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## An Analysis of the Competitiveness of Major Liner Shipping Companies

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### ABSTRACT

This paper investigated if differences of the profits of the Korean and other global shipping companies were affected by the shipping route specialization. A panel data model was applied to nine shipping companies during the 2009-2015 period, to determine to what extent freight rate, bunker fuel prices, scale economies and chartered vessel ratios affected the profits. The results showed freight rate exerted a significant positive impact and bunker fuel price a significant negative effect on the profits. However, scale economies' effects and chartered vessel ratios were insignificant or at best obscure, thus requiring a more in-depth study in this direction.

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### 1. Introduction

The global shipping industry is currently experiencing another sluggish market situation, and the current market situation of the global shipping industry is a phase of one of 20 boom-bust cycles that the shipping industry has ever experienced since 1734 (Stratfor, 2013). The most recent cycle started with a boom period beginning in 2004 until 2008 when global financial crisis hit and subsequently global economic recession followed, causing the bust phase of the current cycle. The current global hardship experienced by the shipping industry is across the market segments of tanker, container and dry bulk, and the hardship is also affecting shipbuilders as well as ship owners. The freight rate plummeted ensuing the great collapse of world trade after the global financial crisis, and the industry's hardships were further exacerbated by an oversupply of ships (UNCTAD, 2015). During these challenging times, shipping

companies are making various efforts to overcome current hardships by pursuing more efficient ways of reducing bunker cost including more frequent cleaning of hull and propellers of the vessels, slow cruising, and at the same time pursuing more economies of scale by deploying bigger ships to transport cargos. However, the ever-increasing size of vessels, especially in the container shipping industry, enables some large companies to engage in a race of lowering freight rates, creating even more pressure on the already depressed freight market. While pursuing economies of scale, the shipping companies are also forming alliances that in turn are altering the map of global shipping market.

China's two global container shipping companies, COSCO and CSCL, were merged into COSCO Container Group in response to the severe shipping market shrinkage and to the global shipping companies' strategy

of getting bigger.<sup>1</sup> It seemed that they think there was no other way to survive than getting bigger. Almost all the global container shipping companies are subjected to severe levels of competition at major shipping routes, resulting in plunging freight rates per TEU and in disposal of ships by selling to reduce excessive net loss. Nonetheless, some larger shipping companies such as Maersk, CMA CGM and NYK have achieved high relative profit levels when compared with lower profit levels achieved by Hanjin Shipping Co. and negative profits or losses of Evergreen and Hyundai Merchant Marine (HMM) in 2015.

In 2013, according to China Containerized Freight Index, the average freight rate of the Europe-Far Eastern route was \$1,081.8 per TEU that in turn was lowered to \$270 during the first quarter in 2016. For the North America-Far Eastern route the average freight rate was \$2,032 per TEU that in turn gradually fell to \$725 per TEU during the same period. Such low freight rates of major shipping routes drove global shipping companies into a serious financial pinch. Furthermore, the deployment Maersk Triple E-Class 18,000 TEU mega container ship in the Europe-Far Eastern route has constituted one clear indication of intent to achieve economies of scale, energy efficiency and environment friendliness, while also fueling fierce downward competing pressures on freight rates. In this seemingly dire situation, some companies have gained profits, while others have suffered losses or negative profits.

The purpose of this paper is to investigate if the competitiveness of container shipping, as measured by profits or the profit/revenue ratio, differs for Korean container shipping companies relative to other major global container shipping companies<sup>2</sup>, such as Maersk, CMA CGM, Evergreen and NYK. Focus is especially placed on the route specialization of shipping companies. In addition, this paper attempts to examine how, to what extent, the competitiveness (in terms of profits or profit ratios) of the examined shipping companies is influenced not only by economies of scale (measured by the average size of vessels), but also by the proportion of chartered vessels designed to give flexibility in their fleet deployment.

