«VALUATION OF A SHIPPING COMPANY»

ΚΩΝΣΤΑΝΤΙΝΟΣ ΣΚΟΝΔΡΑΣ

Εργασία υποβληθείσα στο

Τμήμα Λογιστικής & Χρηματοοικονομικής

του Οικονομικού Πανεπιστημίου Αθηνών

ως μέρος των απαιτήσεων για την απόκτηση

Μεταπτυχιακού Διπλώματος Ειδίκευσης

Αθήνα

Αύγουστος 2017

Εγκρίνουμε την εργασία του

ΚΩΝΣΤΑΝΤΙΝΟΥ ΣΚΟΝΔΡΑ

ΕΜΜΑΝΟΥΗΛ ΚΑΒΟΥΣΑΝΟΣ

ΧΑΛΑΜΑΝΔΑΡΗΣ ΓΕΩΡΓΙΟΣ

ΛΕΛΕΔΑΚΗΣ ΓΕΩΡΓΙΟΣ

31/8/2017

ΒΕΒΑΙΩΣΗ ΕΚΠΟΝΗΣΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

«Δηλώνω υπεύθυνα ότι η συγκεκριμένη πτυχιακή εργασία για τη λήψη του Μεταπτυχιακού Διπλώματος Ειδίκευσης στη Λογιστική και Χρηματοοικονομική έχει συγγραφεί από εμένα προσωπικά και δεν έχει υποβληθεί ούτε έχει εγκριθεί στο πλαίσιο κάποιου άλλου μεταπτυχιακού ή προπτυχιακού τίτλου σπουδών, στην Ελλάδα ή στο εξωτερικό. Η εργασία αυτή έχοντας εκπονηθεί από εμένα, αντιπροσωπεύει τις προσωπικές μου απόψεις επί του θέματος. Οι πηγές στις οποίες ανέτρεξα για την εκπόνηση της συγκεκριμένης διπλωματικής αναφέρονται στο σύνολό τους, δίνοντας πλήρεις αναφορές στους συγγραφείς, συμπεριλαμβανομένων και των πηγών που ενδεχομένως χρησιμοποιήθηκαν από το διαδίκτυο».

ΚΩΝΣΤΑΝΤΙΝΟΣ ΣΚΟΝΔΡΑΣ

Table of Contents

List of figures

PREFACE

The reason why I chose this valuation project, was to demonstrate, my ability to use the knowledge gained firstly by both my undergraduate degree in Accounting and Finance and my current postgraduate studies in Finance and secondly my experience in accounting and particularly in auditing, gained by my 4-year working experience. This thesis has been both challenging and rewarding and for that I would like to thank my supervisor and professor Manolis Kavussanos, for his detailed and useful feedback throughout the writing of this thesis.

Athens, August 2017

Konstantinos Skondras

ABSTRACT

Valuation of companies has always been a sector, where many people in economics devoted their concerns, about finding the best way to value a company. For that reason, many different ways have been proposed to find the "fair" value of a company. However, the process of valuation is a demanding task and sometimes, dependent on different theoretical frameworks and subject to the analysts' subjective interpretations. This dissertation is focused on valuing two listed shipping companies of a different sector. The first company is Diana Containerships Inc. a Greek shipping company and the second company is Capital Product Partners L.P, both listed on Nasdaq, Thus, providing an illustration of the challenges faced when valuing enterprises. In particular, three different theoretical frameworks, suggested by the most renowned authors in this field of study, were utilized to capture the fair values of the companies. To successfully fulfill the purpose of this thesis, state of the art literature was reviewed, in order to present the valuation models.

ΠΕΡΙΛΗΨΗ

Σκοπός της τρέχουσας διπλωματικής εργασίας είναι η αποτίμηση δύο (2) ελληνικών ναυτιλιακών εταιρειών εισηγμένων στον NASDAQ. Η αποτίμηση αυτή πραγματοποιήθηκε συνδυάζοντας τις γνώσεις πάνω στη Χρηματοοικονομική που απέκτησα από το τρέχον μεταπτυχιακό πρόγραμμα καθώς επίσης και τις γνώσεις, που έχω αποκτήσει από τις προπτυχιακές μου σπουδές στο τμήμα της Λογιστικής και Χρηματοοικονομικής στο Οικονομικό Πανεπιστήμιο και από την εμπειρία μου στο ελεγκτικό επάγγελμα τα τελευταία τέσσερα (4) έτη. Οι εταιρείες που αποτιμήθηκαν στην εν λόγω διπλωματική εργασία είναι η Diana Containerships Inc. και η Capital Product Partners L.P. Στο πρώτο κεφάλαιο της εργασίας πραγματοποιείται μία σύντομη παρουσίαση της σημασίας που έχει μία δίκαιη αποτίμηση. Ενδεικτικά αναφέρονται τα εξής:

1) Ενισχύει και προωθεί τις συγχωνεύσεις και εξαγορές.
2) Για τις εισηγμένες στο χρηματιστήριο εταιρείες, επιτρέπει στους επενδυτές να λαμβάνουν αποφάσεις για το εάν θα πουλήσουν, θα αγοράσουν ή θα διακρατήσουν τις μετοχές.
3) Υπολογισμός της τιμής της μετοχής για μια εταιρεία για την αρχική της εισαγωγή στο χρηματιστήριο.

Στην συνέχεια παρουσιάζονται οι βασικές κατηγορίες στις οποίες χωρίζονται οι μέθοδοι αποτίμησης, με βάση τη διεθνή βιβλιογραφία καθώς επίσης και τα προβλήματα, τα οποία ενδέχεται να υπάρξουν στην αποτίμηση των εταιρειών. Οι διαφορετικές μέθοδοι αποτίμησης δίνουν και διαφορετικά αποτελέσματα, έτσι καθιστούν δύσκολη την επιλογή της μεθόδου αποτίμησης που θα χρησιμοποιηθεί. Από την έρευνα που διενεργήθηκε στα πλαίσια της εν λόγω εργασίας, κατά την άποψή μου, οι μελέτες που αφορούν την αποτίμηση ναυτιλιακών εταιρειών επικεντρώνονται περισσότερο στην κατασκευή μοντέλων για τον υπολογισμών των ναύλων και των τιμών των συμβολαίων και όχι τόσο στην κλασική αποτίμηση των εταιρειών.

Στο δεύτερο κεφάλαιο παρουσιάζονται οι εταιρείες που αποτιμώνται καθώς επίσης και οι κλάδοι που δραστηριοποιούνται στην ναυτιλία. Συγκεκριμένα, η Diana Containerships Inc. δραστηριοποιείται στον κλάδο των εμπορευματοκιβωτίων, ενώ η

εταιρεία Capital Product Partners δραστηριοποιείται κυρίως στον κλάδο μεταφοράς πετρελαίου και των παράγωγων στοιχείων καθώς και χημικών. Επιπρόσθετα, με αναφορές από έρευνες τόσο του ερευνητικού τμήματος της εταιρείας Clarksons όσο και από αναφορές άλλων συμβουλευτικών εταιρειών που δραστηριοποιούνται στον τομέα της ναυτιλίας, πραγματοποιείται μια παρουσίαση των τάσεων που παρατηρούνται στην ναυτιλία. Ο κλάδος των εμπορευματοκιβωτίων, μετά την κρίση του 2010 αντιμετωπίζει δυσκολίες και ταυτόχρονα λόγω της μεγάλης προσφοράς πλοίων σε όρους tonnage, οι ναύλοι και τα ναυλοσύμφωνα να έχουν μειωθεί αρκετά. Επίσης και κλάδος της μεταφοράς πετρελαίου έχει επηρεασθεί αρνητικά από την οικονομική κρίση, παρόλα αυτά κινείται σε πολύ καλύτερα επίπεδα από ότι οι υπόλοιποι κλάδοι της ναυτιλίας. Επίσης, παρουσιάζονται κάποια βασικά στοιχεία τα οποία επηρεάζουν και τα οποία προσθέτουν ή αφαιρούν αξία στην ναυτιλία, όπως η προσφορά και η ζήτηση, η παγκόσμια ανάπτυξη, οι αξίες των πλοίων και οι τιμές του πετρελαίου, οι οποίες επηρεάζουν τόσο τους ναύλους όσο και τα λειτουργικά έξοδα των πλοίων. Τέλος διενεργείται και μία στρατηγική ανάλυση με τα θετικά και τα αρνητικά στοιχεία, για τις δύο (2) ναυτιλιακές εταιρείες, σε σχέση με τον ανταγωνισμό.

Στο τρίτο κεφάλαιο παρουσιάζεται σε θεωρητικό επίπεδο η βασική μέθοδος αποτίμησης που χρησιμοποιείται στη διπλωματική εργασία, καθώς επίσης διενεργείται και μία ανάλυση των συστατικών στοιχείων της. Γίνεται ανάλυση της μεθόδου προεξόφλησης των καθαρών ταμειακών ροών, του τρόπου υπολογισμού των καθαρών ταμειακών ροών, του υπολογισμού το μέσου σταθμικού κόστους κεφαλαίου και των συστατικών του μερών. Τέλος παρουσιάζεται και η μέθοδος προεξόφλησης των μερισμάτων.

Στο τέταρτο κεφάλαιο διενεργείται μία παρουσίαση των χρηματοοικονομικών καταστάσεων των εταιρειών και η μετατροπή τους, για τη διευκόλυνση της αποτίμησης καθώς επίσης και η ανάλυση των βασικών αριθμοδεικτών που θα χρησιμοποιηθούν στην αποτίμηση με βάση τη μέθοδο των συγκρίσιμων. Για την καλύτερη κατανόηση της θέσης μιας εταιρείας για του που βρίσκεται στον κλάδο που δραστηριοποιείται συγκριτικά με τον ανταγωνισμό χρησιμοποιήθηκαν κάποιοι βασικοί αριθμοδείκτες, τα αποτελέσματα των οποίων παρουσιάζονται στο εν λόγω κεφάλαιο. Η Diana containerships, με βάση τους αριθμοδείκτες αυτούς υστερεί στις περισσότερες περιπτώσεις, σε σχέση με τον ανταγωνισμό, ενώ αντίθετα η εταιρεία

Capital Product Partners, κινείται αρκετά ικανοποιητικά συγκριτικά με τους επιλεγμένους ανταγωνιστές της.

Στο πέμπτο κεφάλαιο με βάση τις οικονομικές καταστάσεις των ετών 2010-2016 καθώς επίσης και τα στοιχεία από τις έρευνες και τις προβλέψεις των συμβουλευτικών εταιρειών που δραστηριοποιούνται στον κλάδο της ναυτιλίας, έγιναν κάποιες παραδοχές για την μελλοντική εξέλιξη των εσόδων και των εξόδων των εταιρειών καθώς επίσης και των λοιπών στοιχείων των οικονομικών τους καταστάσεων. Επομένως στο κεφάλαιο αυτό παρουσιάζονται οι μελλοντικές οικονομικές καταστάσεις των δύο (2) εταιρειών, με βάση τις παραδοχές που πραγματοποιήθηκαν, έτσι ώστε να υπολογισθούν οι ελεύθερες ταμειακές ροές.

Στο έκτο κεφάλαιο υπολογίζονται οι ελεύθερες ταμειακές ροές για τη βασική μέθοδο αποτίμησης και υπολογίζεται το μέσο σταθμικό κόστος κεφαλαίου για κάθε εταιρεία το οποίο χρησιμοποιείται για την προεξόφληση των καθαρών ταμειακών ροών. Επίσης υπολογίζονται και οι υπόλοιποι τρόποι αποτίμησης για τις εταιρείες και παρουσιάζονται τα αποτελέσματα.

Στο έβδομο και τελευταίο κεφάλαιο παρουσιάζονται τα αποτελέσματα της τιμής της μετοχής όπως αυτά υπολογίσθηκαν, με βάση την κάθε μέθοδο αποτίμησης και είναι τα εξής:

DIANA CONTAINERSHIPS INC. VALUATION SUMMARY				
Valuation Method	Equity Value Per share ($)	Market Value Per share ($) 28/7/17	Difference	Recommendation
Discounted Free Cash Flow	0,02	0,71	0,69	SELL
Relative Valuation P/E	-13,24	0,71	13,95	SELL
Relative Valuation P/BV	3,68	0,71	-2,97	BUY
Relative Valuation EV/EBITDA	-84,37	0,71	85,08	SELL
Asset Valuation	0,54	0,71	0,17	SELL
Dividend Growth Model	-	0,71	-	-

CAPITAL PRODUCT PARTNERS VALUATION SUMMARY				
Valuation Method	Equity Value Per share ($)	Market Value Per share ($) 28/7/17	Difference	Recommendation
Discounted Free Cash Flow	3,76	3,78	0,02	SELL/HOLD
Relative Valuation P/E	2,26	3,78	1,52	SELL
Relative Valuation P/BV	4,55	3,78	-0,77	BUY
Relative Valuation EV/EBITDA	11,96	3,78	-8,18	BUY
Asset Valuation	4,71	3,78	-0,93	BUY
Dividend Growth Model	3,70	3,78	0,08	SELL

Έτσι η διπλωματική εργασία επικεντρώθηκε στο να υπολογισθεί η δίκαιη αξία των εταιρειών με βάση τις ανωτέρω μεθόδους. Με βάση την εν λόγω διπλωματική εργασία, τα συμπεράσματα που μπορούμε να εξάγουμε είναι ότι σίγουρα πρόσθετη έρευνα θα πρέπει να γίνει με σκοπό την αποτίμηση των ναυτιλιακών εταιρειών και άλλων κλάδων με πιο διαφοροποιημένο στόλο και δραστηριότητα. Επιπρόσθετα, με βάση τα αποτελέσματα της διπλωματικής εργασίας, ενδεχομένως για εταιρείες, οι οποίες αντιμετωπίζουν δυσκολίες τόσο ως προς την δραστηριότητά τους όσο και στην ικανότητα εύρεσης οικονομικών πόρων, η μέθοδος αποτίμησης με βάση τα στοιχεία του ενεργητικού να παράγει μια πιο δίκαιη τιμή σε σχέση με τις υπόλοιπες μεθόδους αποτίμησης. Επομένως, πρόσθετη έρευνα θα πρέπει να διενεργηθεί για τον ανωτέρω τρόπο αποτίμησης.

