The Effect of Environmental Volatility on Relational Governance: A Conceptual Framework

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Abstract

While much is known about relational governance, one enduring puzzle is the effect of environmental volatility on the extent to which firms forge relational forms of governance. In this paper, we unravel the strands of this puzzle and weave them into a coherent pattern amid a new theoretical background that draws from the organizational culture and knowledge based view literatures. Taking the perspective of a manufacturer, we examine four variables that moderate the effects of downstream and upstream environmental volatility on the establishment of relational governance in manufacturer-supplier relationships.

Introduction

The explosion in business to business partnering since 1980 is a reflection of both firm responses to changing business environments as well as a change in managerial attitudes about how to leverage their firm's sources of competitive advantage. As firms search to adapt to increasingly uncertain and competitively demanding markets, they are looking beyond their own firm boundaries to drive down overall costs or to improve value-added offerings.

The increased managerial focus on organizational alignments (termed close working relationships, partnerships, long-term relationships, and networks) has prompted an equally strong focus in the academic literature. The proliferation of academic research on inter-organizational relationships (Webster 1992) has largely replaced the traditional focus on governance structures such as arm's length exchange and discrete transactions. While much is known about relational or non-market forms of governance in terms of their antecedents, evolutionary paths, features, and consequences, there still remain some unexplored facets and inconsistent results within the facets that have already been explored. One enduring puzzle is the effect of environmental uncertainty on the extent to which firms forge relational forms of governance (Rindfleisch and Heide 1997).

From an academic perspective, empirical studies on the effect of environmental uncertainty on relational governance have produced conflicting and often contradictory results. From a managerial perspective, firms continue to search for guidance on how best to adapt their organizational structures to meet the challenges of faster-paced and more

highly competitive environments. In this paper, we unravel the strands of this puzzle and weave them into a coherent pattern amid a new theoretical background that draws from the organizational culture and knowledge based view literatures. Our intent is to reconcile previously conflicting normative prescriptions about firms can best adapt to increasingly turbulent environments.

Literature Review

Environmental Volatility

Environments in which the speed and direction of change are difficult to forecast are referred to as volatile environments (Achrol 1991; Duncan 1972). Environmental volatility hampers organizational decision-making and action by making information – which is the basis of decision-making and action – suspect (Mintzberg 1979; Pfeffer and Salancik 1978).

Environmental volatility can stem from a number of different sectors in the external environment within which a manufacturing firm is embedded (Dill 1958). Relevant sectors include input (suppliers), output (direct and indirect customers), competitive (direct and indirect competitors), and regulatory (Achrol, Reve, and Stern 1983, p. 58). Consistent with much of the previous academic research, our focus is on the effects of input and output sector uncertainty rather than the effects of the regulatory sector. Since competitor actions contribute to dynamism in downstream customer markets, we meld this sector with the output sector to create two constructs that we refer to in this research as upstream (or input) and downstream (or output and competitor) volatility.

Environmental Volatility and Relational Governance: Competing Perspectives

Environmental volatility puts a premium on maintaining flexibility so that manufacturers can adapt rapidly to changing environmental conditions. However, whether this desire to remain flexible promotes or hinders the development of closer supply relationships remains unanswered. Empirical support has been found for two opposing positions.

Positive Effect of Environmental Volatility on Relational Governance. The argument that firms adopt relational governance when faced with environmental volatility

is based on the rationale that relational governance provides a safeguard to manufacturers against supplier opportunism while also permitting manufacturers to remain flexible to respond to rapid environmental change. This rationale has been widely used and has received widespread empirical support in the marketing literature (Buvik and John 2000; Dwyer and Welsh 1985; Klein 1989; Klein, Frazier, and Roth 1990; Noordewier, John, and Nevin 1990).

Volatile environments impose high opportunity costs in the form of adaptation costs to the firm (Rubin 1990) such that firms operating in turbulent environments need to remain flexible (Dwyer and Oh 1987). To cope and indeed even prosper in unpredictable environments, manufacturers need to be able to adapt their products quickly in response to rapid changes in customer preferences/competitor actions (downstream volatility) and/or to changes in their supply environment (upstream volatility).

