

SHIPPING MARKET SWITCHING UNDER EXTREME VOLATILITY

EXTENDED ABSTRACT - PLEASE DO NOT QUOTE

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International shipping is a capital intensive industry that is characterized by high uncertainty, capacity constraints and irreversible investment. This makes search for market imperfections and optimal timing of investment a key issue for ship owners. Seldom or hardly ever in peacetime have the major bulk markets that dominate the shipping business been as volatile as during the decade that led up to the current economic crisis. The objective of this paper is to use the recent development to investigate asset play by well-informed market agents and to deepen the understanding of optimal investment in shipping during or close up to a crisis. This is done by studying arbitrage opportunities for a capital-constrained ship owner in terms of switching between two major bulk market segments. The paper builds on and extends previous work by Sødal, Koekebakker and Ådland (Applied economics 2009, 41 (22), pp. 2793-2807). Picking two carriers with roughly the same size and costs – Capesize drybulk carriers and Suezmax oil tankers – their paper focused on the second-hand markets. There are reasons to believe that these two bulk markets are partially integrated. Freight rates in the two segments are not expected to move very far apart in the long run. Based on data from 1992 up until 2005, Sødal, Koekebakker and Ådland investigated whether such information could be used to reveal arbitrage gains from switching – purchasing and selling five year old ships at current market prices. Their main result was that a ship owner typically does not have much to gain from such asset play, under reasonable switching cost assumptions and dynamic assumptions which included an Ornstein-Uhlenbeck process for the freight rate differential. However, there are some exceptions in the second part of their data period during which the overall volatility in the market increased, the market apparently behaved irrationally, and some expected gains did arise from asset play.

The market development after the end of their sample period (primo 2005) is astonishing. In this paper, therefore, we start out with the same basic model and update their analysis with data up until the end of 2009. Then we turn to a similar analysis of market switching in the related newbuilding markets. Figures 1 and 2 show the freight rate developments (average monthly earnings) for the two bulk carriers in question.

Figure 1

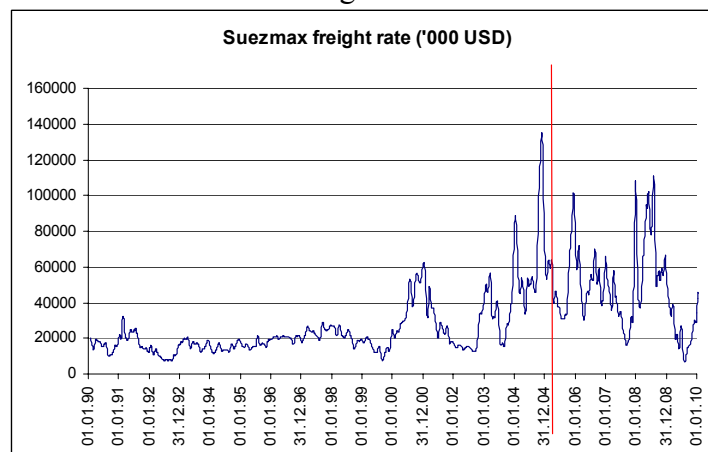
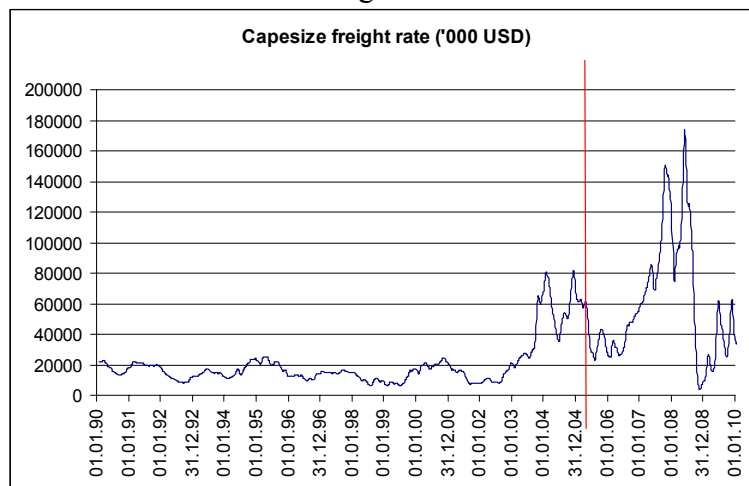


Figure 2



The end of the sample period used by Sødal, Koekebakker and Ådland is marked with a vertical bar in both figures. As can be seen, the tanker market remained volatile at a distinct higher level than before, and a kind of regime shift seems to have taken place. The drybulk market more or less went wild shortly after 2005. Figure 3 shows the freight rate differential between the two sectors from figs. 1 and 2. The markets gradually became more separated until the rather extreme development in the dry bulk market started.