Chapter 1 Introduction of the thesis

1.1 Introduction

Thesis Objectives

The dissertation thesis hereby presented is an equity valuation applied project of two Greek shipping companies listed on Nasdaq. So as to achieve that task I propose to:

1. Perform the valuation according to best practice methods proposed in the international literature, with the final purpose of setting a target price.
2. Compare my own findings with the company's market price in Nasdaq.

So the purpose of this thesis is to present some popular ways of company valuation and especially equity valuation of a shipping company and to highlight the advantages and disadvantages of those methods.

The process and all the valuation work made, is based on publicly available information and takes the perspective of an investor, who makes well-diversified investments.

My analysis will be made for both companies, for the period from 2010 to 2016. The aforementioned valuation period has been chosen, due to the fact that Diana Containerships Inc. was founded in January 2010, since when the financial history is available for my analysis. Also considering that last years are of special interest, regarding the impact and how the companies dealt the difficulties of the financial crisis of 2008. Continuing with, I will conduct a financial statement analysis, based on estimates of the future financial data of both companies, in order to estimate the fair value of the firm. The main method that I will use for my valuation for both companies, is the Discounted Cash Flow (DCF) analysis and for Capital Product Partners I will use the Dividend Growth Model. Diana Containerships Inc., for the last years is struggling to return in positive ground concerning its profitability and for that reason dividends are not given to the investors. Supplementary I will use a comparative valuation based on relevant firms for both companies. Last but not least, I will provide a sensitivity analysis to discuss the results from both DCF and relative valuation.

1.2 <u>Importance of Valuation</u>

Value is undoubtedly an important measure of performance, however the reasons to value a company are [1]

1. Mergers and acquisitions. To set a range of values for buyers and sellers.

2. Valuing Listed companies. Analysts, or shareholders need to know whether to buy, sell, or hold a stock.

3. Initial public offers. To set a price for the IPO.

4. Compensation schemes based on value creation. Quantify the value creation by executives in a company or other employees.

5. Identification of value drivers. To find which aspect of a company and how much value generally adds.

6. Making strategy and planning. How to allocate resources, or whether to find new ones

1.3 Literature Overview on Valuation

The outline of company valuation[1] is:

   I.   Asset based methods
   II.   Using comparables
   III.   Free cash flow methods
   IV.   Option based valuation

Moreover, it is suggested that valuation methods can be classified as follows[2]:

Balance sheet	Income statement	Mixed (Goodwill)	Cash flow discounting	Value creation	Options
Book value	Multiples	Classic	Equity cash flow	EVA	Black and Scholes
Adjusted book value	PER	Union of European Accounting experts	Dividends	Economic profit	Investment option
Liquidation value	Sales	Abbreviated income	Free cash flow	Cash value added	Expand the project
Substantial value	P/EBITDA	Others	Capital cash flow	CFROI	Delay the investment
	Other multiples		APV		Alternative uses

Another suggestion about the valuation methods[3] is the following:

Discounted Cash flow Valuation	Relative Valuation	*Contingent Claim Valuation*
Dividend Discount Model	Multiples	
Extended Equity Valuation Models		
Firm DCF Models (Free cash flows)		

---

[1] Prof. Ian H. Giddy, New York University

[2] Prof. Pablo Garcia 2013

[3] Aswath Damodaran (2006) *"Valuation approaches and Metrics: A survey of the Theory and Evidence"*

Last but not least, the different models are categorized into four groups[4]:

Present value approaches	Relative Valuation	Liquidation valuation	Contingent Claim Valuation

As far as the shipping sector is concerned, the same methods are used in order to value shipping companies. By reviewing the finance literature for my thesis, I came across the Asset Based Method for valuation, in which valuations are made based on current market value of assets, sum of the parts, net asset values. So in some cases Net asset value which assumes that the value of an operating business is significantly determined by the sum of the value of the company's assets, less its liabilities is a better way to value a shipping company. For instance, according to «The Brattle Group», **Yvette Austin Smith and Evan Cohen** article, a recent opinion in the Genco Shipping valuation trial is a reminder that the discounted cash flow (DCF) method – the usually reliable workhorse of valuation – can sometimes lead one astray. In his July 2, 2014 opinion, U.S. Bankruptcy Court Judge Sean Lane rejected DCF as a way to value the dry bulk shipping company, concluding that net asset value (NAV) provided a far better indication of value in this instance.

Problems in Valuations

No matter how many studies are made, concerning valuation of companies in every sector, the valuation process throughout the years has difficulties. First of all, valuations give different results. This is due to the fact that we have to use different methods in order to evaluate each company. A different method of analysis, means an alternative approach to see the company and calculate its value. These methods use alternate data as an input and for that reason give results of a different nature.

Another problem of valuations is what method to choose. Because of the uncertainty of the future precisions and all the factors that might influence it, it is really difficult these values to be exactly the same. What can be done is, to make assumptions stable and backed for the future, in order to make a final investment decision based on what we know so far.

Here are some important aspects of valuation:

---

[4] Petersen and Plenborg (2012) *"Financial Statement Analysis"*

The first is that, any asset is worth the sum of all the future cash flows with which its owners will be provided, discounted with an appropriate discount factor (opportunity cost) in order to account for the risks that might arise in the future. This fundamental principle is what gives ground to the valuation method call the discounted cash flow method (DCF).

The second is that, the process itself is fundamentally forward looking and requires an estimation of the future situation. This means that, projections needed to be made for the future, accounting for uncertainty based on present data. However, by future is uncertain and thus the final outcome of the valuation process will be highly subjective and somewhat inaccurate.

Many variables constantly interacting with each other formulate the business environment, thus making it almost impossible to truly predict future conditions. Many of these variables are known to us, but it is hard to predict their movements in a scientific way. They can be observed and even measured but they cannot be controlled. Analysts use these tools almost daily, to make more precise assessments. The DCF method is the most commonly used valuation technique in almost every other industry but the shipping industry. A context for the use of the discounted cash flow technique must be provided in order to guide anyone that wants to try the valuation of shipping companies or any company other company for that matter, using the DCF. The DCF is an important tool and many management teams use it in their decision making process. This method is primarily influenced by two major factors that also are the most important inputs of the model; the future free cash flows and the discount rate (weighted average cost of capital). The final outcome of the valuation is heavily dependent on those two parameters.

Previous Research

Many studies as mentioned and above, are made on the field of discounted cash flow valuation method, trying to improve its results in order to be more precise and to make the methods a lot easier to implement. The discounted cash flow methods are the most widely used methods for business valuation. However, research in shipping valuation using these methods is not so rich. Most researches have as a primary focus, the construction of models, in order to make assumptions or make projections of the freight market.

Chapter 2 Shipping Industry

2.1 Presentation of Industry

2.1.1 Diana Containership Inc.

The company operates within the containership sector. The containership sector is cyclical and volatile, with charter hire rates and profitability at reduced levels, and the continued global economic downturn has resulted in decreased demand for container shipping. According to the company's annual report of 2016, the company's growth generally depends on continued growth in world and regional demand for containership services, and the global economic slowdown that commenced in 2008 and from which the global economy has not fully recovered resulted in decreased demand for containerships and a related decrease in charter rates that have not fully recovered. The ocean-going containership sector is both cyclical and volatile in terms of charter hire rates and profitability. Containership charter rates peaked in 2005 and generally stayed strong until the middle of 2008, when the effects of the 2008 economic crisis began to affect global container trade. Containership charter rates subsequently improved and stabilized somewhat, although current rates remain below their long-term averages and may decline further. Fluctuations in charter rates result from changes in the supply and demand for ship capacity and changes in the supply and demand for the major products internationally transported by containerships. The factors affecting the supply and demand for containerships and supply and demand for products shipped in containers are outside of our control, and the nature, timing and degree of changes in industry conditions are unpredictable. We cannot assure you that we will be able to successfully charter our vessels in the future or renew existing charters upon their expiration or termination, most of which are scheduled to expire in the first half of 2017, assuming the earliest redelivery dates, at rates sufficient to allow us to meet our obligations or at all.

Throughout the past year, the container shipping industry continued to be burdened by uncertainty as to global economic conditions and trade policies. Moreover, the sector has for several years suffered the ill effects of a significant global over-supply of capacity, as tonnage has grown at a much faster rate than

20

demand. As a result of these industry forces, containership time charter rates ended 2016 at or near historically low levels[5].

However, according to consulting firm[6], the global container carriers sector in the future will face difficulties, but after the Hanjin Shipping Co bankruptcy helped the sector to create more demand in the seller's market, which lasted through the close of 2016. This opportunity, needs to be taken into advantage by the shipping companies of the sector, so as to gain higher rates levels and take additional actions to face and improve their financial positions. Moreover, carriers should eliminate their operating costs from their core shipping business and moreover for the shipping companies, who consider to move to mergers or acquisitions it is of high importance to save costs through effective post-merger integration. This timing, needs to be taken into advantage by the companies, to rationalize the global fleet.

FIGURE 1: Carrier industry financial results, 2010–15

All companies	$ billion						Year-over-Year change (%)				
	2010	2011	2012	2013	2014	Last 12 months	2011	2012	2013	2014	Last 12 months
Revenue	192	204	199	185	186	173	6	(3)	(7)	1	(7)
Total debt	85	98	111	114	100	90	15	13	3	(12)	(10)
EBITDA	31	21	18	18	21	20	(32)	(14)	(1)	20	(7)
EBIT	19	9	6	6	10	9	(51)	(35)	(1)	71	(14)
Capex	18	25	25	21	20	17	40	1	(16)	(8)	(14)
Cash from Ops.	22	12	10	15	20	18	(44)	(13)	39	41	(12)
Operating expenses	163	195	192	179	175	164	20	(1)	(7)	(2)	(7)

Ratios	2010	2011	2012	2013	2014	Last 12 months
Cash from Ops./Capex	1.2	0.5	0.4	0.7	1.0	1.1
Debt/EBITDA	2.8	4.7	6.2	6.4	4.7	4.5
OPEX as percentage of revenue (%)	85%	95%	97%	97%	94%	95%
EBITDA as percentage of revenue (%)	16%	10%	9%	10%	11%	11%
Cash from Ops. as percentage of revenue (%)	11%	6%	5%	8%	11%	10%

Source: AlixPartners analysis of publicly available financial reports
CAPEX = capital expenditures; EBIT = earnings before interest and taxes; EBITDA = earnings before interest, taxes, depreciation, and amortization; LTM = last 12 months;
OPEX = operating expenses; Ops = operations

All the above estimations, are presented in the following graphs, which show the decreased profitability of the companies in the carrier sector, from years 2010-2015 and 2011 was the year with the worst results in both EBITDA and profit margins.

