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Do supply chain IT alignment and supply chain interfirm system integration impact upon brand equity and firm performance?

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Abstract

Researchers and managers have recently shown increasing interest in measuring the return on intangible assets, including brand equity. However, in today's complicated business world, understanding such intangible assets in the single firm context offers only a limited view. Drawing on the resource-based view of the firm, this study explores supply chain specific IT resources such as IT alignment and interfirm system integration between supply chain partners as antecedents of brand equity, relating brand equity to firm performance variables. Furthermore, the study framework incorporates IT appropriability as a firm's internal facilitator and partner dependence as a relational factor that form such supply chain IT resources. The results indicate that both IT alignment and interfirm system integration have positive effects on brand equity while supply chain IT resources are affected by the relational factor, partner dependence. IT appropriability affects IT alignment and IT alignment is found to mediate the relationship between IT appropriability and interfirm system integration.

Keywords: Brand equity; Supply chain management; Intangible assets; Information technology

In recent years the measurement of the return on intangible assets has become increasingly important for firms. Marketing is one functional area within a firm that has struggled to measure the return on its activities. This problem has been recognized by both academicians and practitioners to the extent that the *Marketing Science Institute* has made marketing metrics and brand equity top research priorities in the past 4 years (MSI, 2002, 2004). The member companies of the Marketing Science Institute, including AT and T, Coca-Cola, IBM, and Proctor and Gamble, determine these research priorities.

Among marketing scholars, one prominent response to the need to measure returns on marketing has been the construct of brand equity (e.g., Aaker, 1991; Keller, 1993). Aaker (1991) posits four dimensions of brand equity: brand loyalty, perceived quality, brand associations, and brand awareness. Keller (1993) proposes customer-based brand equity, "the differential effect of brand knowledge on consumer response to the marketing of the brand" (p.2). Srivastava and Shocker (1991) go beyond the customer and define brand equity as behaviors of the customers, channel partners and firm that allow the brand greater earnings it would not receive without the brand name. We build upon this definition, to state that if brand equity is an intermediate marketing outcome and firms are focused on brands, then the systems and processes of firms should have an impact on brand equity also. The strength of brand equity does not just come from relationships with customers but from actions taken within the firm also.

The primary objective of this study is to examine the impact of supply chain communication systems on brand equity. Specifically, drawing from the resource-based view of the firm (Barney, 1991), we propose that supply chain interfirm system integration, and IT alignment between channel members will be sources of sustainable competitive advantage. In addition, drawing on the power and dependence literature (e.g., Hallen et al., 1991), we propose that partner dependence on our focal firm will have a positive impact on the proposed supply chain antecedents of brand equity. We also contend that IT appropriability

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will have a positive impact on the proposed supply chain antecedents of brand equity. Finally, we explore a firm's market and financial performance as the outcomes of brand equity.

We begin by outlining our conceptual framework and explicating the constructs. Then, we develop our research hypotheses and test them using survey data collected from supply chain/logistics managers. Finally, we discept the results, managerial implications, and limitations of our study.

1. Model and hypotheses

The conceptual model in this study, guided by the Resource Based View (RBV) framework, contends that a firm's brand equity can be improved by its IT resources such as IT alignment and interfirm systems integration between supply chain partners. In addition, such supply chain specific IT resources are affected by both the firm's IT appropriability, an internal factor, and partner dependence on the focal firm, a relational factor. Finally, brand equity impacts upon the market and financial performance of the firms as shown in Fig. 1.

The RBV argues that firms with rare and valuable resources will have a competitive advantage and should these resources be inimitable and non-substitutable then this can lead to a sustained competitive advantage (Barney, 1991). Intangible assets like interfirm system integration and IT alignment fit under Barney's definition of resources. Marketing theory on capabilities is aligned with the RBV. These intangible resources mentioned can be considered to be outside-in processes (Day, 1994) that allow for sustainable relationships between supply chain partners. Outside-in processes are capabilities that help firms achieve a competitive advantage. Thus, we argue in the following sections that these supply chain IT resources help a firm achieve competitive advantage.

1.1. Supply chain IT resources of firms

This study explores two types of supply chain IT resources: interfirm systems integration and IT alignment between supply chain partners. They are crucial in building interfirm connectivity for efficient supply chain activities (Bowersox et al., 1999).

1.1.1. Interfirm systems integration

Interfirm systems integration is the extent a firm's supply chain communication system (SCCS) is integrated and prepared for collaborative activities with channel partners. This integration exists to increase the effectiveness and efficiency of interfirm activities (Malone et al., 1987). High interfirm systems integration allows proprietary systems to reduce technical barriers and incompatibility in order to communicate more effectively (Byrd and Turner, 2001; Kim et al., 2006). Intermediate interfirm systems integration should allow partners to share some proprietary information including sales and demand forecasts (Bowersox et al., 1999). Low interfirm systems integration would only allow partners to conduct electronic order-fulfillment (Johnson, 1999).

1.1.2. IT alignment with partners

IT alignment is the extent to which a firm's information technology is compatible with that of its channel partners (Wu et al., 2006). IT alignment requires channel partners to coordinate and align their business processes with each other in order to achieve efficiency (Powell, 1992). The advancement and alignment of information technology are equally important for the functional adequacy of SCCS (Hausman and Stock, 2003; Wu et al., 2006). Yet, IT alignment between partners is difficult to achieve, as it requires commitment from all involved parties.

1.2. Formation of supply chain IT resources

Unlike a firm's internal IT resources, supply chain specific IT resources result not only from a firm's internal efforts but also from the nature of the supply chain relationship. Consequently, we explore a firm's IT appropriability and partner dependence on the focal firm as facilitators of supply chain IT resources. In this study, partner dependence on the focal firm envisages the nature of the partnership while IT appropriability captures a firm's internal efforts.

1.2.1. Partner dependence

We define partner dependence as the extent to which a channel partner relies on the role assigned to it by a particular

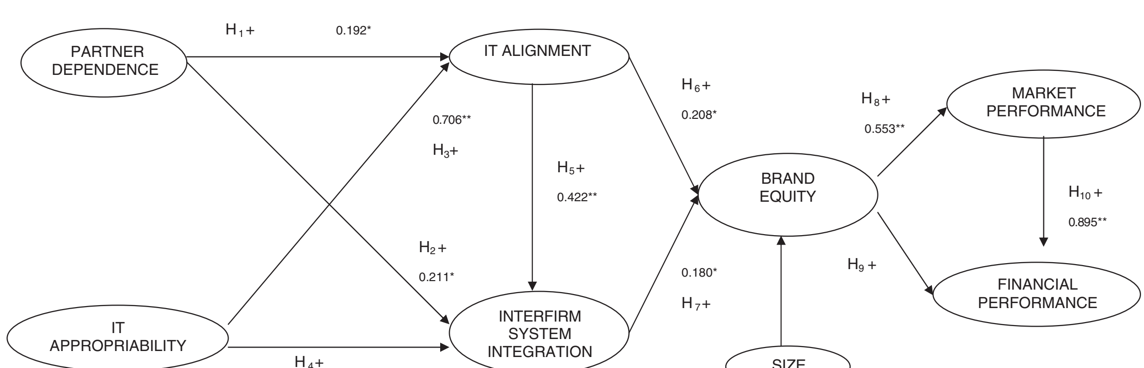

Fig. 1. Conceptual framework and hypotheses test results. Note: Only significant paths are shown. *Shows significance at the 0.05 level. **Shows significance at the 0.01 level.