The remaining part of this paper is structured as follows. In the section 2, the current market situation of container shipping industry is examined, targeting at freight rate, volatility of profits earned by the container shipping companies, the shipping companies' status of leasing vessels, expressed chartered vessels ratios. Section 3 deals with theoretical backgrounds as for the factors affecting the shipping companies' profits. In this section a panel data model for nine shipping companies over seven year period is specified. Section 4 is devoted for discussing the results of various panel data estimation method, including fixed and random effects specifications. Section 5 concludes the paper.

## 2. Current Situation of Container Shipping Industry

### 2.1. Container Freight Rate Movement after Financial Crisis

Baltic Dry Index (BDI) which measures the prices of shipping and the rates for chartering the bulk carriers that transport iron ore, coal and grain has plunged dramatically from 2008 to the end of the first quarter of 2016. Average BDI was 6,390 in 2008, declined to 2,617 in 2009, and continued

its decline to 291 in Feb. 15, 2016. Recently BDI is showing signs of recovery and reaches around 700. Meanwhile the China Containerized Freight Index (CCFI) which summarizes the container market situation dropped to 652 at the end of the first quarter in 2016 from average 1,086 in 2014. The CCFI of the first quarter in 2016 was 40% below comparing to the freight rate level in 2014.

The actual average freight rate for the Europe-Far Eastern route dropped to an even worse level at \$271 per TEU at the end of the first quarter in 2016, from \$1,158 in 2014. The latter figure was 77% below the 2014 level. On the contrary, the actual average freight rate for North America-Far Eastern route increased to \$2,092 per TEU in 2012 and had been kept the level until 2014. The freight level was on a downturn since 2015 and further declined to \$725 per TEU by the end of the first quarter in 2016, a decrease of 65% from levels in 2012.

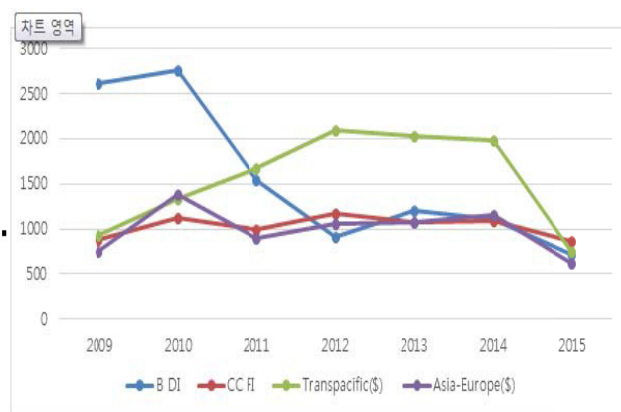


Fig. 1. Freight Rate of Major Shipping Routes

Source: Authors' drawing based on statistics from Baltic Dry Index, China Containerized Freight Index, and KMI World Shipping Outlook, 2016

### 2.2. Revenues and Operating Profits of Major Shipping Companies<sup>3</sup>

The revenues of Maersk and CMA CGM seemed to increase for the period of 2009-2014. Even though NYK had ups and downs movement in revenues, it managed to maintain a certain threshold level of revenues until 2015. Meanwhile Hanjin had a slight upward movement until 2013, after which profits decreased. The revenues of Hyundai Merchant Marine (HMM) and Evergreen showed a continuously decreasing trend from the year of 2012.

Maersk and CMA CGM had operational deficits in the 2009-2011 period, and generated operational profits since 2012. NYK continuously earned profit gains from 2013, and Hanjin made operational profits only in 2015. Evergreen, a Taiwanese global container shipping company, got deficits continuously for the seven-year period, except in the years of in 2010 and 2014. Hyundai Merchant Marine got deficits throughout the period from 2009 to 2015, except in the year of 2010.

<sup>1</sup> For the details of alliance formation in the container shipping lines, refer to Joerss et al. (2015).

<sup>2</sup> Container shipping companies and shipping companies are used interchangeably, henceforth.

<sup>3</sup> These figures quoted in this paragraph below were obtained from the internal sources available from the Korea Ship Owners' Association.

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