---

[5] Diana Containership Inc. Annual Report 2016
[6] Alix Partners "Containership Sector in March 2017"

FIGURE 2: Peak quarterly revenue declines, 2010–15
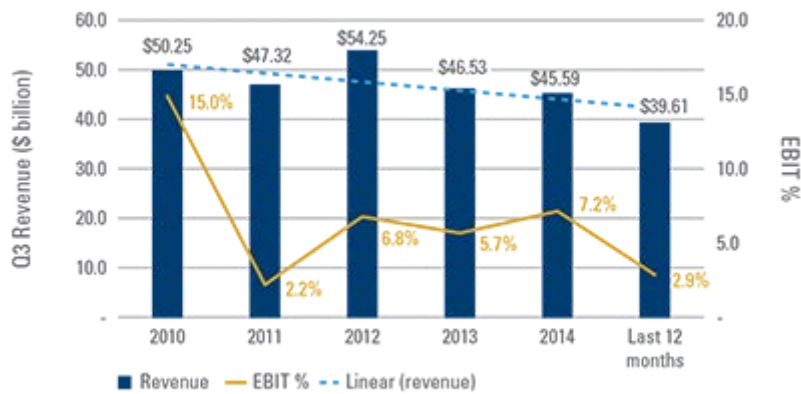
Source: AlixPartners research based on publically available financial reports
EBIT = earnings before interest and taxes

FIGURE 3: Margins, 2010–15
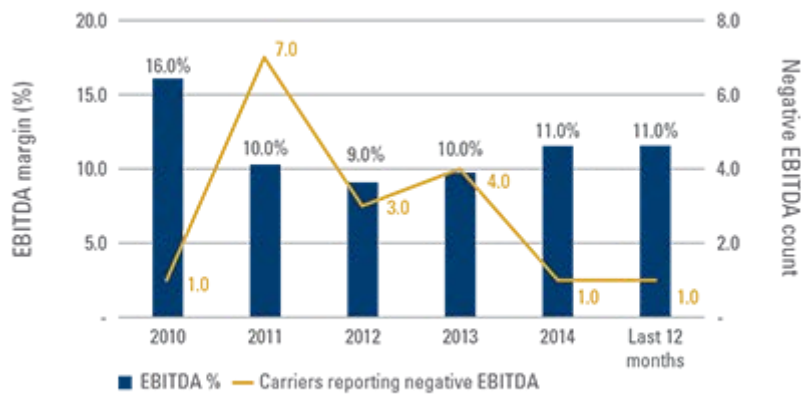
Source: AlixPartners analysis of publicly available financial reports
EBITDA = earnings before interest, taxes, depreciation, and amortization

FIGURE 4: Operations cash-to-CAPEX ratios, 2010–15
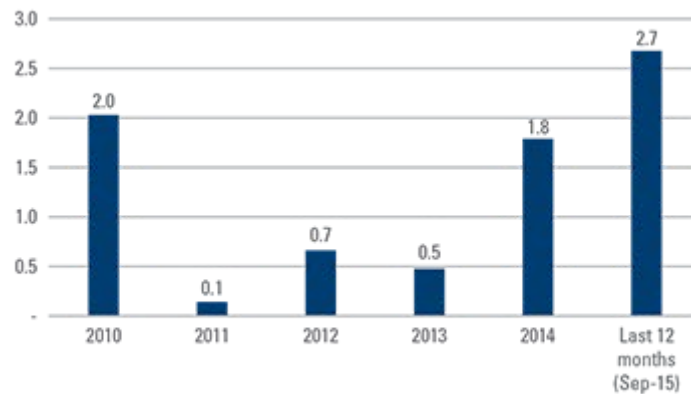
Source: AlixPartners analysis of publicly available financial reports
CAPEX = capital expenditures

22

2.1.2 Factors that influence demand and supply for containers capacity

According to the annual report of Diana Containerships Inc. those factors include:

a) supply and demand for products suitable for shipping in containers;
b) changes in global production of products transported by containerships;
c) the distance container cargo products are to be moved by sea;
d) the globalization of manufacturing;
e) global and regional economic and political conditions;
f) developments in international trade;
g) changes in seaborne and other transportation patterns, including changes in the distances
h) environmental and other regulatory developments;
i) currency exchange rates; and
j) weather.

The factors that influence the supply of containership capacity include:

a) the number of newbuilding deliveries;
b) the scrapping rate of older containerships;
c) containership owner access to capital to finance the construction of newbuildings;
d) the price of steel and other raw materials;
e) changes in environmental and other regulations that may limit the useful life of containerships;
f) the number of containerships that are sailing at reduced speed, or slow-steaming, to
g) conserve fuel;
h) the number of containerships that are out of service; and
i) port congestion and canal closures.

2.1.3 Capital Product Partners

Capital Product Partners L.P. (Nasdaq: CPLP) is an international, diversified shipping company and leader in the seaborne transportation of a wide range of cargoes, including crude oil, refined oil products, such as gasoline, diesel, fuel oil, jet fuel and edible oils, as well as dry cargo and containerized goods. As a publicly traded master limited partnership, CPLP has elected to be treated as a C-Corp. for tax purposes which is most beneficial for U.S. investors (as they receive the standard 1099 form). The Partnership is well-positioned to benefit from the long-term growth dynamics of the global shipping industry and to capitalize on potential acquisition opportunities in the fragmented shipping market. CPLP benefits from the commercial and technical management agreement with its Sponsor, Capital Maritime & Trading Corp. ("Capital Maritime"), an established and reputable diversified shipping company.

According to the company's annual report, management's primary objective is to pay a sustainable quarterly distribution for our common units and Class B Units and to increase our distributions on our common units over time while maintaining a strong financial position and an appropriate level of liquidity for the proper conduct of our business. This involves the following business strategies:

- Maintain medium- to long-term fixed charters.
- Expand relationships with both current and new charterers and capitalize on relationship with Capital Maritime
- Expand the fleet through opportunistic and accretive acquisitions.
- Maintain a strong balance sheet.
- Maintain and build on company's ability to meet rigorous industry and regulatory safety standards

In addition, the company's management shows very optimistic about achieving its goals, due to the fact of the following competitive strengths:

- Well-established relationships with our counterparties and with Capital Maritime
- Diversified revenue stream
- Revenue and cash flow visibility and stability

- High specification fleet
- Strong balance sheet, cost efficient operations and acquisition funding[7]

Factors that affect the transport market

FACTORS DRIVING DEMAND

Macroeconomic and political factors
• Economic growth • Industrial production • Trade patterns
• Energy & environmental policies • Trade policy issues • War & conflicts

Energy market
• Oil • Coal • Natural gas • Nuclear power • Hydroelectric power

Oil market
• Refinery utilisation • Refinery locations • Regional imbalances
• Stock levels • Spot and forward prices • Industry structure

FACTORS DRIVING SUPPLY

Newbuildings
• Shipyard capacity • Labour costs • Prices of input goods
• Vessel prices • Interest rates • Access to capital

Transport capacity
• Size of global fleet • Newbuilding rate • Scrapping rate
• Age structure • Environmental and safety issues

Shipowners and logistics operators
• Service offer • Contract forms
• Geographic concentration • Ownership

The tanker shipping market

2.2 Identification of Value Drivers in shipping

As it can be seen the industry, is affected by a lot of factors, as all the high volatile business sectors. In order to make precise estimations about the value of a shipping company and build a valuation model, it is of great importance to identify the different value drivers and the risks of the shipping business. What we mean by value is of course the shareholder value, meaning the value of the claims (stocks) held by stakeholders in the company. It is the shareholders in a company that assume the most investing risk, that have the lowest seniority, meaning that in the event of liquidation the are compensated after all other claims on the company (bondholders etc.). it is easy to understand that it is this kind of value, share value, that is of the highest interest in this thesis.

---

[7] Capital Product Partners Annual Report 2016
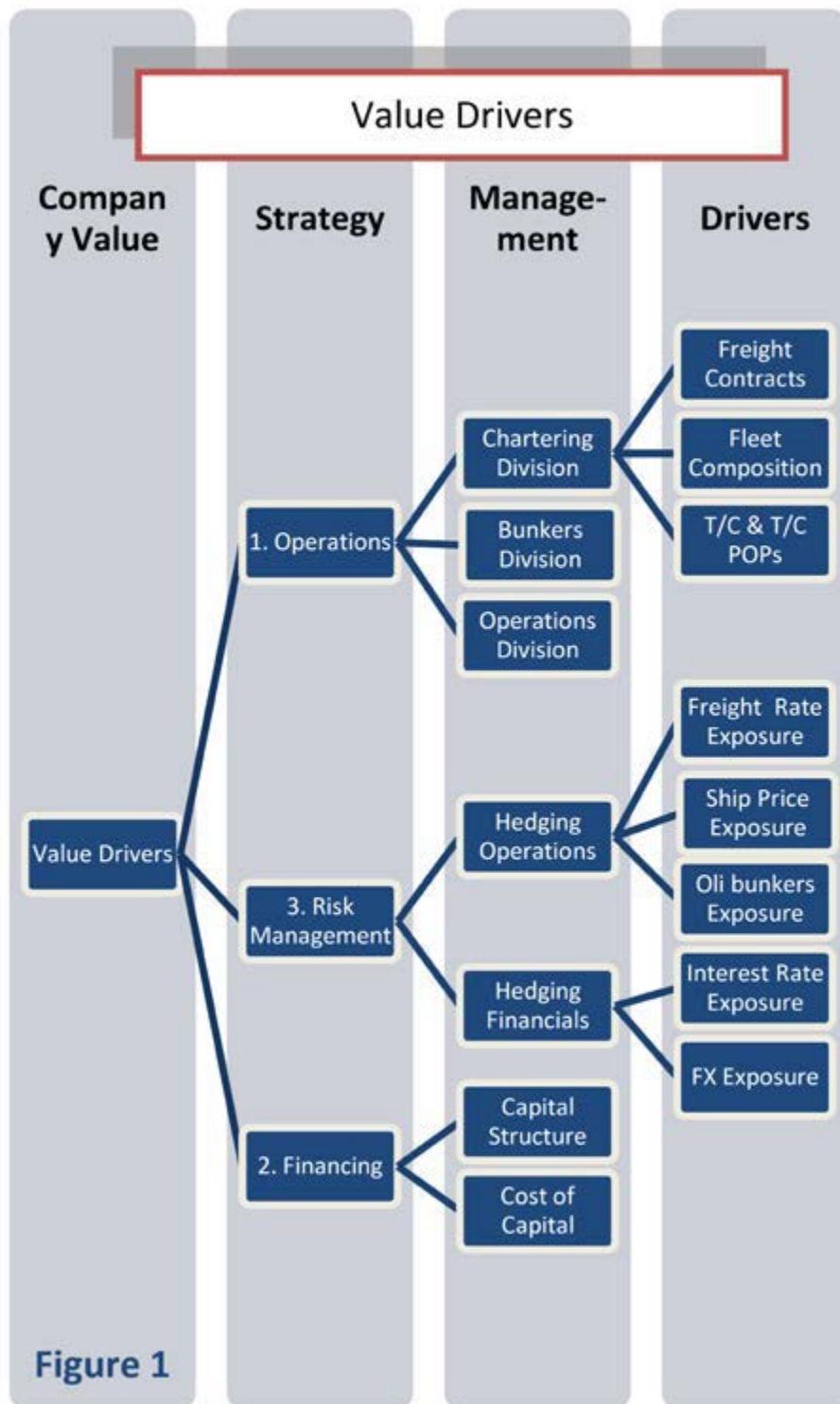
Figure 5: Anastasios Tavatidis, 'Discounted Cash Flow Valuation method in Shipping'

According to Figure 5, the value drivers are divided in three major categories; the operations, the financing and risk management. The management team has to make important decisions on those three divisions. The major problems faced by the management team are as follows:

• Deploy Effectively the operations in order to maximize potential cash flows.

• Mitigate the risks involved in both the financing and operational activities

• Find what is the optimal capital structure to finance the operating assets of the business

The company's operations can be broken down into three sub-categories; the chartering division; the bunkering division; and the operations division meaning the management and effective deployment of the fleet.

a) The chartering division is a really important aspect of shipping operations. It is the face of the business towards its customers, its charterers. It is the department that generates profits. Finding contracts for the company's fleet, on above market rates by the chartering team is really important, especially if the market is weak and the shipping sector as a whole is struggling, such is the case today. The effectiveness of a chartering team is judged by its returns namely the gross revenue of the firm relative to other shipping companies.

b) The bunkering division is the supporting division of the chartering. It generates value by purchasing fuels in good prices, thus reducing operating costs. Having a good bunker division that has a working relationship with bunker brokers in every port in the world means that you get the best possible price for the given port. This does not directly add value to the shipping firm, however, it helps show the charterer that the company is well established in its field and gets the best rates possible for their customers.

c) The management of the fleet is made by the operations division. It relays messages from the chartering department to the company's vessels giving instruction to where they should go, the timeline on what this should be done and who has the responsibility. Just like the bunkering division it adds to the name of shipping company. A capable operations management shows charterers that the firm is efficient and well-managed.

It is of great importance for the company to find the best ways for financing the fleet and to choose the correct capital structure Debt to Equity. Corporate value can be added, should the management of the company choose correctly the optimal capital structure by minimizing the cost of capital. This cost, is the weighted average

cost of capital otherwise known as WACC, which takes into account both the cost of equity and of debt and theoretically the tax credits of shield that interest payment provides, although shipping companies hardly pay any tax. In theory the cost of debt is generally lower that the cost of equity in most cases. So if more debt than equity is drawn by the management in order to finance its projects, its total cost of capital remains low. However, as more debt is drawn and thus, debt to equity ratio rises, the company's credibility to repay that debt diminishes as the likelihood of default becomes greater. As the company's credit rating falls and uncertainty takes hold of debt holders, the rate at which the company can now borrow is higher in order to offset the risk of default (risk premium). On the other hand, for a major shareholder is the opposite result, as if most of the projects are financed through equity offerings the majority shareholders will be diluted and possibly lose their significant influence on the business. So, the management of the company should choose and optimal capital structure as to borrow at the lowest possible rate and avoid shareholder dilution.

2.3 <u>Shipping market cycles</u>

The four most expensive words in the English language are, 'This time it's different'.

(Sir John Templeton, quoted in

Devil Take the Hindmost,

Chancellor 1999, p. 191

2.3.1 Introducing the shipping cycle

A shipping market cycle or shipping cycle is a particular type of economic cycle. These cycles correct markets when supply and demand are out of balance. Shipping markets are driven by freight rates, which can move up, move down or remain unchanged. Shipping cycles are therefore determined by the fluctuations of these freight rates.

Shipping cycles are classified according to the time interval in which the alternating movements of freight rates are observed:

1. Seasonal cycles (fluctuations occurring within one year)

2. Short cycles (ranging from 3 to 12 years)

3. Long cycles or trends (approx. 50 years)

The exact lengths of short and long cycles are not constant and the durations given are rough estimates. Shipping markets are very volatile and involve higher levels of uncertainty when compared to the world economy as a whole.[8]

Seasonal cycles

Seasonal cycles appear within one year and typically correspond to seasonal changes in demand and supply of products. These changes cause fluctuations in the demand and supply of ship chartering, which in turn influences freight rates.

