

*The Hong Kong Polytechnic University*  
*Department of Logistics and Maritime Studies*  
*Research Seminar*

## **Managing Liner Shipping Operations With Bigger Ships And Larger Alliances: Theory And Practice**

by

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**Date: 3 November 2017 (Friday)**  
**Time: 4:30pm-5:30pm**  
**Venue: FJ620, Chan Tai Ho Building**  
**The Hong Kong Polytechnic University**

**(Conducted in English)**

### **Abstract:**

The liner shipping industry is under a series of continuous changes: ships are getting bigger, the market is more volatile and more carriers are joining larger alliances. Theory predicted that larger ships would adopt 'hub-and-spoke' structure in liner shipping networks and call fewer ports in their services. That may intensify the competition among regional container ports for the hub position. However, the empirical study of liner shipping services calling Chinese ports in 2011 to 2015 shows that carriers are not calling fewer ports as ship size increases. The apparent contradiction between the theory and the observed facts motivated this study to answer following questions: What is the current relationship between port call decisions and ship size? How do liner shipping operators decide port calls with large containerships in a competitive market? How do large containerships and alliances affect the financial performance of liner shipping companies?

Firstly, the thesis collects information of liner shipping services calling Chinese ports in 2011 and 2015 from Alphaliner database and identifies the effects of service attributes on hinterland/port choice by ordered logit regressions and OLS regressions. This study finds that increasing ship size within a certain range leads to more clusters/ports visit. Beyond that, larger ships visit fewer clusters, not necessary fewer ports.

Secondly, this thesis establishes an analytical model of port selection behavior in liner shipping services. The decision on the number of port calls is analyzed in both transshipment and no-transshipment case. It identifies the optimal condition on the number of port calls in a single-operator market and that in competitive market. The simulated results of liner shipping services between China and North America in 2011 and 2015 show that there may be turning points.

Finally, the thesis investigates the moderating effects of large containerships and alliances on how the external/internal factors affect the financial performance of operators. This empirical study involves 20 liner shipping companies during 2001 to 2015. By a fixed-effect panel data model with Log-Log regression, this study shows that the revenue of the company dominated with large containerships is more sensitivity to prices, average ship size and capacity change; joining alliances can alleviate these effects.

Both theoretical and practical implications of this research are discussed.

### **Bio:**

Wu Xiaofan is a PhD candidate in the Department of Logistics and Maritime Studies, the Hong Kong Polytechnic University. She is now under the supervision of Dr. Meifeng Luo.

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**All are welcome!**