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Journal of Operations Management 26 (2008) 96–114
JOURNAL OF OPERATIONS MANAGEMENT
www.elsevier.com/locate/jom

Supply chain integration and shareholder value: Evidence from consortium based industry exchanges

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Received 28 April 2006; received in revised form 6 May 2007; accepted 29 May 2007
Available online 2 June 2007

Abstract

Recent trade and academic literature point to the importance of supply chain integration among partners as a key determinant of value creation. This paper analyzes the shareholder value effects of setting up industry exchanges, a prominent mechanism used to achieve supply chain integration. Shareholder value effects are estimated by measuring the stock market reaction (abnormal returns) associated with announcements to form or join industry exchanges. We find that abnormal returns from participation in industry exchanges are positive but only marginally significant in the whole sample of 144 firms in 18 exchanges formed during 2000–2001. In the sub-sample of 88 exchange founders who were part of the original announcements to form the exchange, the abnormal market reaction is about 1% and significant. We also find that firms with greater bargaining power and higher process efficiency benefit more from participation in industry exchanges.

Keywords: Industry exchange; Supply chain integration; Electronic commerce; Event study

1. Introduction

Recent practitioner and academic literature (Magretta, 1998; Sahin and Robinson, 2005; Watson and Zheng, 2005; Kulp et al., 2004; Frohlich, 2002; Frohlich and Westbrook, 2001; Cua et al., 2001), emphasize the role of supply chain integration among partners as an important determinant of value creation. Higher levels of product variety, global marketplaces, shorter product life cycles, and the demand for better customer service have significantly increased the need for integration with supply chain partners. At the same time, firms are outsourcing more activities and developing long-term relationships with a stable set of partners who perform critical functions such as component design, manufacture, assembly, and distribution (Parker and Anderson, 2002). Recent technological innovations have also facilitated the use of the Internet to support inter-firm business processes. Consequently, the dominant belief is that the most successful companies are ''those that have carefully linked their internal processes to external suppliers and customers in unique supply chains'' (Frohlich and Westbrook, 2001, pp. 185).

To facilitate the integration of supply chains among many firms within an industry, the last few years have witnessed the creation of several consortium based, business-to-business (B2B), industry-specific electronic exchanges (we henceforth refer to them as *industry exchanges*). Unlike public exchanges that are third party operated and owned, industry exchanges are set up by the trading partners themselves, with typically one or

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0272-6963/$ – see front matter
doi:10.1016/j.jom.2007.05.002

Table 1
Consortium based industry exchanges (2000–2001)