Short cycles

Short cycles occur at varying time intervals, ranging from 3 to 12 years. Typically, a short shipping cycle consists of four different stages:

1. **Trough** (low freight rates, decreasing to the operating cost of the least efficient vessels; low demand and excess supply)

2. **Recovery** (rising freight rates; increasing demand moves supply and demand towards equilibrium)

3. **Peak** (high freight rates, increasing to 2-3 times the operating cost of vessels; supply and demand at or near equilibrium)

4. **Collapse** (falling freight rates; supply exceeds demand)

Each stage presents different freight rates and changing levels of demand and supply. The pattern of these four stages in a short cycle is irregular and unpredictable: the duration of a single stage can vary from months to years. The ranges of the freight rates (from lowest to highest level one cycle) fluctuate between cycles as well.

Long cycles

---

[8] Wikipedia (shipping cycle)

Long cycles are routinely referred as "trends" in economics. Trends are the long term upward, downward or stagnating levels of freight rates around which short cycles oscillate. They are hard to identify and different causes are given for their occurrence
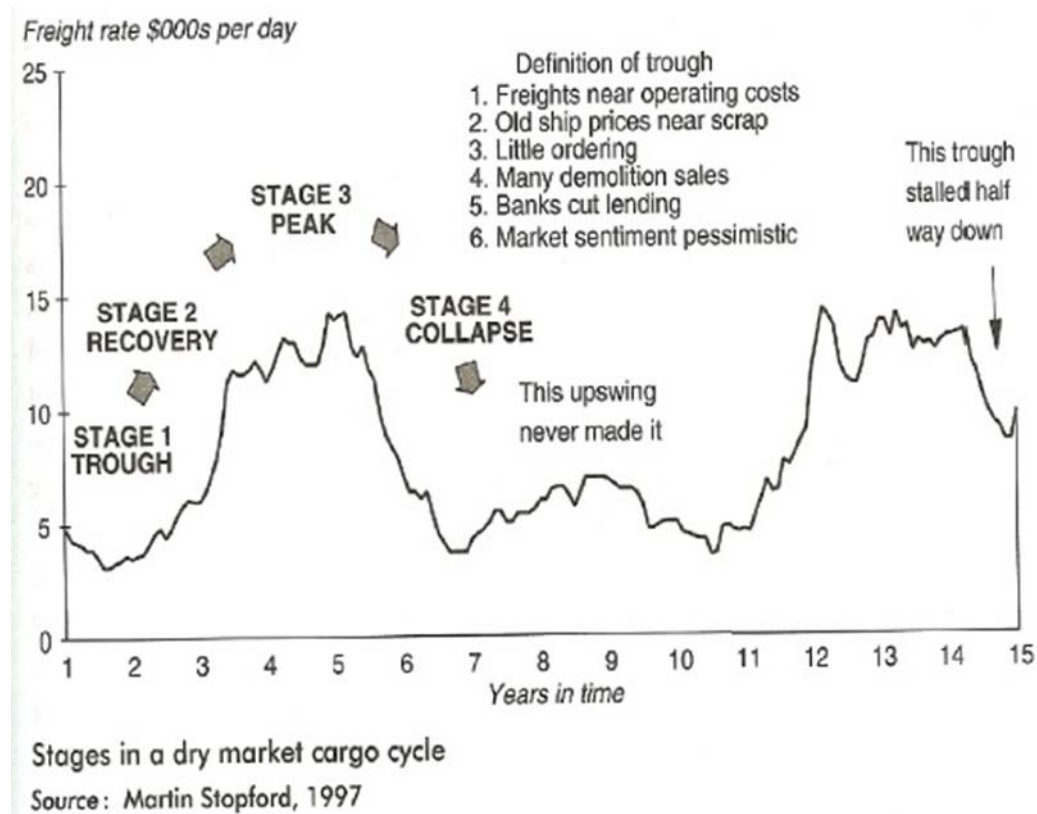
Figure 6: Stages in a dry market cargo cycle

2.4 Most important value drivers for shipping companies

Shipping rates

Shipping rates are perhaps the most important indicator that affects the long-term performance of shipping stocks.
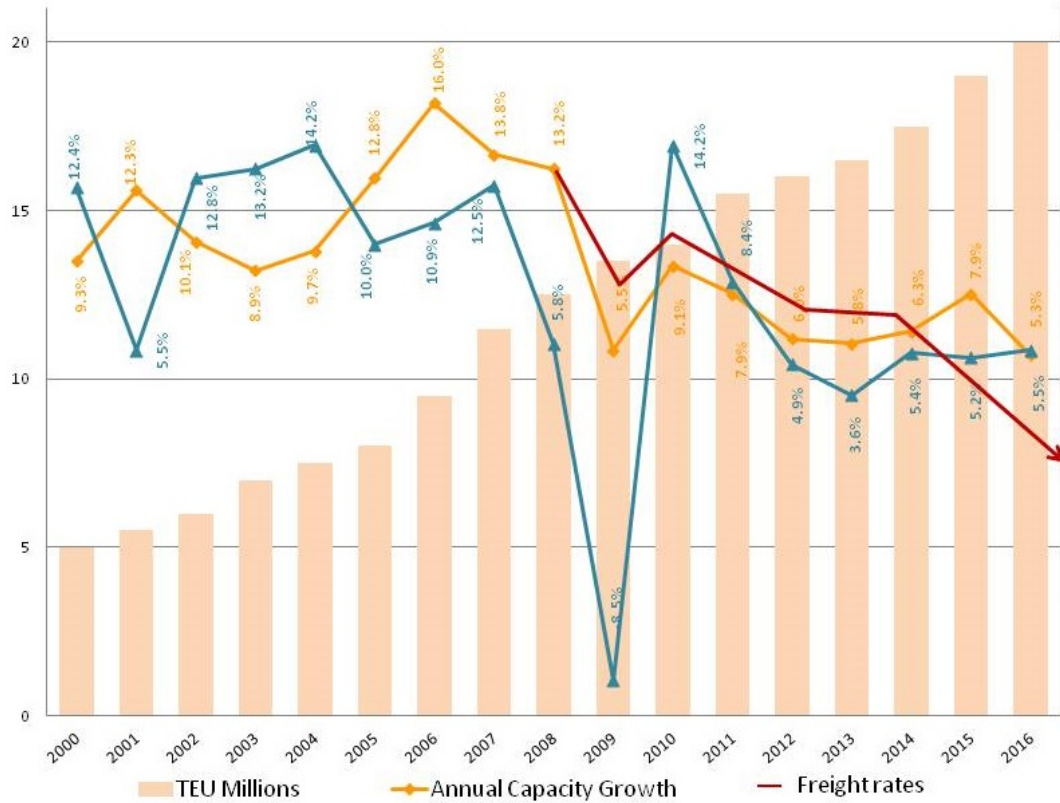
Figure 7: Ricardo J. Sanchez & Lara Mouftier, adapted from Alphaliner (2017)

In the above figure 7, we can observe some main variables of shipping cycle: freight rates, nominal fleet for container transport, inter-annual change of nominal transport capacity and the year-to-year change in transport demand (global throughput growth).

Source: BIMCO, Baltic Exchange and Shanghai Shipping Exchange

Figure 8: Freight rate development 2014-2016

From the above graph it is obvious that the shipping industry as a whole is really volatile. In January 2016, all the sectors faced a high rise in their freight rates, which gave a boost in the sector.

Global container-shipping volume,
TEU (20-foot-equivalent unit) standing slots, million

■ Lay-ups

¹Global average realized rates for trunk lanes.
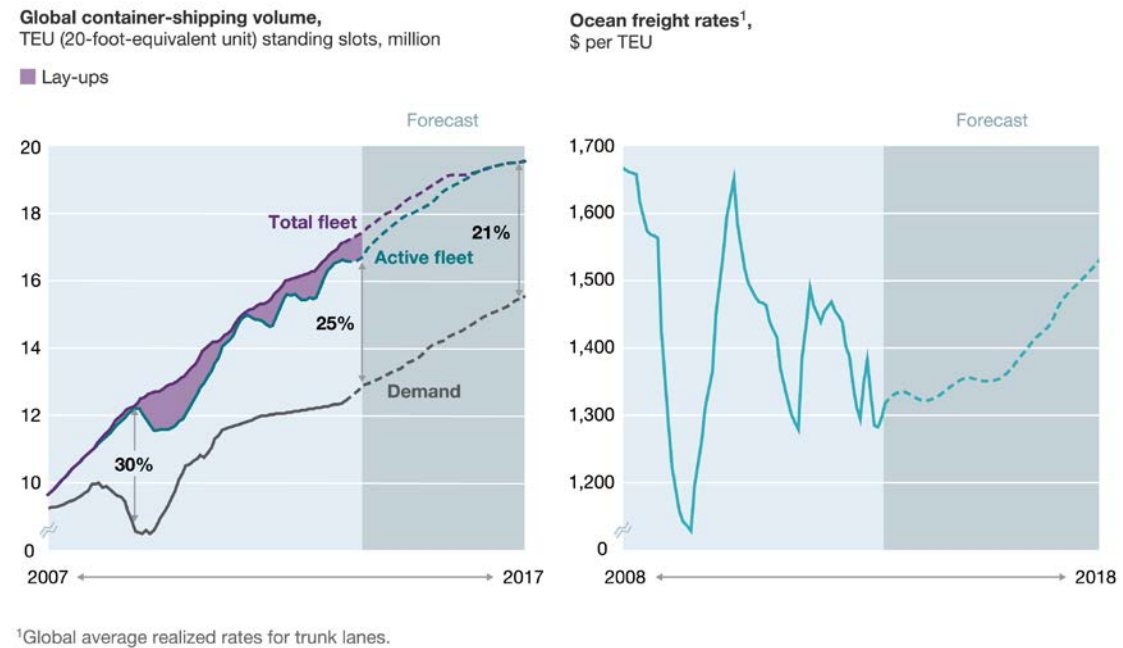
Figure 9: McKinsey & Company

According to Mckinsey, from 2007-2017 there was an oversupply of the total fleet capacity, to the total demand, but for the projected 2017 levels, this gap will be decreased from 25% to 21%.

Graph of the Week

The Ups & Downs Of A Long-Term Relationship

The graph shows the development since January 2004 of the monthly mainlane freight rate index (a blended index of peak leg Far East-Europe and Transpacific spot box freight rates) and the monthly container timecharter rate index based on timecharter rate assessments across a range of vessel sizes. Timecharter and freight rate time-series are available on *Shipping Intelligence Network*.
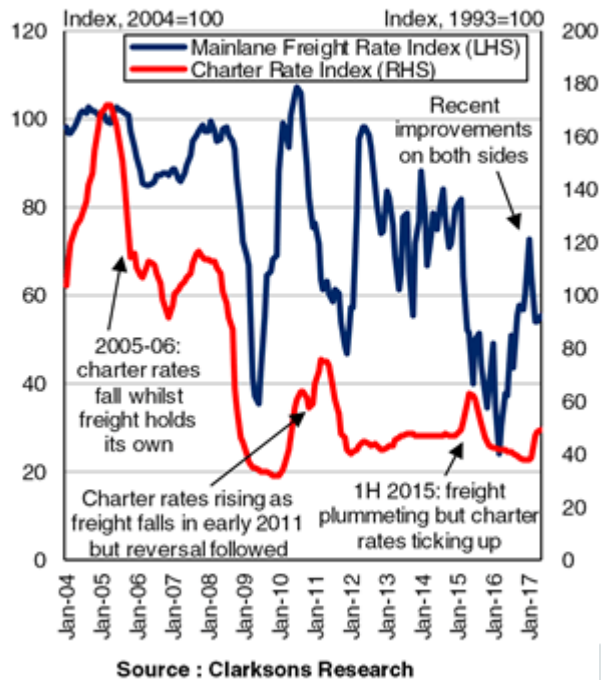
Figure 10: The ups & downs of freight rates and charter rate index

Ship broker company Harper Petersen & Co in Hamburg published the HARPEX (Harper Petersen charter rate index), which forms the worldwide price development on the charter market for container ships. HARPEX represents the container market for charter rates (rental price for one vessel per day). The original index was developed in 2004 by employees of Harper Petersen & Co. and Nordcapital-Holding in collaboration with economists, shipping experts and scientists from the department of shipping at Oldenburg University of Applied Sciences / Ostfriesland / Wilhelmshaven and returned on the basis of a data pool until 1986. In 2011, the index was revised and recalculated according to the new calculation method on a monthly basis until 2001. Since 2011, a total of 7 ship classes in the area of the feed vessels (700 TEU) up to the Panamax class (4,250 TEU) have been taken into account. The original HARPEX was composed of 8 ship classes (750 TEU to 5,200 TEU). A total index is created on the basis of the individual indices.

The calculations are based on the speed, minimum and maximum run-time criteria. Consideration is given to all transactions completed within a week on the global time charter market. A weighting according to number of ships and cost-

covering charter rates takes place annually. Only the tonnage available on the maritime market is included in the index calculation. As a result, the larger ship classes are weighted more heavily and the charter market is more realistic.

The charter rates are determined exclusively from the data provided by ship brokers, ship owners and charterers .Only the real demand and the real offer for container ships flow into the price. In contrast to the economic data, the HARPEX data are not subject to any subsequent amendments. Manipulation is not possible with the method of determining the index.

