

# Sample Translation

## Shipping Industry Analysis

- See below for the original Chinese manuscript.
- **A native-speaker of English who has studied this field** proofreads the translated English.
- The quality of the translated manuscript is suitable for publication in an international journal.

### Freight Rate Determination Mechanism in Dry-Bulk shipping Market

**Summary:** The main purpose of this study is investigating factors influencing bulk shipping market sea freight as well as the flow-on effects of the volatility between the sea freight and those factors. To analyze interactions among sea freight, influential factors and other important factors (for example: price of coal, price of crude oil, and price of steel), our study first adopts the VAR(p) model to make estimations as well as investigate the relationship for interactions among variances. Secondly, if heteroscedasticity exists on each group of variances through examinations, we work them further with the multi-variate GARCH model and in turn increase precision for investigations on the dynamics of the influential mechanism of sea freight pricing. Experiments have shown that the pricing of raw materials such as crude oil price, coal price and steel price will all have effects on the pricing indexes of sea freight markets (BPI & BCI). With indications, when pricing of raw materials is up, sea freight will be up as well; that is, short-term demands on raw materials will push up shipping demands. At the same time, our study has also discovered that if the fluctuations in raw materials are becoming more severe, the fluctuations on the sea freight will become more unpredictable.

### Foreword

In recent years, the industrialization and urbanization from BRIC (Brazil, Russia, India & China) and new emerging countries have increased demand of global raw materials and when supplies of raw materials are unable to keep pace with demands, an imbalance between demand and supply results and pricing rises rapidly. Basically, distribution of global resources are unequal and most raw materials possess characteristics such as substantial size and thus the exchange between supply and demand mostly relies upon sea transportation. Currently, 90% of trade volumes for global raw materials occur by way of sea transportation.<sup>1</sup> After 2002, the annual average growth of trade volumes of sea transportation even reached 4.9%.

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<sup>1</sup> The statistical data for 2006 from International Maritime Organization (IMO)

摘要：本文的主要目的在于探讨影响散装海运市场运价的因素，以及运价与其影响因素间的波动传递效果。然而为分析海运价格与影响因素及其他重要因素（如：燃煤价格、原油价格、钢铁价格）之间的相互作用，本文先以 VAR(p) 模型估计并探讨变数间的相互影响关系。然后当各组变数透过验证发现有存在异质变异的现象时，则进一步结合多变量 GARCH 模型，以便更精确地探讨海运价格的动态影响机制。实证结果发现，油价、煤价及钢价等原材料价格皆会影响到海运市场的价格指数 (BPI, BCI)。当原材料价格上涨时，运价会随之扬升，也就意味短期原材料的需求增加会推升海运的需求量。本文同时也发现到，原材料价格的波动加剧将会加深海运运价变动的不确定性。

## 1. 前言

近年来，金砖四国及新兴国家的工业化与都市化带动了全球原材料需求的紧绷。在原材料供给无法很快的跟上的时候，供需失衡所导致的结果便是价格的急速攀升。基本上，全球资源的分配并不平均，而且原材料多具有体积庞大的特性。因此，供需之间的流通大多依赖海运运输。目前全球原材料的贸易约有 90% 的贸易量经由海运运送<sup>2</sup>，而 2002 年之后海运贸易量的年平均成长更达到 4.9%。

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<sup>2</sup>International Maritime Organization (IMO) 于 2006 年之统计数据