Exchange details	Exchange details
Industry: airline; exchange: AirNewCo; date: 27 April 2000; set-up by: buyers; selected founders: American, Air France, British Airways, Continental, Delta and United Airlines; status: not operating	Industry: metal; exchange: Metal Spectrum; date: 2 May 2000; set-up by: sellers; selected founders: Alcoa, Allegheny Technologies, Kaiser Aluminum, North American Stainless, Olin, Reynolds Aluminum, Thyssen, Vincent Metal; status: operating
Industry: airline; exchange: AeroXchange; date: 24 August 2000; set-up by: buyers; selected founders: America West, Northwest, Air Canada, All Nippon, Cathay Pacific, FedEx, Japan Airlines, Lufthansa, KLM, Scandinavian, Singapore, Air New Zealand, Austrian; status: operating	Industry: mining; exchange: Quadrem; date: 15 May 2000; set-up by: buyers; selected founders: Alcan, Phelps Dodge, Newmont, Alcoa, Noranda, Inco, Barrick Gold, Anglo American, DeBeers, Broken Hill, WMC, Comp. V. Rio Doce, Comp. N.D. Cobre, Rio Tinto; status: operating
Industry: automobile; exchange: Covisint; date: 25 February 2000; set-up by: buyers; selected founders: GM, Ford, Daimler-Chrysler; status: operating	Industry: paper; exchange: Forest Express; date: 23 March 2000; set-up by: sellers; selected founders: International Paper, Georgia-Pacific, Weyerhaeuser, Mead; status: operating
Industry: chemical; exchange: Elemica; date: 17 May 2000; set-up by: sellers; selected founders: DuPont, Dow, Rohm and Haas, Rhodia, Uniroyal, Cabot, Celanese, PolyOne; status: operating	Industry: plastics; exchange: Omnexus; date: 5 April 2000; set-up by: sellers; selected founders: Dupont, Dow, Celanese, M.A. Hanna Company, Geon; status: operating (acquired by SpecialChem)
Industry: defense; exchange: ExoStar; date: 28 March 2000; set-up by: buyers; selected founders: B AE Systems, Boeing, Lockheed Martin, Raytheon; status: operating	Industry: railroad; exchange: Rail Marketplace; date: 17 January 2001; set-up by: buyers; selected founders: Burlington Northern Santa Fe, Canadian National, Canadian Pacific, Norfolk Southern, Union Pacific; status: operating
Industry: electronics; exchange: e2Open; date: 7 June 2000; set-up by: buyers and sellers; selected founders: Hitachi, IBM, LG Electronics, Matsushita, Nortel Networks, Seagate, Solectron, Toshiba; status: operating	Industry: real estate; exchange: Home Builders Ex.; date: 5 May 2000; set-up by: buyers; selected founders: Centex Corp., D.R. Horton, Kaufman & Broad Home Corp., Lennar, Pulte Corp.; status: not operating
Industry: electronics; exchange: eHitex; date: 1 May 2000; set-up by: buyers and sellers; selected founders: Hewlett-Packard, Compaq Computer Corp., Gateway, AMD, Solectron, Agilent, Canon, Hitachi, NEC, Quantum, Samsung, SCI, Tatung, Western Digital; status: operating (changed name to converge)	Industry: retail; exchange: Global Net Ex.; date: 28 February 2000; set-up by: buyers; selected founders: Sears, Roebuck, Carrefour; status: operating (merged with WW Ret. Exch.)
Industry: healthcare; exchange: Global Health Ex.; date: 29 March 2000; set-up by: sellers; selected founders: Johnson & Johnson, GE Medical Systems, Baxter International, Abbott Labs, Medtronic; status: operating	Industry: retail; exchange: Worldwide Retail Ex.; date: 31 March 2000; set-up by: buyers; selected founders: Several including Albertson, Best Buy, CVS, JC Penney, Kmart, Rite Aid, Radio Shack, Safeway, Target, Toys R US, Walgreen, Winn Dixie; status: operating
Industry: healthcare; exchange: Health Nexis; date: 18 April 2000; set-up by: sellers; selected founders: AmeriSource Health, Cardinal Health, Fisher Scientific, McKesson HBOC; status: operating (merged with Global Health Exch.)	Industry: rubber; exchange: Rubber Network; date: 17 April 2000; set-up by: buyers; selected founders: Goodyear Tire & Rubber, Continental AG, Cooper Tire & Rubber, Groupe Michelin, Pirelli SpA, Sumitomo Rubber; status: operating

two dominant exchanges in each industry. Further, unlike other Internet-based business models based on the matching and aggregation of buyers and sellers, the primary purpose of industry exchanges is to facilitate the integration of supply chain related business processes among existing trading partners (Christiaanse, 2005). Table 1 summarizes the prominent industry exchanges set-up in the US during 2000–2001, the primary years when such industry exchanges were established in various industries.

As a mechanism to achieve supply chain integration, industry exchanges have many advantages. The exchange founders listed in Table 1 demonstrate that industry exchanges are usually set-up either by a few prominent buyers (e.g. the Covisint exchange in the auto industry) or a few prominent sellers (e.g. the Healthcare Exchange for hospital supplies). Consequently, they have instant buy-in from the major industry players and have the potential to achieve critical volume of transactions rapidly. Further, the exchange makes it less expensive to participate, as proprietary one-to-one links between partners are replaced with a single, less expensive connection to the industry exchange (Christiaanse, 2005). The