HARPEX as an economic indicator determines the charter rates (ship rents) for container ships, it precisely measures the demand for container shipments and thus the volume of world trade. While the Baltic Dry Index (BDI) records the freight rates of raw materials, the preliminary stage of production, the HARPEX represents later stages of economic development when semi-finished or finished products are produced from the raw materials. The Baltic Dry Index is an early indicator of economic developments, while the HARPEX is an indicator of the current state of the world trade and the global economy.
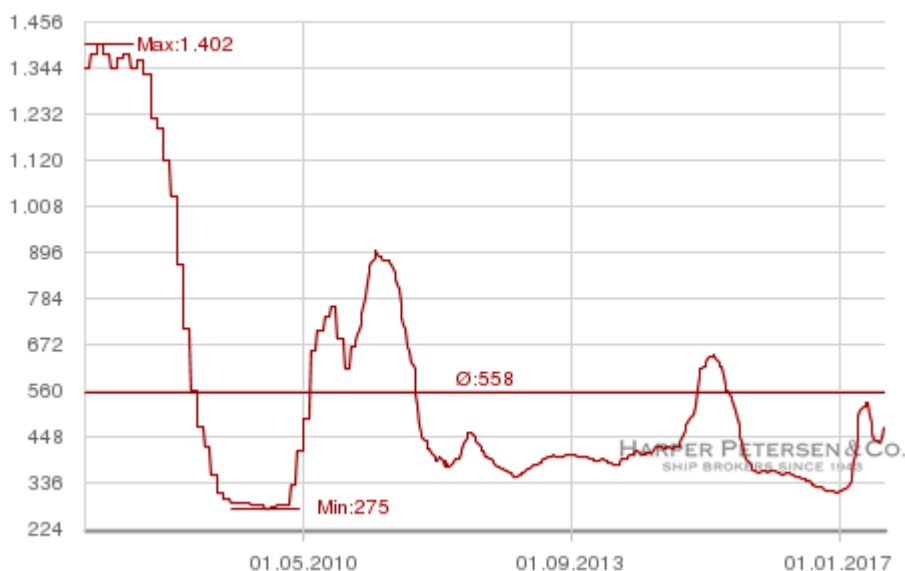
The larger the number of containers to be shipped, the greater the demand for container ships and the higher the charter price. An upward movement of the HARPEX signals a rise in global trade, a downward movement the opposite. The

HARPEX is slightly positive with the stock markets and slightly negative correlated with the bond markets.

Shanghai Container Freight Index (SCFI), is the most commonly-used freight rate index in the container sector. The Shanghai Containerized Freight Index (SCFI) is a highly cited metric used to discuss the health of global trade. Created by the Chinese government in 2005, the SCFI was intended to address a few distinct needs within the market. First, the government wanted a simple index of prices to help attract more buyers and sellers to local markets. By aggregating the movement of several market securities into one easy-to-read benchmark, an index can help efficiently match supply and demand by communicating the health of a market. The SCFI moves up and down based on the spot rates of the Shanghai export container transport market based on data compiled from 15 different shipping routes. The second purpose of the SCFI was to provide a platform upon which merchants and shippers could shield their businesses against peaks and valleys in market prices[9].
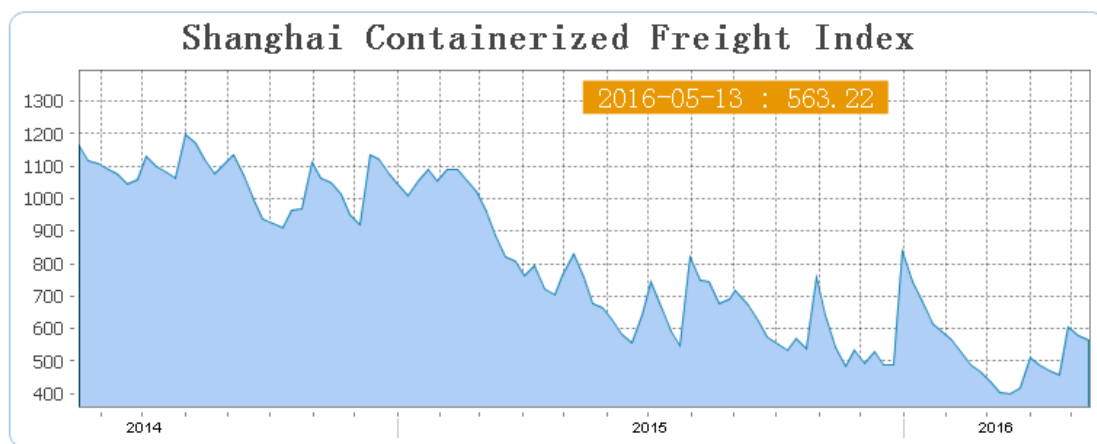
Figure 11: Shanghai Shipping Exchange

We can observe the **Containership Timecharter Rate Index** according to Clarkson's Research timeseries.

---

[9] Stavros Karamperidis "Development of an Index for Maritime Container Transport Costs, Connectivity and Risks for the UK"
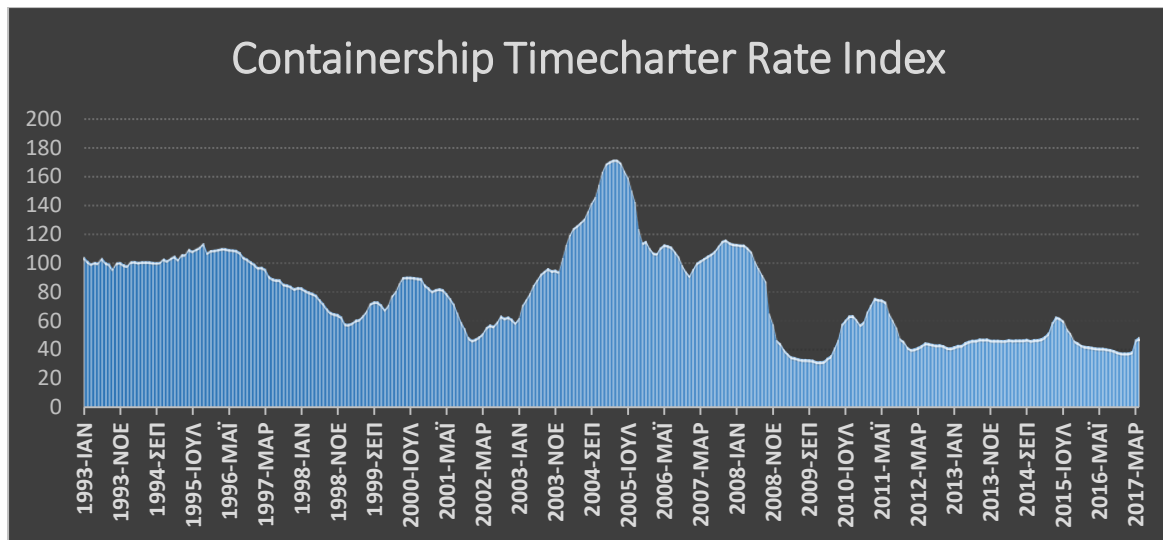
Figure 12: Containership Timecharter rate index

Last but not least, here it is a glance of containerships numbers for year 2016, according to Clarkson's. For the container shipping sector 2016, was also a difficult year with severe pressure.

Where Are We In The Containership Cycle ?

Ship by Type	Market Rate Indicator	2006-15 Average Value	2015		2016 YTD		This Year So Far...	
			Market Rate	% diff. from Average	Market Rate	% diff. from Average		
1,000 teu geared	1 year t/c ($/day)	7,846	7,250	-8%	6,700	-15%	-7%	Bit Worse
	10 year old ($m.)	10.2	6.0	-41%	4.8	-53%	-12%	Worse
				-24%		-34%	-10%	Bit Worse
1,700 teu geared	1 year t/c ($/day)	9,904	8,842	-11%	6,969	-30%	-19%	Worse
	10 year old ($m.)	14.8	8.5	-43%	6.0	-59%	-17%	Worse
				-27%		-45%	-18%	Worse
2,750 teu gearless	1 year t/c ($/day)	13,042	9,563	-27%	5,988	-54%	-27%	Worse!
	10 year old ($m.)	22.1	11.0	-50%	6.5	-71%	-20%	Worse!
				-38%		-62%	-24%	Worse!
4,400 teu gearless	1 year t/c ($/day)	18,222	11,817	-35%	5,313	-71%	-36%	Worse!!
	10 year old ($m.)	21.2	12.0	-43%	6.0	-72%	-28%	Worse!
				-39%		-71%	-32%	Worse!!
6,800 teu gearless	3 year t/c ($/day)	25,779	22,750	-12%	13,438	-48%	-36%	Worse!!
	5 year old ($m.)	54.3	36.0	-34%	21.0	-61%	-28%	Worse!
				-23%		-55%	-32%	Worse!!
Container Charter Market Average				-30%		-53%	-20%	Worse!

Figure 13: Containership cycle, Clarksons Research

For all the type of containerships, the market indicators in average values, were at a worse point than the relevant ones of year 2015. The rates of 2016 compared to those of 2015 and the average rates from 2006-2015, were worst and so were the values of secondhand vessels.

36

2016 At A Glance

Type	Size	2015	2016	+/- %
1. Global Container Trade, m. TEU				
Mainlane		51.5	52.8	2.6%
Non-Mainlane East/West		22.8	23.5	3.0%
North/South		30.6	30.8	0.4%
Intra-Regional/Other		70.1	73.5	4.9%
Global Trade		175.0	180.6	3.2%
2. Tonnage Supply				
Fleet, '000 teu, end year				
Feeder	100-2,999 teu	4,014.6	3,942.9	-1.8%
Intermediate	3-5,999 teu	5,533.5	5,109.1	-7.7%
Intermediate	6-7,999 teu	1,935.5	1,871.4	-3.3%
Neo-P'max	8-11,999 teu	4,796.9	5,124.7	6.8%
Neo-P'max	12-14,999 teu	2,449.4	2,677.3	9.3%
Post-P'max	15,000 & + teu	1,014.0	1,259.4	24.2%
Total Containership		19,743.9	19,984.8	1.2%
MPPs	000' teu	1,544.8	1,539.5	-0.3%
Other Liner	000' teu	650.0	612.6	-5.8%
Total Liner	000' teu	21,938.7	22,137.0	0.9%
Orderbook, '000 teu, end year				
Feeder	100-2,999 teu	412.2	391.2	-5.1%
Intermediate	3-5,999 teu	142.1	143.8	1.2%
Intermediate	6-7,999 teu	6.9	6.9	0.0%
Neo-P'max	8-11,999 teu	941.1	570.2	-39.4%
Neo-P'max	12-14,999 teu	996.3	839.0	-15.8%
Post-P'max	15,000 & + teu	1470.3	1224.9	-16.7%
Total Containership		3969.3	3176.0	-20.0%
Deliveries	000' teu	1,677.9	903.7	-46.1%
Demolition	000' teu	193.3	659.4	241.2%
Ordering	000' teu	2,287.4	190.9	-91.7%
3. Freight Revenue, Average SCFI, ex-Shanghai				
to Europe	$/TEU	620	690	11.3%
to USWC	$/FEU	1,482	1,272	-14.2%
SCFI Composite Index		872	712	-18.3%
4. Charter Revenue, Average Earnings, $/day				
Fully Cellular Containerships, annual average				
Feeder 1 yr	1,700 teu grd	8,842	6,804	-23.0%
Feeder 1 yr	2,500 teu grd	8,871	5,842	-34.1%
Feeder 1 yr	2,750 teu gls	9,563	6,000	-37.3%
'Old Panamax' 1yr	4,400 teu gls	11,817	4,979	-57.9%
Intermediate 3yr	6,800 teu gls	22,750	13,208	-41.9%
Neo-P'max 3yr	9,000 teu gls	36,708	24,792	-32.5%
Weighted Average Index		53	41	-23.4%
5. Asset Values, end period				
Newbuilding Prices $m				
Feeder	1,700 teu grd	25.0	21.8	-13.0%
Feeder	2,750 teu gls	29.5	27.0	-8.5%
Neo-P'max	8,800 teu gls	89.0	83.0	-6.7%
Post-P'max	18,500 teu gls	154.0	145.5	-5.5%
Weighted Average Index		77	69	-10.4%
10 year old Price $m				
Feeder	1,700 teu grd	8.5	5.5	-35.3%
Feeder	2,750 teu gls	11.0	5.8	-47.7%
'Old Panamax'	4,400 teu gls	12.0	5.5	-54.2%
Intermediate	6,600 teu gls	20.0	9.5	-52.5%
Weighted Average Index		36	25	-30.5%
6. Turnover, Secondhand Sales Volume ,000 teu				
Containerships		612.6	433.9	-29.2%
MPPs		26.4	22.6	-14.5%
Other Liner		6.1	4.1	-32.8%
Total Liner		645.1	460.6	-28.6%

Figures subject to revision.

Figure 14: Containership sector at a glance 2016, Clarksons Outlook

Demand drivers

Demand for ships is affected by trade volume and trade distance. As the global trade highly correlates with global economic growth and overall demand of commodities, the world's particularly China's economic growth plays an important role. As we can see in this graph in July 2017, according to Clarksons, this is China's Seaborne trade in numbers.

