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Valuation effects of mergers and acquisitions in freight transportation

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ABSTRACT

This study investigates valuation effects of mergers and acquisitions in the freight transportation industry. It is found that mergers and acquisitions create synergistic gains, especially tender offers, consistent with the view that freight transportation mergers and acquisitions occur for synergistic reasons rather than management's desire for empire building or perk consumption. Both target's and bidder's shareholders are better-off, but most of the synergistic gains accrue to the target's shareholders. Targets' valuation effects are greater for vertical rather than horizontal mergers, indicating a positive valuation for firms that control and manage a more extensive supply chain. The bidders' wealth effects are greater for friendly mergers. Overall, the findings have important implications for professional practice and the development of the theoretical literature.

1. Introduction

Freight transportation facilitates international trade and contributes to value creation in the world economy. During the last few decades, mergers and acquisitions[1] have been featuring prominently across the ocean shipping, rail and trucking sectors of the freight transportation industry. In fact, through mergers and acquisitions many firms have moved towards the physical and economic integration of the sea–land interface by offering door-to-door freight transport and logistics services (e.g., Hesse and Rodrigue, 2004; Fusillo, 2009). Other reasons for the proliferation of mergers and acquisitions in freight transportation include (i) deregulation and the introduction of the Staggers Act (1980) in the US rail industry (Grimm and Harris, 1983; Grimm et al., 1987) (ii) the US Ocean Shipping Reform Act (1998) in the international ocean liner shipping industry and the demotion of the liner conference system (Fusillo, 2009), (iii) changes in the regulatory environment in trucking (Brooks and Ritchie, 2005), (iv) the need for geographical, economic and operational synergies in the context of third-party logistics (Carbone and Stone, 2005), and (v) the potential for market wealth and other economic gains (see Brooks and Ritchie, 2005; Chapin and Schmidt, 1999; Harris and Winston, 1983; Nolan et al., 2010; Syriopoulos and Theotokas, 2007; Samitas and Kenourgios, 2007). Despite the significant number and the considerable amount paid to target companies, little is yet known about the valuation effects of mergers and acquisitions in the freight transportation industry. In addition, freight transport firms have engaged in vertical (between two different modes, adjacent in the supply chain) and horizontal (same mode, parallel supply

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[1] In the literature the concept 'mergers' differs to the concept 'acquisitions' since the first usually describes a 'friendly' union of two firms of roughly equal size, while the latter contains a more aggressive character of a takeover. In this paper the terms 'mergers' and 'acquisitions' are used interchangeably, an approach that is also frequently adopted in the literature.

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chain) mergers and acquisitions. It is important to understand how the market values vertical vis-à-vis horizontal mergers in the supply chain.

The aim of this study is to empirically examine the valuation effects of mergers and acquisitions in the freight transportation industry. Freight transportation firms are defined as those entities that deal with the physical movement of freight (transportation) by sea (ocean shipping) and land (rail and truck), and includes the arrangement and offering of incidental services that are associated with freight transportation.

The study chooses to focus on freight transportation for several reasons. First, there has been a trend for increased mergers and acquisitions in freight transport facilitated by the regulatory and strategic changes that occurred in various sectors of this industry. This is evident in the relevant literature which *qualitatively* highlights certain determinants of mergers and acquisitions in freight transport (see Chapin and Schmidt, 1999; Fusillo, 2009; Nolan et al., 2010; Samitas and Kenourgios, 2007; Syriopoulos and Theotokas, 2007). The trend may become more pronounced in the near future following the current economic circumstances that affect the freight transport industry in line with Harford (2005) who indicates that market timing and industry shocks can spur merger waves. Hence a study of mergers valuation in freight transport can have important implications for professional practice and the development of the theoretical literature.