From a transaction cost perspective, environmental volatility exacerbates the adaptation problem for the manufacturer, thereby creating the potential for supplier opportunism and the consequent transaction costs (Klein, Frazier, and Roth 1990). By drawing the supplier close (i.e., by replacing arms-length exchange with relational governance) through joint action (Heide and John 1990) relational governance offers a direct check on supplier opportunism (Heide and John 1990; Zaheer and Venkatraman 1995) while also permitting bilateral flexibility.

Negative Effect of Environmental Volatility on Relational Governance. The negative relationship between environmental uncertainty and relational governance relates to the increased dependence of the manufacturer on its suppliers which is associated with the adoption of relational governance. Relational governance increases manufacturer dependence on suppliers, thereby reducing a manufacturer's flexibility to switch suppliers and increasing strategic and economic costs (Sutcliffe and Zaheer 1998; Balakrishnan and Wernerfelt 1986; Gatignon and Anderson 1988; Heide and John 1990; Stump and Heide 1996). In contrast, arms-length supply relationships allow the manufacturer to respond to changing environmental demands by selecting suppliers who are best able to meet these demands at a given point in time.

The strategic costs to the manufacturer from increased dependence on a supplier flow chiefly from the loss of flexibility. In practice, the implementation of closer working relationships with suppliers results in a dramatic reduction in the manufacturer's supplier base. A smaller supplier base reduces the number of alternative suppliers with whom a manufacturer can engage, thereby limiting a manufacturer's flexibility to adapt to changing environmental conditions. Access to diverse technological standards is closed-off to manufacturers that are dependent on a particular manufacturer. Given that one of these goes on to become the industry standard, dependence creates the risk for the manufacturer of being out of step with their industry. Further, even if the manufacturer has access to alternate technologies, dependence on a supplier raises the benefit threshold that the alternate technology must offer before the manufacturer terminates their relationship with the existing supplier. New technologies require an up-front cost and they offer a revenue stream that is initially narrow but widens over time as learning, network, and other path-dependent effects are introduced (Hunt 2000). Use of a high benefit threshold by a manufacturer precludes new technologies, thereby undermining the manufacturer's long-term technological profile.

Relational governance also creates economic switching costs for the manufacturer since its successful implementation requires considerable investment of managerial resources in the form of capital (e.g., investment in specialized communication systems such as EDI), labor (e.g., manufacturer personnel working at the supplier's facility and vice-versa), and managerial time (Frazier, Spekman, and O'Neal 1988). These switching costs increase the incumbent supplier's performance latitude: manufacturers will not terminate the incumbent supplier till such point that the costs of their non-performance exceed the costs of switching. By muting performance incentives for the supplier, relational governance can undermine manufacturer efficiency.

*Reconciling the Effects of Environmental Volatility on Relational Governance***.** As the previous discussion illustrates, environmental volatility can exert pressure on firm governance choices in two opposing directions. Our review of prior research showed that at least prior two attempts have been made to reconcile the competing effects of environmental volatility on relational governance.

Transaction Cost Analysis (TCA) (Williamson 1985) argues that when a manufacturer is faced with the following contingency - downstream environmental volatility coupled with specific asset investments in the supplier – the manufacturer becomes dependent on the supplier to effect the necessary changes in input components to enable manufacturer competitiveness in their downstream markets. Consequently, bargaining power shifts in favor of the supplier, thereby reducing the manufacturer's ability to curb supplier opportunism, which may manifest in the form of (a) the forced re-negotiation of the original terms in ways that favor the supplier unilaterally, (b) refusal to adapt, (c) evasion of the manufacturer's call for adaptation, and/or (d) the deceitful violation of the original terms for unilateral gains (Wathne and Heide 2000). Thus, per TCA, when specific assets are invested in a supplier, the manufacturer is expected to establish relational governance with the supplier as this form of governance gives the manufacturer direct control over the supplier, thereby enabling the manufacturer to curb supplier opportunism (Heide and John 1990). In the absence of specific asset investments in the supplier, the manufacturer is expected to manage environmental volatility by drawing further away from the supplier.