Graph of the Week

China's Seaborne Trade From One Year To Another

The graph shows volume growth in 2015 and 2016 in selected components of seaborne trade involving China, in terms of tonnes except for intra-Asia container trade which is basis TEU. Further details on Chinese seaborne trade are published every month in *China Intelligence Monthly*.
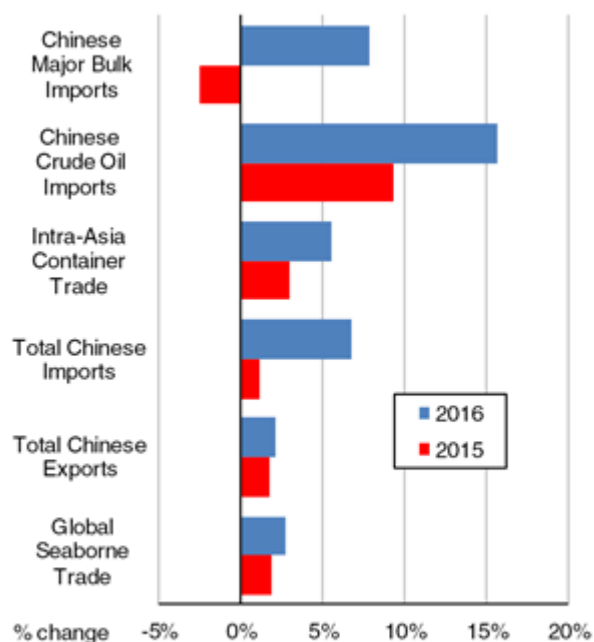
Source : Clarksons Research

Figure 15: China's seaborne trade

This graph shows, how Clarksons Research evaluates global seaborne transport, regarding different types of ships, as at July 2017.

Figure 16: Seaborne trade for every shipping sector
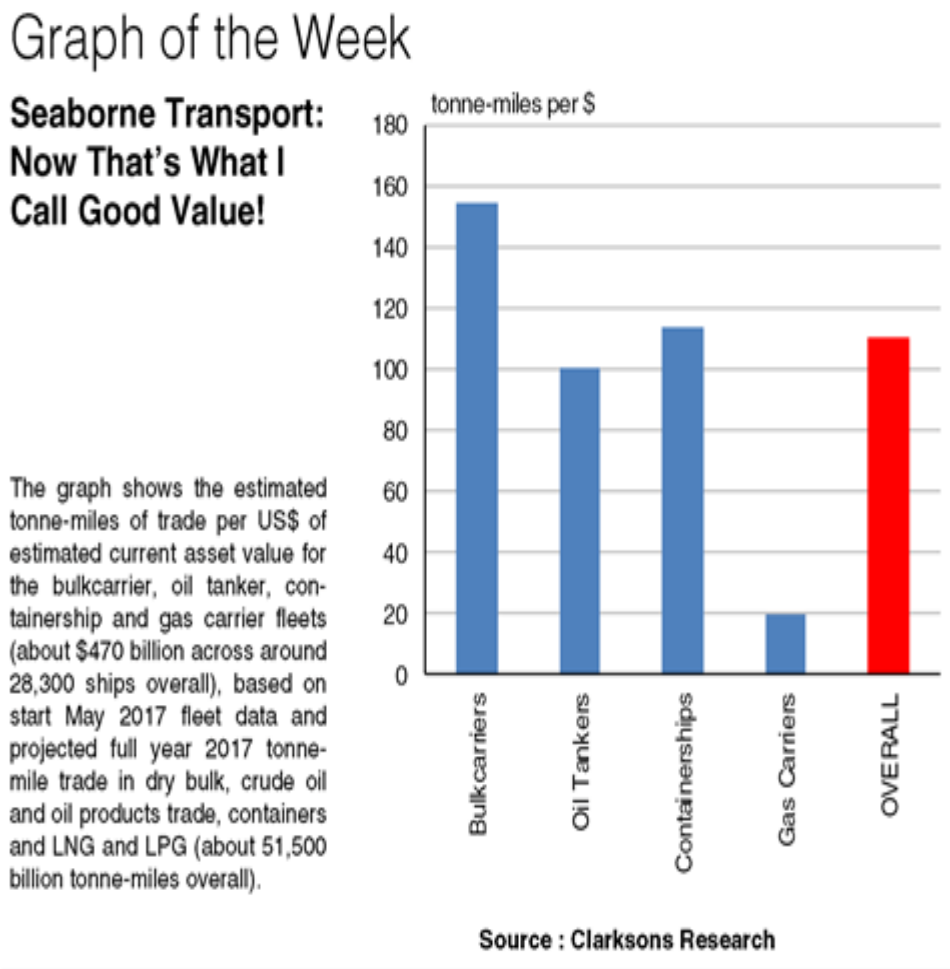
Graph of the Week

Seaborne Transport: Now That's What I Call Good Value!

The graph shows the estimated tonne-miles of trade per US$ of estimated current asset value for the bulkcarrier, oil tanker, containership and gas carrier fleets (about $470 billion across around 28,300 ships overall), based on start May 2017 fleet data and projected full year 2017 tonne-mile trade in dry bulk, crude oil and oil products trade, containers and LNG and LPG (about 51,500 billion tonne-miles overall).

tonne-miles per $

Source : Clarksons Research
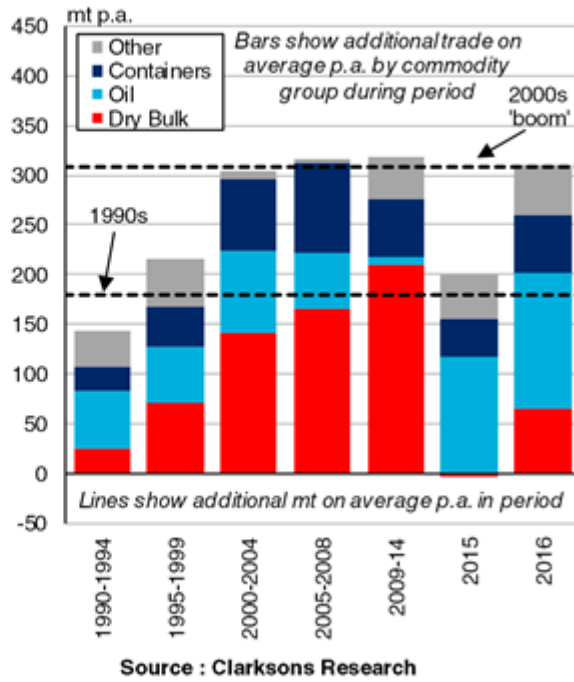
Figure 17: Historical global seaborne trade

In the following graphs after evaluating Clarksons Research raw data, I present the containers' movements (imports-exports) throughout the years, for different locations.
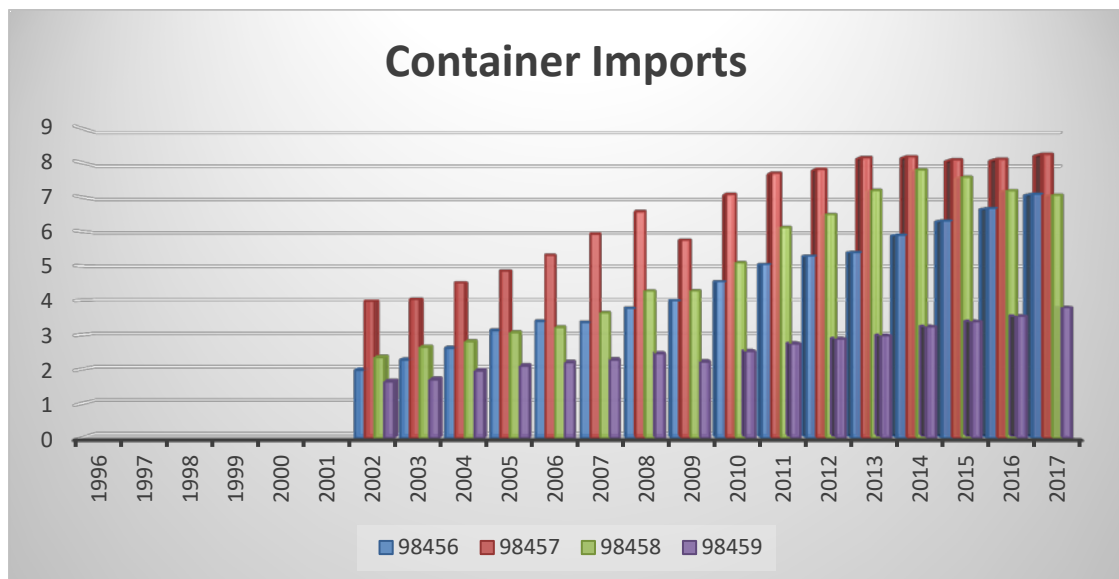
Figure 18: Historical container imports, raw data from Clarksons Research
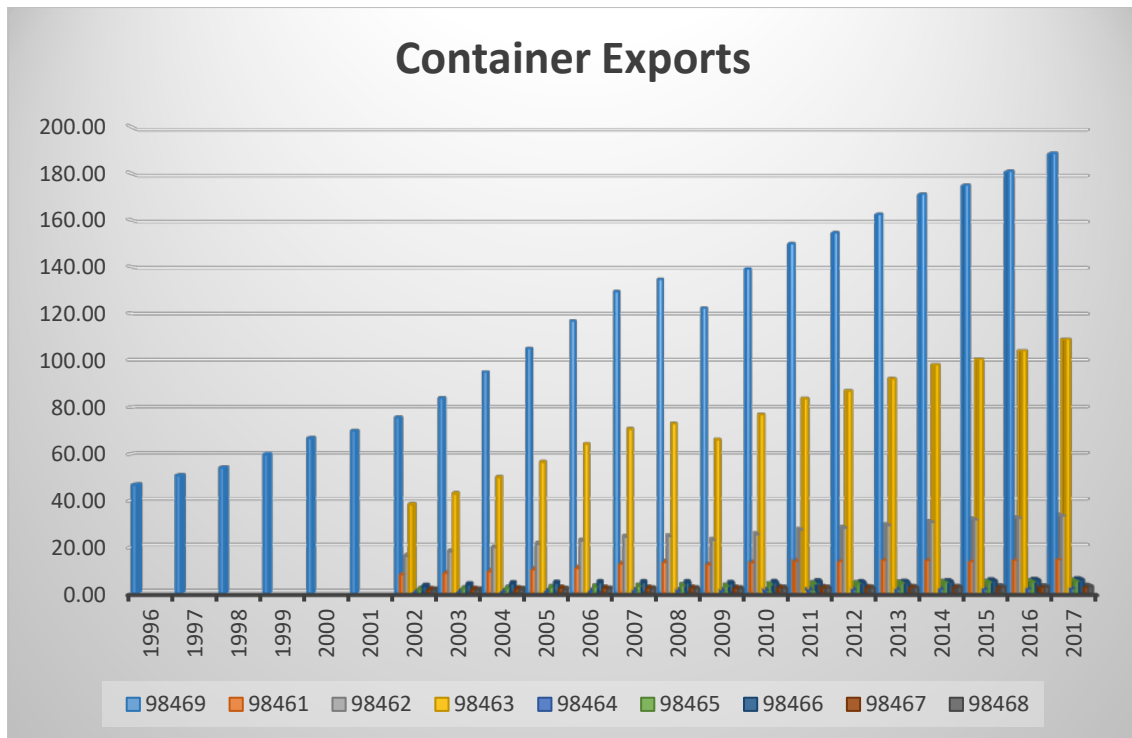
Figure 19: Historical container exports, raw data from Clarksons Research

The graphs depict a marginal increase for the World Exports and World Imports for years 2016 and 2017.

<u>Supply drivers</u>

New ship deliveries and scrapping activity are the two most influential activities that affect supply. These two factors were widely followed by analysts and shipping managers over the past few years as orders went way high, causing elevated supply growth and rates to collapse. But expected shipping rates do influence managers' decisions about whether to purchase or build new ships, so it is a great source of information for investors. New ship additions can also increase companies' earnings.

Graph of the Week

Market Liquidity Showing S&P's Good Karma?

The graph shows the 6-month moving average of the monthly reported sales volume (in vessel numbers) in each sector annualised and expressed as a percentage of the existing fleet, from January 2010 to April 2017. Tanker data basis vessels 10,000 dwt and above.

% of fleet

- Tankers
- Bulkers
- Containerships

6-month moving average of number of sales (annualised) as a percentage of existing fleet
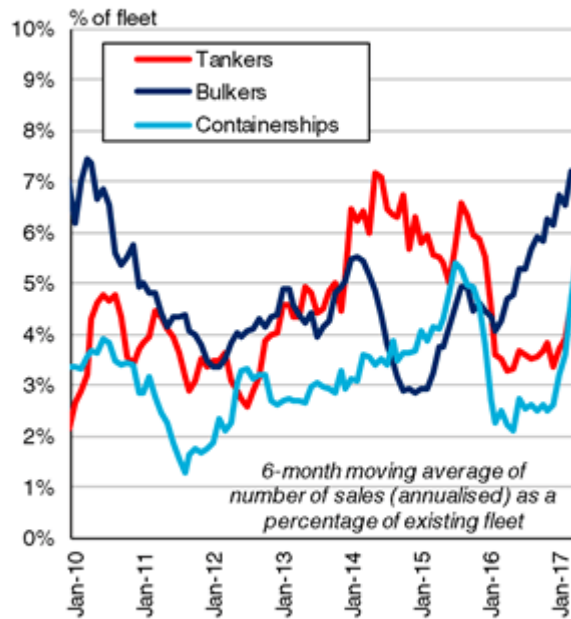
Source : Clarksons Research

Figure 20: Market liquidity

Graph of the Week

Containers Crossing The Line Into More Positive Territory?

