and management control system