The TCA argument turns on the assumption that exchange partners are potentially opportunistic. In the absence of this assumption, the manufacturer in the above example has nothing to fear from becoming dependent on the supplier. The assumption that all exchange partners are potentially opportunistic has been variously critiqued in the literature as (i) empirically inaccurate, in that opportunism has been shown to vary systematically with other factors (John 1984), (ii) theoretically limiting, since it does not account for the diversity of governance structures that exist in a given industry (Barney and Hansen 1994; Chiles and McMackin 1996; Hunt and Morgan 1995), and (iii) managerially unwise, given that actions predicated on this assumption can become self-fulfilling prophecies (Ghoshal and Moran 1996). Given these problems, we seek an alternative theoretical resolution to the relationship between environmental volatility and relational governance.

The source of the volatility (i.e., customers, competitors, technology) is the second explanation for the competing relationships between environmental volatility and relational governance. Considerable evidence exists to show that the effect of

technological uncertainty on governance decisions is different from that of uncertainty in other domains (Balakrishnan and Wernerfelt 1986; Heide and John 1990). Market governance is favored over relational governance under conditions of high technological uncertainty (Heide and Stump 1996), while uncertainty arising from customers such as volume unpredictability or diversity, fosters relational governance (Heide and John 1990; Klein, Frazier, and Roth 1990).

While other types of uncertainty increase the number of contingencies that need to be anticipated in a contract with a supplier, technological uncertainty makes a single contingency more likely, this being that the technology being traded will become obsolete. As Balakrishnan and Wernerfelt (1986, p.348) state "as the likelihood of obsolescence goes up, the expected profitability of the investment goes down, and with it the incentive to bargain and hence the gains from vertical integration".

We take issue with this argument on two counts: first, technological uncertainty is not the only type of uncertainty that can make a single contingency (i.e., that of obsolescence) more likely; shifting customer preferences and competitor actions can have the same effect. Additionally, not all types of technological uncertainty result in obsolescence. Case evidence from technologically innovative companies such as Motorola (Lewis 1995) and Toyota (Dyer 1997**)** suggests that it is precisely through relational governance arrangements with suppliers that these companies have reached the leading edge in technology. As these studies show, extra-dyadic flexibility is replaced by intra-dyadic flexibility and given that efficient coordination needs time, the returns from intra-dyadic flexibility are far superior.

While revolutionary technologies undoubtedly create obsolescence, technological evolution can also be sequentially progressive. In these instances, prior technology is a prerequisite before the new technology can be implemented. Technological volatility does not necessarily result in reduced profitability as the holder of the technology may be best positioned to evolve technologically.

To date, conceptual and empirical work has failed to reconcile the competing effects of environmental volatility on relational governance. It has long been recognized that conflicting claims about the effects of uncertainty may be due to distinct aspects of environmental uncertainty that have been confounded previously in broad definitions of

this construct (Balakrishnan and Wernerfelt 1986). It appears from previous research that firms may respond to different challenges in their governance choices depending on the source of the volatility stemming from the environment. In this research we focus on manufacturer governance choices in the face of environmental volatility stemming from two sources: upstream volatility and downstream volatility.

Conceptual Framework

In our view the challenges posed by upstream and downstream environmental volatility are quite different. While volatility in both downstream and upstream environments increases a firm's need for adaptability to changing conditions, the priority this places on firm governance choices is different. Downstream environmental volatility places the highest priority on the profitable creation and maintenance of superior customer value as firms struggle to cope with changing customer and competitive pressures. Upstream environmental volatility places the highest priority on control and risk containment as firms struggle to cope with scarce resources.