The graph shows the monthly development of year-on-year growth in containership fleet capacity in TEU as well as the 3-month moving average of year-on-year growth in estimated seaborne container trade based on volume data on a selected basket of trades representing around 80% of global container trade.

% growth

Estimated container trade growth y-o-y% 3mma

Containership fleet capacity growth y-o-y%
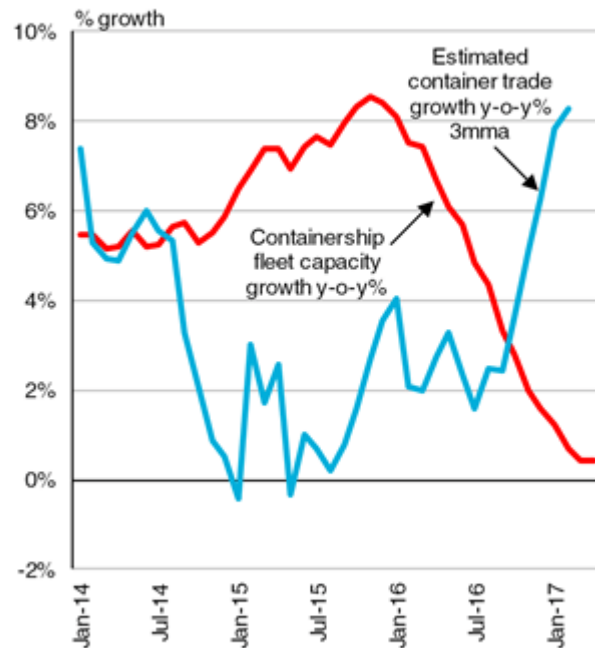
Source : Clarksons Research

Figure 21: Containership fleet capacity and trade growth

Graph of the Month

Another Milestone Marked By The Containership Fleet

The bars on the graph show the total TEU capacity of the containership fleet at the start of each year back to 1980. The total is split into three broad size segments. Data for 2017 and 2018 reflects latest containership fleet forecasts.

m TEU

- 15,000+ TEU
- 8-14,999 TEU
- Sub 8,000 TEU

During July 2016, containership fleet capacity reaches 20m TEU.

In six years, fleet capacity doubled from 5m TEU to 10m TEU during 2007.

46 years after the first containerized voyage, fleet capacity reached 5m TEU during 2001.

Source : Clarksons Research

Figure 22: Historical movement of containership fleet capacity

In the following graphs, is provided information about global containership fleet, order book, throughout the years. This information, derives from time series data of Clarksons Research.

Figure 23: Historical total containership fleet by number

Total Containership Fleet Development Number
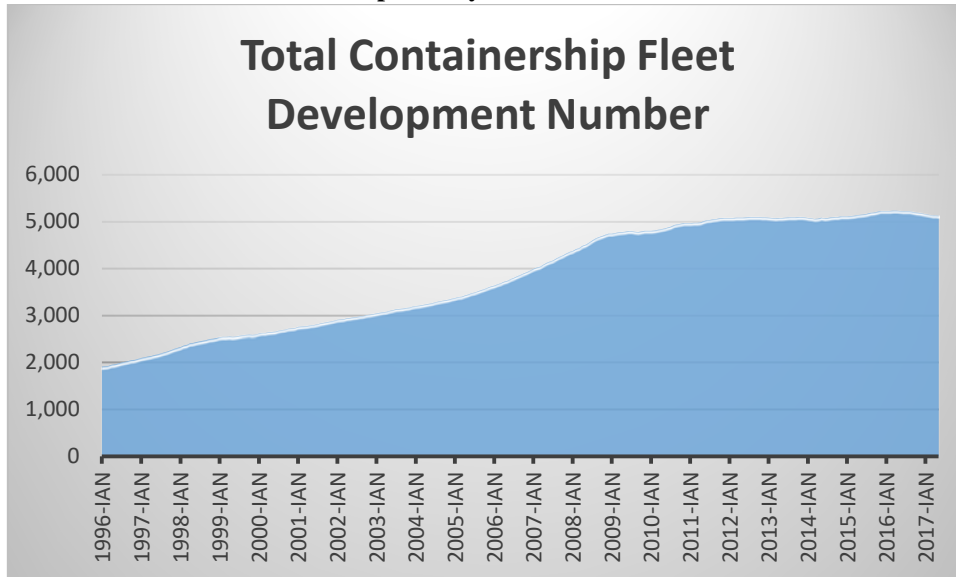
As it seems from the graphs attached from time series data of Clarksons Research, although there was an increase for the global fleet, in the past years, in the last 3 years and more specifically during 2016, there was a decrease in the global fleet.

Figure 24 & 25: Containership fleet forecasted growth

Containership growth

■ Containership Fleet Growth % Yr/Yr   ■ Idle Containership Capacity (% of the fleet) %
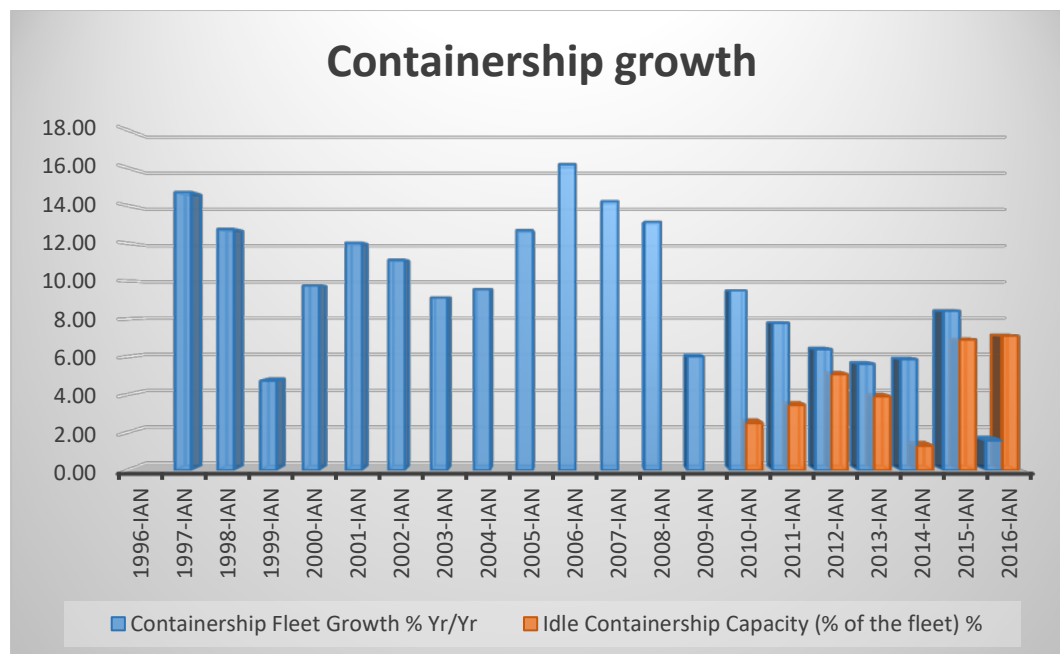
Container ship fleet growth
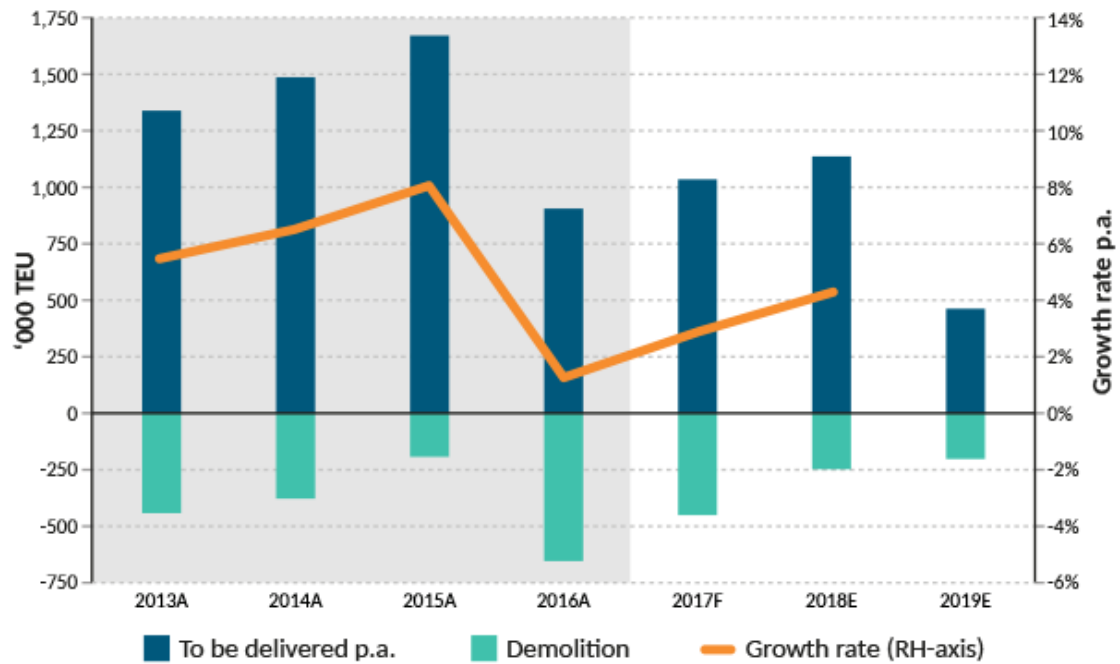
Source: BIMCO estimates on Clarkson's raw data

A is actual. F is forecast. E is estimate which will change if new orders are placed. The supply growth for 2017-2019 contains existing orders only and is estimated under the assumptions that the scheduled deliveries fall short by 10% due to various reasons and 30% of the remaining vessels on order are delayed/postponed.

According to BIMCO, for the following two years, there will be an increase in new containership deliveries and a decrease in containership demolitions.

Indicative market fundamentals for container shipping
2004-2016
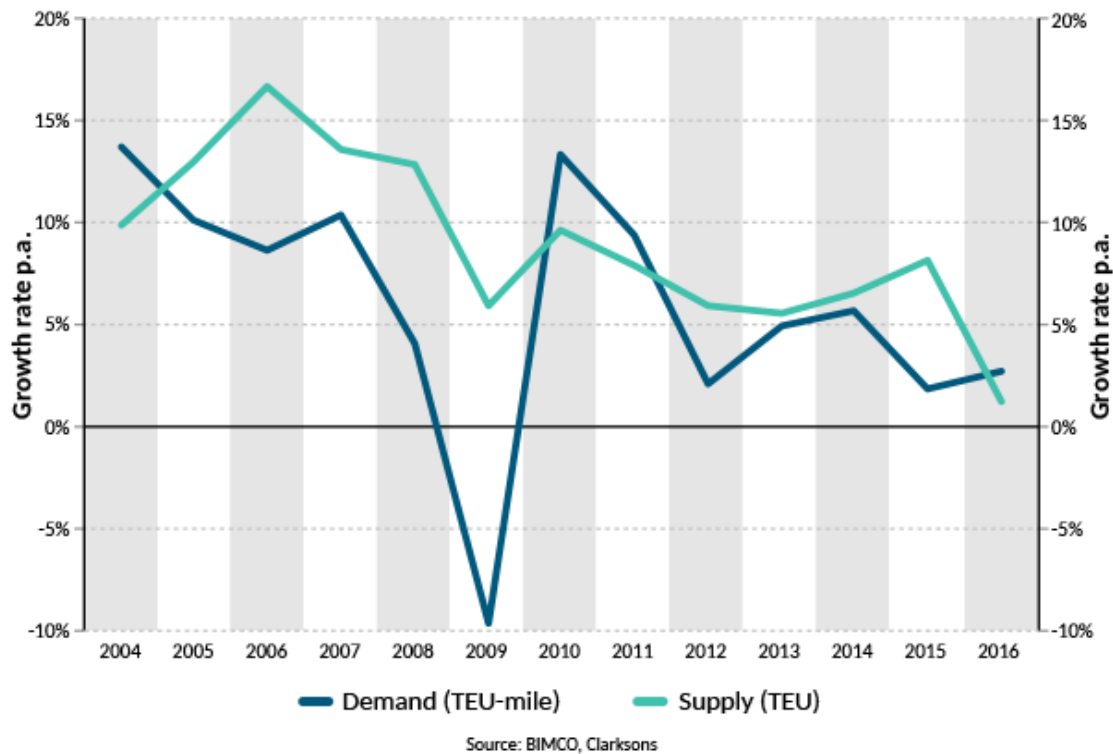
Figure 26: Containership supply & demand

Moreover, BIMCO also gives some insight for supply and demand for the period from 2004 to 2016.