Figure 3

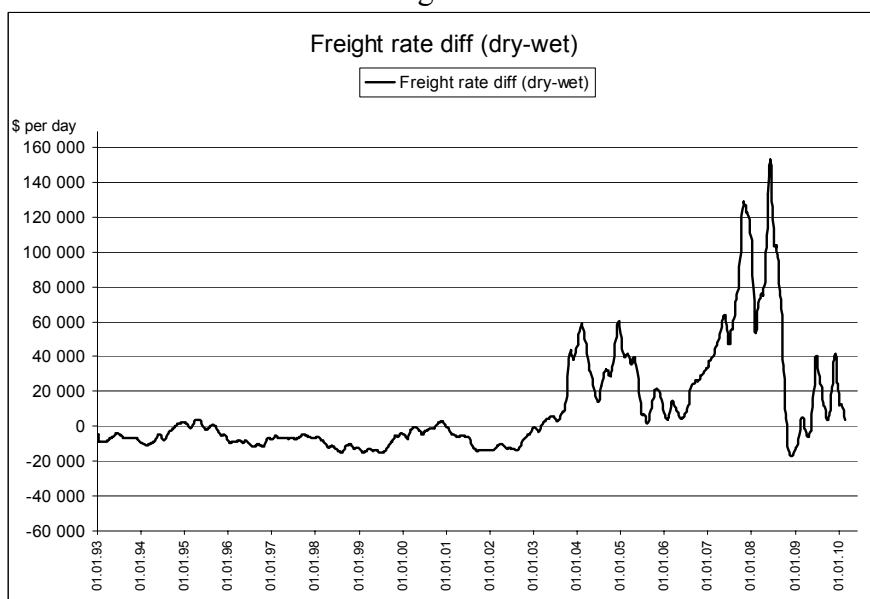


Figure 3 confirms or nails down, one might say, the tendency of increasing uncertainty and market separation that was also noted and investigated by Sødal, Koekebakker and Ådland. This makes it highly interesting to continue with analysis of market switching in these markets to test the real options valuation models in new environments and to understand better the relationship between the global economic crisis and the development of global shipping. The formal analysis consists of two main parts:

(1) Updated and extended analysis of asset play in the second-hand markets. The results in Sødal, Koekebakker and Ådland (2009) are supplemented by new data as described above.

This task can only be fulfilled to the extent that reliable market information allows for it. Some ad hoc rules on top of empirical real options valuation are needed for certain periods during the crisis when the information providers failed to provide enough market observations and other information to quantify all prices in a credible way.

(2) Asset play in the newbuilding market. Market equilibrium could be reached in this context either by switching that occurs in the second-hand markets as discussed above, or by purchase and sale (of contracts) in the newbuilding markets. If the two bulk markets were perfect as separate market segments, these two alternative approaches would be like two sides of a coin. When markets are imperfect, the potential for arbitrage could depend on whether asset play takes place in the newbuilding market or in the second-hand market. Using the same models and approach as in previous work, this part of the paper discusses asset play in the newbuilding market.

The analysis makes use of very new market information and is not yet completed. Several conclusions are still to be drawn – especially as far as the newbuilding market is concerned, but the work done so far indicates the following preliminary conclusions:

- 1) The potential for arbitrage in the second-hand markets for bulk ships increased after 2005, during the build-up to the financial crisis.
- 2) The potential for arbitrage by asset play in the second-hand markets appears to differ from the similar opportunities in the newbuilding markets for these bulk ships. It follows that the markets for ships of different age within each class – Capesize drybulk carriers versus Suezmax oil tankers in particular – are not always internally balanced. This could indicate value from asset play also for a specialized shipping company that for external reasons may not be able to operate efficiently in both bulk markets.
- 3) The most recent decade could be so exceptional by historical standards and in terms of demand fluctuations and supply-demand imbalances, that most attempts to make general conclusions based on it, might be questioned. In retrospect, when viewing the experience from the last decade in light of the very long history of international shipping, it can be argued that more people – way ahead of what happened – should have been able to interpret the market development in global shipping as a warning sign that a serious crisis was about to take place.