

波羅的海散乾貨指數影響因素之分析與預測

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摘要

乾散貨航運市場為完全競爭市場，運價決定於市場供需，資本投入高、風險大，經營相當不易。波羅的海乾散貨指數為市場之運價指標，藉由觀察 BDI 變化，即可看出市場運價之變動。

本研究主要內容在探討不定期海運市場中「波羅的海乾散貨指數」之影響因素，並建立其變化預測之模式。研究方法採用迴歸分析與時間序列方法中之 ARIMA 與介入模式，分別建立乾散貨指數 (BDI) 模式與其所包含之波羅的海海峽型指數 (BCI)、波羅的海巴拿馬極限型指數 (BPI)、波羅的海輕便極限型指數 (BHMI) 等四項指數之預測模式。經將直接預測 BDI 模式之預測結果與分別預測 BCI、BPI、BHMI 三項指數模式再加權統合的結果加以比較，以直接預測模式效果較佳。此外，本研究結果並顯示，在兩種時間序列預測模式，以介入模式的預測效果較 ARIMA 為佳。影響指數變化的各種可能因素中，則以船噸供給、穀類、亞洲鋼鐵需求之影響為顯著。

關鍵字：波羅的海乾散貨指數 (BDI)、迴歸分析、介入模式、

整合自我迴歸移動平均模式

Analysis of Influential Factors and Forecasting of Baltic Dry Index

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Abstract

Dry cargo shipping is a fully open competitive market with characteristics of high capital investment and high risk of operation, of which shipping freight is determined by both supply and demand. Baltic Dry Index (BDI) is a freight index of the market. The importance of BDI is that the change of shipping freight can be observed from the variation pattern of that index.

This study aims to explore factors influencing the change of “Baltic Dry Index”, as well as to find out a suitable method and model to forecast the change of this index. Since BDI is a weighted average of three indexes, namely Baltic Capesize Index, Baltic Panamax Index and Baltic Handymax Index, both direct and indirect modeling approach are adopted by using Regression, ARIMA and Intervention model of time series analysis techniques. The forecasting models of BDI, BCI, BPI and BHMI are respectively developed and compared in this study. The results of comparing different methods of BDI forecasting models reveal that direct forecasting approach is better than indirect approach, and that intervention model is better than ARIMA. This study also find out that among many possible influential factors, ship’s deadweight supply, grain and steel demand of Asia are the most significant factors.

Key word: Baltic Dry Index (BDI), Regression, Intervention Model, ARIMA