By partitioning out the sources of environmental volatility we are in a better position to assess the variables likely to affect governance choices as firms respond to the particular challenges inherent in their downstream and upstream environments. In the next section, we introduce ideas from two different literature streams, the literature on organizational culture and the literature organized under the rubric of the knowledge based view of the firm to develop a more comprehensive model.

Downstream Environmental Volatility and Relational Governance

Downstream environmental volatility increases the importance to a firm of adapting rapidly to changing competitive and market conditions. To capitalize on market opportunities, firms need to have the flexibility to react to market signals with a customized and immediate response. How firms choose to accomplish these goals depends on the assumptions inherent in their organizational culture which shape the firm's strategic response to changing downstream competitive and market conditions.

*Organizational Culture***.** A common theme in the diversity of terms used to describe organizational culture (Martin 1992) is that organizational culture is based on

"taken-for-granted" assumptions (Schein 1992) about how the external world works. These assumptions guide the evolution of future beliefs and actions vis-à-vis the world (Weick 1979). To the extent that a belief is validated by the consequences of action, the belief shifts from being a property of the "self" to a property of the "world".

The belief systems inherent in an organization's culture can involve a number of different assumptions about how the world works (Schein 1992): the organization's relationship with its environment (active vs. passive); the nature of reality (objective vs. socially determined); and the nature of human nature (opportunistic vs. stewardistic). Our interest in this research is on organizational belief systems about the nature of human nature. In the context of relational governance decisions, shared organizational assumptions about the human nature of organizational exchange partners are likely to be critical.

Case evidence from technologically innovative companies suggests that shared organizational beliefs about human nature do guide a firm's actions toward their exchange partners. In their work on Motorola and Toyota, both Lewis (1995) and Dyer (1997) note the existence of a relational "mental model," that is, the existence of an underlying assumption that exchange partners are value generating partners (as opposed to opportunistically value appropriating opponents).

As an overall organizational value system, such a relational mental model supports the sharing of information to support organizational learning about customers and competitors. Close working relationships with external suppliers become more important since these relationships provide access to a greater number of information sources and offer alternative perspectives on the meaning of critical information that could generate organizational learning (Slater and Narver 1995). It is anticipated that the focus on organizational learning stemming from a relational mental model strengthens expectations of mutuality in relational governance since information sharing can benefit both sides of a relationship.

When manufacturers have such a relational mental model, they will manage downstream environmental volatility by adopting a strategy of relational governance with their suppliers. This is done under the belief that relational governance will generate the requisite flexibility. When such an assumption set is lacking, however, we expect that

downstream environmental volatility will be negatively related to relational governance. Given that suppliers are not regarded as partners in value generation, the threat of a loss of flexibility is significant and consequently we expect that manufacturers will draw away from relational governance arrangements with their suppliers.

H1(a): A manufacturer's relational mental model moderates the effect of downstream environmental volatility on relational governance such that downstream volatility will be positively related to relational governance when the manufacturer's relational mental model is high.

H1(b): A manufacturer's relational mental model moderates the effect of downstream environmental volatility on relational governance such that downstream volatility will be negatively related to relational governance when the manufacturer's relational mental model is low.

Relationship-Specific Investments. As discussed previously, transaction cost analysis logic suggests that when specific assets are involved, environmental volatility is positively related to relational governance. This is commonly viewed only from the perspective of the manufacturer. Relational governance is the efficient (i.e., transaction cost minimizing) response since a manufacturer's specific assets committed to a supplier can be safeguarded through joint action within the supply relationship. Conversely, when such assets are not entailed, environmental uncertainty is negatively related to relational governance. Market governance is a more efficient governance mode because since there are no switching cost penalties to changing suppliers.

