

**CYPRUS UNIVERSITY OF TECHNOLOGY**



**Master's Thesis**

**THE EFFECT OF OIL PRICES ON CONTAINER SHIP  
OPERATION AND CAPACITY**

**AN ENVIRONMENTAL APPROACH**

**POLYDOROS VAGIANOU**

**Limassol, May 2017**



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# **Approval Form**

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Presented by

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Signature \_\_\_\_\_

Cyprus University of Technology

Limassol, May 2017

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The approval of the thesis by the Department of Shipping and Finance does not imply necessarily the approval by the Department of the views of the writer.

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## **ABSTRACT**

This Master thesis, entitled “The effect of oil prices on container ship operation and capacity, an environmental approach”, aims to study the history and latest developments on maritime fuels and their effect on liner shipping, (specifically container ships) and ultimately the environmental issues that arose in the last decade.

In Chapter One “The liner Shipping Industry”, an outline of liner shipping and its operations is included.

Chapter Two “Oil and Marine fuels” provides a timeline of oil production and processing and how these processes developed over time. In addition, marine fuels are outlined explaining their characteristics and marketability. Further on an analysis is provided with regards to bunker prices and their correlation with freight rates.

Chapter Three “Freight rates and Bunker Prices – Review” includes the numerical part of the review, with data observed from intelligence databases. Trends of bunker prices and freight rates are compared and a causality relationship is established based on past research and recent trend comparisons.

Chapter Four “Environmental Regulation” touches a more sensitive part of bunker consumption in shipping, which is the recent development in European and worldwide regulation regarding maritime fuel emissions and their impact on the environment.

In the last chapter, Chapter Five “Methods of reducing fuel consumption, emissions of air pollutants and fuel alternatives”, the methods of how the container ship industry can be adjusted to accommodate requirements for lower fuel consumption, both for adverse price effects but also due to environmental regulation are outlined. Various operational, technical and alternative methods are defined that are currently in use or they are in the process to be adopted by shipowners.

**Keywords:** liner shipping, marine fuels, environment, alternative energy