Second, despite the existence of a voluminous body of literature on the subject area which underpins the scientific and practical interest in the investigation of valuation effects in mergers and acquisitions (for an extensive review refer to Martynova and Renneboog, 2008), only a small part deals with industry-specific samples, necessitating the importance of undertaking such studies. Industry-specific research can provide the opportunity to control for industry related factors that could affect firm market performance (see DeLong, 2001). For instance, apart from the usual control in event studies (i.e., market model returns) there might be other (risk) factors that are industry specific (e.g., Sweeny and Warga, 1986) and they should be controlled for, in order to obtain uncontaminated valuation effect results. The effort in this study is consistent with this view.

Third, in the spirit of DeLong (2001), by focusing on the freight transportation industry, this study also minimizes the impact of potential inter-industry valuation effects. Prior empirical evidence from the financial economics and the strategic management literature that employ large cross sectional datasets could be driven by some industries that engage in value-maximizing mergers while other industries may engage in value-destructive mergers. In this respect, prior literature provides evidence that firm performance is conditional on observed or unobserved inter-industry effects. For instance, Giroud and Mueller (2009) argue that competition, which is an industry specific characteristic, can mitigate managerial slack. More broadly, Himmelberg et al. (1999) suggest that unobserved inter-industry effects moderate the relation between ownership and firm performance.[2] Therefore, the results of this study should be more robust and immune to observed/unobserved firm heterogeneity industry differences found to influence firm performance.

Fourth, little is known about the valuation effects of vertical versus horizontal freight transportation mergers. The physical integration of transport modes enabled companies to vertically integrate and thus manage the processes and service the needs of a more extensive supply chain. However, no study has as yet addressed the merits of a vertical versus a horizontal merger in freight transport. This study contributes to what Bontekoning et al. (2004) called an *emerging field* for transportation research, that is, understanding the economic and financial implications of greater intermodal freight transport integration.

This study contributes to the transportation literature that deals with the valuation effects of mergers and acquisitions. Prior research has been carried out in various transportation modes (e.g. liner shipping, tramp shipping, public transportation, railroad and trucking). Despite their exploratory contributions, prior results are far from being generalisable since in most cases the findings have been constrained by sampling limitations or have applied a case study approach. In addition, in the vast majority of cases, prior studies have not taken into account the so-called vertical freight transportation mergers, that is, mergers between companies operating in different modes of transport but vertically related in the supply chain. Instead, the vast majority of prior studies focused on horizontal freight transportation mergers, that is, mergers of freight transport companies serving the same market(s) in parallel (e.g. Brooks and Ritchie, 2005, 2006; Carbone and Stone, 2005; Chapin and Schmidt, 1999; Harris and Winston, 1983; Nagurney, 2009; Samitas and Kenourgios, 2007; Fusillo, 2009). This study builds on and expands this literature by investigating for the first time specific research hypotheses that include valuation (i.e., wealth) effects of the mergers and acquisitions for the economy, as a whole, and for the bidding firms' and target firms' shareholders. Moreover, the study contributes to the literature by investigating valuation effects of merger and acquisition-specific characteristics, namely hostility, tender offers, method of payment, toehold, and vertical and horizontal freight transportation mergers.

The study is organized as follows. Section 2 provides a review of the relevant freight transportation literature on mergers and acquisitions and develops hypotheses on the basis of prior theoretical findings. Section 3 describes the research methodology which includes the chosen sample and variable construction. Section 4 discusses the results of the multivariate analysis, while Section 5 discusses robustness tests. Section 6 highlights the key implications emanating for theory and practice before concluding.

[2] The freight transportation literature has specific idiosyncratic characteristics that render the thesis of observed/unobserved inter-industry effects valid. For instance, freight transportation firms tend to hold higher value physical assets and operate in a highly competitive environment (particularly after deregulation that occurred since the 1980s) with market uncertainty and extreme volatility culminating into high risks (see Behrens and Picard (2011), Forkenbrock (2001) and Hesse and Rodrigue (2004) for an economic and spatial analysis of freight transportation characteristics).