To fully understand the effect of asset specificity on relational governance, however, it is necessary to view the commitment of specific assets from both the supplier and the manufacturer. Mutual hostage positions through the joint commitment of assets stabilize agreement on the division of profits or costs by aligning incentives about the desirability of maintaining the relationship (Kogut 1988). Not only does symmetry in specific assets lock in both partners by increasing the cost of exit by either party from the relationship, it strengthens mutuality expectations by creating an incentive for both partners to work together to preserve the relationship (Gundlach, Achrol and Mentzer 1995). Empirical studies support this reasoning. For example, Anderson and Weitz (1992) found that pledging in the form of making idiosyncratic investments in the other

party was associated with stronger commitment to the relationship for both distributors and manufacturers.

The theoretical proposition reflected in hypothesis 2 is that the positive effect of relationship-specific investments on relational governance is contingent on both parties committing specific investments in the relationship. When the investment is asymmetric, there may be uncertainty about the future value of irreversible investments incurred in the relationship. This uncertainty is likely to undermine or decrease relational governance.

H2(a): Joint relationship-specific investments by both the manufacturer and the supplier will moderate the effect of downstream environmental volatility on relational governance such that downstream volatility will be positively related to relational governance when the relationship-specific investments of both manufacturers and suppliers is high.

H2(b): Joint relationship-specific investments by both the manufacturer and the supplier will moderate the effect of downstream environmental volatility on relational governance such that downstream volatility will be negatively related to relational governance when relationship-specific investments of both manufacturers and suppliers low.

The effects of the manufacturers' relational mental model and the joint commitment of specific assets in the supply relationship are expected to moderate the relationship between environmental volatility and relational governance only in downstream markets. The rationale for this is that downstream volatility increases the pressure on firms to search for unconventional business opportunities based on the role that external supply relationships can have in enhancing their competitive position. In such settings firms evaluate their governance choices in terms of both its effects on their firm's competitive position and on its internal benefits/costs. The pressure on firms facing upstream volatility is somewhat different. This is discussed next.

Upstream Environmental Volatility and Relational Governance

Upstream environmental volatility increases a firm's concern about loss of control (Thompson 1967). The conventional analysis of this process is based primarily on power-dependence theory (Pfeffer and Salancik 1978) which portrays control as a zero-sum

phenomenon in which efforts to increase control over scarce resources result in greater centralization and the creation of vertically integrated organizations. However, empirical studies have challenged this perspective. A trend towards vertical "dis"-integration has been observed in a number of industries (Ring and Van de Ven 1992) such as consumer electronics, automotive, biotechnology research and extractive resources exploration. Faced with competitive pressures to maintain a focus on their core competencies, firms in these industries are choosing long-term supply relationships rather than vertical integration as a way to cope with scarce resources. At the same time, however, firms need to ensure that when they commit to relational governance with suppliers, the quality of business outcomes is high.

The knowledge based view of the firm (KBV) argues that the strength of relational governance is that it permits the trading and integration of tacit knowledge between independent parties. To the extent that some portion of knowledge is always tacit, knowledge does not trade easily across a market interface as neither the hypothetical seller or buyer can accurately value this asset. In relational governance, however, mutually acceptable trading practices evolve through on-going interaction. Working together, manufacturers and suppliers create a community of practice. Such a community is precisely the context necessary for the trade and integration of tacit knowledge by the exchange partners.

Integration of tacit knowledge enhances the effectiveness of coordination between the exchange partners, thereby creating relational rents that are sustainable because this knowledge is not visible and hence not visible to competitors (Barney 1991). The central tenet of the knowledge-based view of the firm (KBV) centers on ways to enhance knowledge integration between different entities such that value creation is enhanced (Conner and Prahalad 1996). Two variables critical for knowledge integration to occur are transparency and absorptive capacity. These are discussed below.

Supplier Transparency. Effective coordination is the key to relational rent generation. In order for effective coordination to result, however, the exchange partners need to make their operations transparent to each other. While this can curb opportunism, the more significant purpose of transparency is that it enhances the understanding level that each partner has of the other, thereby increasing the potential for the generation of

new and value enhancing patterns of coordination. The potential for such value gains can offset the risk of flexibility loss that stems from relational governance.

