



Supplier alliances and environmental uncertainty: An empirical study

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ABSTRACT

Although supplier alliances are widely considered as an effective source of competitive advantage by firms operating in uncertain business environments, the literature offers inconsistent suggestions concerning how environmental uncertainty affects supplier alliances. The framework of transaction cost economics (TCE) suggests that, when environmental uncertainty is present to a nontrivial but not very high level, increases in environmental uncertainty lead to higher adoption levels of supplier alliances in order to reduce the likelihood of adaptation and evaluation problems on the part of suppliers. Some researchers from the perspective of strategic management, however, assert that firms should avoid close supplier relationships in uncertain environments so as to obtain flexibility in switching suppliers. In this research, we argue that such contradictory suggestions are partly due to the multi-dimensional nature of environmental uncertainty. With the empirical data from 175 Hong Kong electronics manufacturers, we found that two of the major dimensions of environmental uncertainty—technology change and market uncertainty—influence the adoption of supplier alliances and several related constructs very differently. Technology change has positive effects on strategic purchasing, specific investments and supplier alliances. Market uncertainty, nonetheless, provides an unfavourable environment for specific investments and does not lead to supplier alliances. Reporting findings of interest and significance, this paper provides theoretical and practical insights for strategic supply management.

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1. Introduction

Manufacturing firms today are operating in increasingly hostile business environments that are characterized by rapid technological change, shortened product life cycles, and intensifying global competition (Hagedoorn and Schakenraad, 1994; Volberda, 1996). Developing alliances with suppliers is fast becoming a popular way for firms to achieve and sustain responsiveness and competitiveness in

such unfavourable environments (McCutcheon and Stuart, 2000). With the support of alliance suppliers, many firms can achieve the responsiveness or learn the technologies required to compete in a turbulent marketplace (Grant and Baden-fuller, 1995; Heide and John, 1990). Prior research has suggested that an uncertain environment influences the closeness of the relationship between a buying firm and a supplier (Heide and John, 1990; Poirier, 1999). Nonetheless, despite more than two decades of research on this topic, the impact of environmental uncertainty on buyer–supplier relationships remains controversial, both conceptually and empirically (David and Han, 2004; Rindfleisch and Heide, 1997).

Indeed, different perspectives in the literature offer distinct insights on the linkage between supplier alliances and environment uncertainty. According to transaction

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cost economics (TCE), when environmental uncertainty is present to a nontrivial but not very high level, supplier alliances are an effective way for firms to govern supplier relationships in uncertain environments because this governance method can reduce the likelihood of adaptation and evaluation problems with suppliers and, in turn, lower the transaction costs (David and Han, 2004; Rindfleisch and Heide, 1997; Williamson, 1991). It is reasonable to believe that a sizable proportion of firms in different parts of the world do operate in environments where the uncertainty is not of very high levels. Thus, despite the presence of a condition, this suggestion derived from TCE is likely to be relevant and critical for a large number of organizations. On the other hand, some researchers, primarily from the discipline of strategic management, have asserted that, when faced with greater environmental uncertainty, firms may need to avoid long-term entanglements that could later prove to be disadvantageous, and will instead favour more flexible, arm's-length relationships (Crocker and Masten, 1988; Porter, 1985). One plausible explanation for such inconsistent arguments is that environmental uncertainty is a multi-dimensional construct, and that different dimensions of uncertainty may have opposite effects on the behaviours of firms involved in buyer–supplier relationships (Balakrishnan and Wernerfelt, 1986). Previous research in operations management, however, has provided little insights into the contradictory suggestions and how they can be explained.

Environmental uncertainty pertains to the difficulty of making accurate predictions about the future (Achrol and Stern, 1988). For firms relying on technology to compete (e.g., electronics manufacturers), changes in technology is likely to be a key determinant that affects their abilities to predict the future. Further, market uncertainty can be another important dimension of environmental uncertainty because, in an environment shaped by rapid changes in the product market, any firm would find it difficult to accurately forecast future changes. In the literature, some researchers have employed technology change and market uncertainty as the factors to reflect environmental uncertainty (e.g., Bstieler and Gross, 2003). Consequently, we consider technology change and market uncertainty two manifestations of environmental uncertainty in this research.

Our objective in this research is to empirically investigate whether different dimensions of environmental uncertainty have different impacts on the decisions of firms to adopt supplier alliances. More specifically, we examine how the two major dimensions of environmental uncertainty, namely technology change and market uncertainty, impact supplier alliances and other related constructs including strategic purchasing and specific investments. The primary contribution of this research lies in its ability to offer practically relevant insights to aid managers in considering whether or not supplier alliances are likely to be appropriate under their particular types of environmental uncertainty. In addition, the findings contribute to the management literature by offering empirical evidence on the explanatory power of TCE in predicting managers' decisions in adopting supplier alliances.

2. Literature review and the development of hypotheses

2.1. Supplier alliances and transaction cost economics

In this study, we conceptualize supplier alliances as a form of close and strategic supplier relationships that emphasizes integrating the resources and capabilities of a buying firm with those of its selected suppliers to achieve a competitive advantage for all the participating parties (Li et al., 2006; McCutcheon and Stuart, 2000). A number of researchers have explored the strategic importance of close and strategic supplier relationships and offered empirical evidence to indicate that such supplier relationships can provide firms with benefits including better-quality products and services, increased flexibility and responsiveness to customer requirements, the elimination of duplicated research efforts, reduced uncertainty, lower inventory levels, a reduction in total costs, enhanced financial performance, and improved competitive advantages and organizational performance (e.g., Robb et al., 2008; Li et al., 2006; Carr and Smeltzer, 1999; Chen et al., 2004; Ellram and Edis, 1996; Jorde and Teece, 1989; Lamming, 1993). On the other hand, some researchers have contended that supplier alliances may not be universally applicable for all firms. For instance, according to Anderson and Jap (2005), a number of studies have estimated the failure rate of inter-firm partnerships to be around 30–50%. Burnes and New (1997) examined the collaborative relationship development between Rover and one of its suppliers and concluded that while Rover achieved successful partnering relationship at the operational level, it was not the case at the strategic level. In the survey by Zhang and Goffin (1999), the management of suppliers was identified as one of the main problem areas in joint venture manufacturing companies in China. Despite the existence of various findings on the performance impacts of supplier alliances, research studies which offer insights on the favourable environments for supplier alliances adoption are relatively limited in the extant literature.

TCE (Williamson, 1975, 1985) is the dominant theoretical framework for specifying the conditions under which firms should perform certain activities in-house (i.e., forming a hierarchy), as well as the conditions under which certain operations should be outsourced (i.e., resorting to a market). In the early version of TCE, Williamson (1975, 1985) suggested that by judiciously adopting either a hierarchy or a market as the mechanism of governance for exchanges, firms can minimize the transaction costs associated with writing, negotiating, and enforcing contracts. Williamson (1991) later extended the hard “market and hierarchy” polarity to acknowledge the existence of “hybrid governance”. The structure of “hybrid governance” pertains to the use of complex contracts and other forms of strategic partnerships, including supplier alliances, to manage an exchange (Williamson, 1991; Zaheer and Venkatraman, 1995). According to TCE, when selecting an appropriate form of mechanism for governing inter-firm relationships, the cost of transactions is a key determinant for firms, and transaction cost becomes significant under certain conditions, in particular, in the presence of uncertainty.

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