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Antecedents of vertical integration: Transaction cost economics and resource-based explanations

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ABSTRACT

This article focuses on antecedents of vertical integration. A model of vertical integration derived from transaction cost economics and the resource-based view is tested empirically with data from the mechanical maintenance services market in the hydroelectricity industry. The results show that asset specificity and closeness to present competence are positively related to vertical integration, while tacit knowledge is negatively related to vertical integration. The positive interaction effect between asset specificity and closeness to present competence on vertical integration is also supported, indicating that the decisions on insourcing and outsourcing can benefit from using transaction cost economics and the resource-based view in tandem.

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1. Introduction

Purchasing and supply management are strategic functions of the firm which includes insourcing and outsourcing decisions of the firm. Strategies and decisions regarding insourcing and outsourcing are the starting point of an effective purchasing and supply management function. Axelsson et al. (2005, p. 5) argue that:

First, it should consider whether to outsource specific processes or not, or whether it should insource processes presently performed by outside suppliers. Once that decision has been made to outsource, or keep as outsourced, the next step is to develop a commodity strategy for each specific item.

Insourcing and outsourcing decisions are results of a continuous process where the firm evaluates factors that affect vertical integration to make the most efficient operations. The knowledge about the key factors that affect these decisions is therefore critical to effective purchasing and supply management, for both

purchasing managers and others that are involved in “make or buy” decisions of the firm.

Theoretical and empirical work devoted to explaining insourcing and outsourcing decisions, also termed vertical integration, or organizational boundary decisions, has taken a number of different approaches. Two important perspectives are transaction cost economics (Williamson, 1985, 1991) and the resource-based view (Barney, 1991; Conner and Prahalad, 1996; Grant, 1996; Kogut and Zander, 1996). Both perspectives focus on efficiency considerations, but they pay attention to different factors when explaining how firm boundaries are determined. Transaction cost economics (TCE) focuses on market failures resulting from asset specificity as the main reason why firms choose to vertically integrate activities (Williamson, 1985, 1991). However, it has also been argued that, when studying vertical integration, there is a need for theories that can explain the limits of firm size beyond the market failure argument (Wiggins, 1991). Several researchers consider the resource-based view (RBV) as a suitable perspective for this issue (e.g., Barney, 1996; Conner and Prahalad, 1996). This stream of literature focuses on organizational resources and competencies. It emphasizes performance gains that result from assessing the internal capabilities and competencies that are important for understanding boundary decisions (Argyres, 1996).

Efforts to merge the TCE and RBV approaches have been requested in the literature (e.g., Conner and Prahalad, 1996; Santos

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and Eisenhardt, 2005; Williamson, 1999). In particular, Santos and Eisenhardt (2005, p. 503, emphasis added) argue for a new research agenda where future research on vertical integration and organizational boundaries attempts to integrate the two theoretical perspectives:

Existing empirical work on organizational boundaries often attempts to validate single theories such as TCE. Recently, emphasis has shifted to research that frames boundary conceptions as competing alternatives (Argyres, 1996; Poppo and Zenger, 1998). While this research is clearly valuable, many intriguing insights are likely to come from studies that explore relationships (not competition) among boundary conceptions. Indeed, *combining conceptions may be a more valid view of how they actually operate in organizations.*

Accordingly, this paper presents the development and test of a model that draws upon central aspects of both TCE and RBV. This model offers an explanation of vertical integration that considers variables from both inside and outside of the firm. This approach addresses the need for a more comprehensive set of explanations for vertical integration and also proposes a synergistic use of the two perspectives. TCE and RBV have been used jointly in recent purchasing and supply management studies to investigate strategic-level purchasing and buyer–supplier relationship issues (e.g., Wagner, 2006). Use of the two theoretical perspectives together increases our understanding of the relationships and trade-offs among factors that affect effective purchasing and supply management decisions regarding insourcing and outsourcing.