This can be seen in the adoption by US firms of Just-in-Time (JIT) deliveries and total quality management practices (TQM) followed by many Japanese firms. The adoption of such programs require that suppliers open their books and business processes to customers so that they can work together. By working together, partners may be in a better position to hedge against upstream environmental volatility. For example, certification processes which involve close coordination with other firms such as ISO 9000 require supplier transparency in which suppliers conform to the parameters set by the industry. Accordingly, we predict that:

H3(a): Supplier transparency will moderate the effect of upstream volatility on relational governance such that upstream volatility will be positively related to relational governance when supplier transparency is high.

H3(b): Supplier transparency will moderate the effect of upstream volatility on relational governance such that upstream volatility will be negatively related to relational governance when supplier transparency is low.

Supplier Absorptive Capacity. Absorptive capacity refers to the supplier's ability to understand and utilize the knowledge imparted by the manufacturer (Cohen and Levinthal 1990). Absorptive capacity is a function of existing technological and cultural assets inherent in the organization. Prior research has shown that the closer the technological and cultural parity between the party and partner firms, the greater the speed with which the partner firm is able to utilize knowledge and consequently the faster the realization of competitive advantage by the party firm (Lane and Lubatkin 1998).

When supplier absorptive capacity is high, manufacturers maximize their flexibility to changing conditions by drawing closer to their suppliers rather than by distancing them. Therefore, we predict:

H4(a): Supplier absorptive capacity will moderate the effect of upstream volatility on relational governance such that upstream volatility will be positively related to relational governance when supplier absorptive capacity is high

H4(b): Supplier absorptive capacity will moderate the effect of upstream volatility on relational governance such that upstream volatility will be negatively related to relational governance when supplier absorptive capacity is low.

The effects of supplier knowledge-based characteristics such as transparency and absorptive capacity are expected to moderate the relationship between environmental volatility and relational governance only in upstream markets. The rationale for this is that upstream volatility increases the pressure on firms to minimize the risk associated with obtaining scarce resources. In such settings firms evaluate their governance choices in terms of its ability to increase supplier predictability.

Implications for Relationship Management

Both downstream and upstream environmental volatility is inherent in an increasingly global world where the proliferation of technological and managerial know-how is dismantling economic and political boundaries. Close working partnerships with suppliers can play a key role in firm survival and success in turbulent environments. This article proposes a framework and develops hypotheses about the factors which strengthen or weaken relational governance in volatile upstream and downstream environments. From an academic perspective, our framework reconciles previously conflicting and contradictory results about the effect of environmental volatility on relational governance. From a managerial perspective, determining when relational governance is appropriate will help managers understand why supply relationships vary in closeness so that they can structure their supply relationships to drive behavior appropriate to their firm's situation.

The conceptual framework proposed in this paper can be used to guide research and practice with respect to how firms facing volatile environments can leverage their supply relationships more effectively. As prior empirical research (Dwyer and Welsh 1985; Dwyer and Oh 1987) has shown, an understanding of the contextual aspects of relationships is very important for the development of relational contracts. In this paper we have argued that in order to reconcile previously contradictory results about the effect of volatility on relational governance, it is necessary to adopt a more fine-grained

approach to challenges posed to firms under both downstream and upstream volatility. Identifying the variables that strengthen or weaken relational governance enables researchers to understand how and why different business relationships develop in different settings.

From a managerial perspective, the rapid pace of both alliance formation and alliance dissolution between telecom, wireless and cable companies in the volatile telecommunications industry is evidence of the trial and error approach used by firms to govern their supply relationships in volatile environments. Even in the absence of opportunism (eg. by assuming that exchange partners are committed), coordination, that is, the decomposition of tasks between exchange partners and the management of their on-going relationship remains a significant managerial challenge (Conner and Prahalad 1996; Gulati and Singh 1998). The framework presented in this article provides some* guidance to help managers act as change agents to manage their supply relationships more effectively.

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