We posit that *asset specificity* (from TCE) and *relatedness* (from RBV) are the major determinants of vertical integration. Furthermore, we argue that relatedness is composed of *closeness to present competence* (or just “closeness”) and *tacit knowledge*. Closeness captures the similarities between (1) a firm’s present knowledge and skills and (2) the knowledge and skills required for integrating activities into the firm that are performed by suppliers. The theory also posits that an interaction effect exists between asset specificity and closeness which represents a synergy between TCE and RBV that is unique. This study extends the role of asset specificity in this context and discusses potential conflicts between the TCE and the RBV approaches. Four hypotheses are empirically tested in the mechanical maintenance services market using purchasing firms in the hydroelectricity industry. The focus of the empirical study is on the likelihood of buyers integrating activities currently purchased from external suppliers. In addition to the theoretical contribution, the study also presents two new and alternative measures of closeness.

2. Vertical integration: definition of the focal construct

A review of the literature suggests that definitions of vertical integration can be classified into three groups based on their conceptual and operational approaches. The first approach views vertical integration as a categorical concept that classifies a particular activity or type of activity as either integrated into the firm or not (see e.g., Lieberman, 1991; Masten, 1984; Monteverde and Teece, 1982; Walker and Weber, 1987). The advantage of this approach is that the definition of vertical integration is clear and precise (Spiller, 1985). However, this approach only captures the activities that the firm currently performs in-house.

The second approach is focused on value added as a portion of sales or costs (Adelman, 1955). Value added is defined as the difference between total production (or sales) and the costs of the purchased inputs (Tucker and Wilder, 1977). Examples of this

approach are the value-added-to-sales ratio (Levy, 1985), and the share of the costs of the manufactured product incurred by the firm (MacMillan et al., 1986). In the purchasing field, it is common to use firms’ purchases in relationship to both sales and costs (e.g., wages and salaries) as definitions of the degree of vertical integration (Heberling et al., 1992; Wagner, 2006). Such definitions have been criticized because they reflect many factors other than vertical integration (Harrigan, 1985; Perry, 1989; Tucker and Wilder, 1977).

A third approach is applied in this theory. Vertical integration is defined as *the degree to which the firms intend to buy services from the vendor in the future or intend to perform the activity in-house* (Whyte, 1994). This definition facilitates the investigation of TCE- and RBV-based motives for vertical integration because it captures the intent of the firm rather than just describing the status quo. This definition also avoids many of the potential confounding aspects of the value-added approaches which may capture vertical integration, but also arguably capture other extraneous variance within the firm.

3. TCE and vertical integration

The core thesis of TCE is that firm boundaries (and the resulting levels of vertical integration) are explained by governance costs. Governance costs are the costs associated with acquiring necessary inputs for the operation of the business, including the costs of search, negotiating, bargaining, contracting and contract management. Those costs may be internal because the firm chooses to make what it needs, or they may be external because the firm chooses to buy what it needs. According to the TCE view, activities should be integrated into the firm when their external governance costs (of outsourcing) are larger than the costs of performing the activity in-house and using an internal governance structure (insourcing). TCE theory also indicates that the costs of transactions will differ depending on the characteristics of the transaction in question (Williamson, 1985). Specifically, transactions with highly uncertain outcomes, that occur more frequently and that require higher levels of transaction-specific investments, will be performed more efficiently *within* the firm (through hierarchical governance).

Asset specificity is the most frequently used dimension in empirical studies drawing on TCE theory, and support for the positive influence of asset specificity on vertical integration has been found in several studies (e.g., Joskow, 1988; Mahoney, 1992; Rindfleisch and Heide, 1997; Shelanski and Klein, 1995). It is reasonable to argue that asset specificity has been shown to be the most important determinant of vertical integration drawn from TCE theory, and therefore, the concept of asset specificity is adopted for the development of this new theory. Asset specificity is defined as “*durable investments that are undertaken in support of particular transactions*” (Williamson, 1985, p. 55). Investments in specific assets create a safeguarding problem in which one party is vulnerable to potential opportunistic behavior from the other party. Such investments create a lock-in effect in which autonomous trading conditions are supplanted *ex-ante* by unified ownership. High degrees of buyer’s asset specificity are made on the assumption that transaction cost savings from internalizing the activity will exceed the extra production costs that may exist internally. Therefore, based on Williamson’s assertions (1985, 1991) and on empirical studies of vertical integration (e.g., David and Han, 2004; Masten, 1984; Monteverde and Teece, 1982; Walker and Weber, 1987), the following hypothesis is proposed:

Hypothesis 1. The specificity of a buyer’s asset investments will be positively related to the degree of vertical integration.

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