<u>Vessel values</u>

Finally, the prices (values) of ships are another key indicator that drives stock prices, because one way to measure the value of a company is by its assets. Ship prices are often affected by shipping rates and ship orders, so we can look at rising or falling ship prices as leading indicators that show where future shipping rates will be probably. While these indicators are often published separately, we generally compile them into a series so that investors can get a fuller picture of how everything is performing as a whole, since it is recommended that investors not rely on one indicator alone.
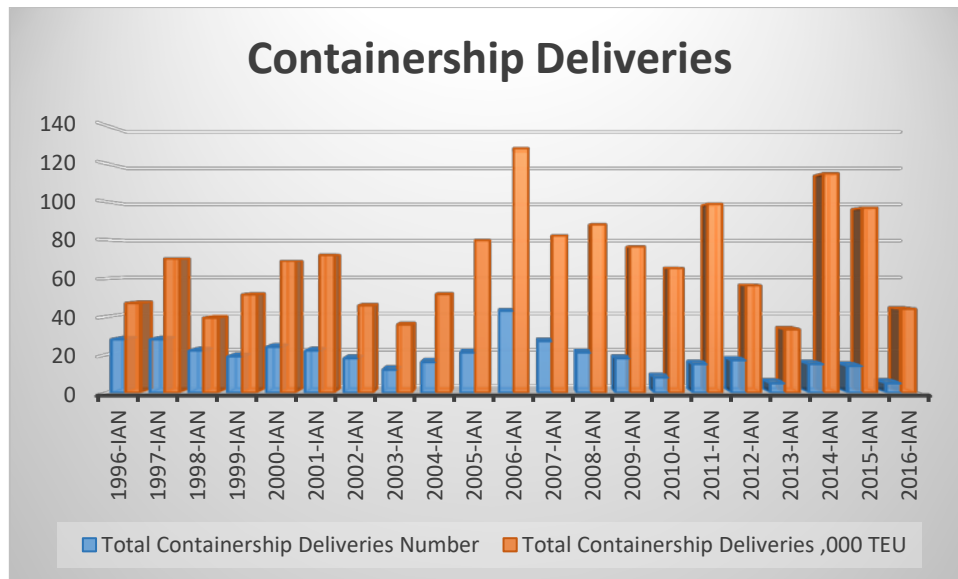
Figure 27: Containership deliveries, raw data from Clarksons Research

These are the total deliveries of containerships in number and TEU, according to Clarksons Research time series.

Date	Total Containership Sales Number	Total Containership Sales DWT	Total Containership Sales TEU	Total Containership Sales $ Million
1995-Δεκ	4	109.085	7.651	110,90
1996-Δεκ	4	41.993	2.907	50,00
1997-Δεκ	2	44.938	2.759	21,50
1998-Δεκ	1	16.432	742	1,40
1999-Δεκ	5	100.176	6.837	51,00
2000-Δεκ	8	213.289	14.662	132,50
2001-Δεκ	1	18.595	1.295	9,30
2002-Δεκ	13	321.824	21.549	166,50
2003-Δεκ	8	261.023	17.510	170,10
2004-Δεκ	23	469.204	37.976	453,96
2005-Δεκ	4	51.287	3.475	51,79
2006-Δεκ	13	496.164	32.975	309,16
2007-Δεκ	12	547.923	37.745	47,15
2008-Δεκ	3	70.416	5.220	57,90
2009-Δεκ	20	426.736	30.812	56,25
2010-Δεκ	14	455.972	31.554	159,50
2011-Δεκ	6	61.889	4.778	18,70
2012-Δεκ	9	206.294	15.193	23,10
2013-Δεκ	8	118.594	8.719	24,30
2014-Δεκ	12	415.296	31.860	17,90
2015-Δεκ	5	154.606	12.481	66,10

According to the above figure from time series data of Clarksons Research, we can see after the economic crisis, there was an increase in containership sales by number.
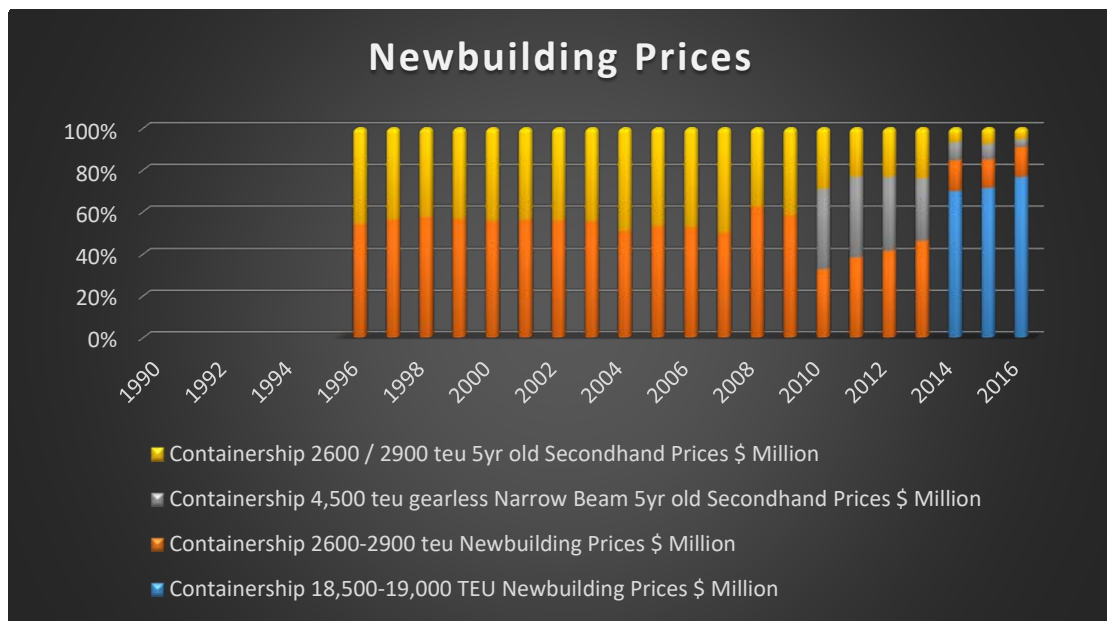
Figure 29: Newbuilding containership prices according to Clarksons raw data

World Economic Growth

Industrial production indices provide a more accurate picture and a valuable tool in assessing the situation, highlighting the strong connection between maritime transportation supply and demand, economic expansion and world trade. Declines in industrial output, signaled by a contracting economy, results in a reduction in trade volume and thus demand for seaborne transportation services.

International Trade Growth

- Rapidly growing at an annual average rate of 6% since 1950s
- Global merchandise trade having same growth trend as the world GDP
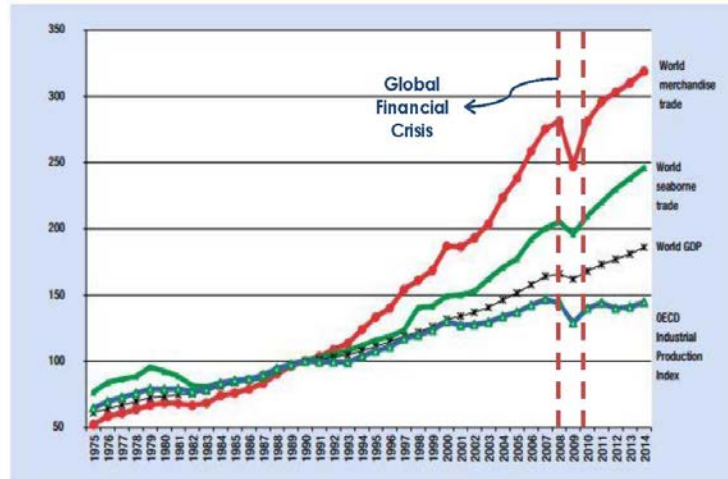
Extracted from UNCTAD Review of Maritime Transport 2015 (UNCTAD, 2015)

FORECASTING GLOBAL MARITIME CONTAINER DEMAND USING AN INTEGRATED TRADE-COMMODITY FLOW MODELLING FRAMEWORK

Figure 30: Forecasted Global Maritime container demand
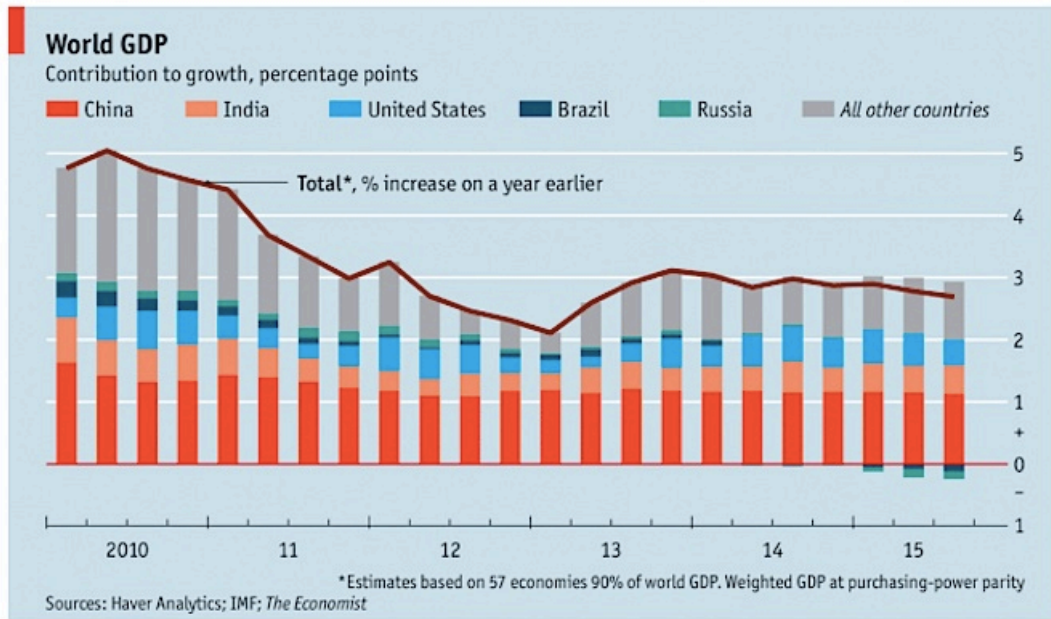
Figure 31: World GDP

Oil Prices

Should bunker oil price rise, there would be an immediate reflection in freight rates due to the fact that bunker cost accounts for the higher amount of the vessel's operating expenses. The innovations and various methods by which the fuel consumption is significantly reduced are under intensive research.

Figure 32: Brent Oil prices, Clarksons Research raw data
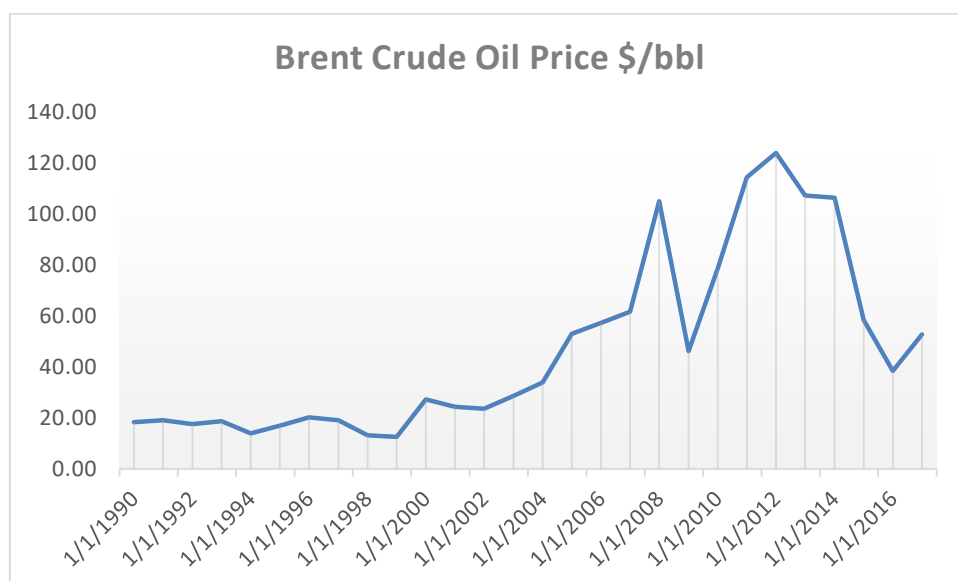
In the past three years there was an exceptional fall in oil prices, that helped the companies to reduce their bunkering and transportation costs.

2.5 **Oil Tanker Sector**

According to Clarksons' Shipping Market Outlook tanker market conditions have weakened, largely reflecting the impact of a faster pace of fleet growth. Average tanker earnings fell 68%, from $28,483/day in January 2016 to $9,922/day in August 2016. On the demand side, seaborne crude oil and products trade growth has slowed slightly this year, but remains healthy on a historical basis

About the tanker demand Seaborne oil trade (crude and products combined) is projected to rise 3.7% in 2016. Global seaborne products trade has also continued to expand, and is projected to increase by 4.0% in 2016, supported by an increase in imports to Asia, particularly India. European imports have also firmed on the back of refinery closures in the region, while Middle Eastern and Chinese exports have also risen[10].

Oil Trade Summary

Oil Demand

(MBpd)	2011	2012	2013	2014	2015	2016(f)
OECD Europe	14.3	13.8	13.6	13.6	13.8	13.8
	-3.0%	-3.2%	-1.1%	-0.6%	1.5%	0.4%
North America	23.4	23.0	23.4	23.5	23.8	23.9
	-2.0%	-1.8%	2.1%	0.2%	1.1%	0.7%
Non-OECD Asia	20.4	21.2	22.1	22.7	23.7	24.5
	2.9%	4.0%	4.3%	2.8%	4.5%	3.4%
Others	31.1	32.2	32.3	32.6	32.9	33.1
	2.5%	3.4%	0.4%	0.9%	0.8%	0.8%
TOTAL	89.1	90.1	91.5	92.4	94.1	95.4
	0.5%	1.1%	1.5%	1.0%	1.9%	1.4%

---

[10] Clarksons' Shipping Market Outlook Autumn 2016

Crude Oil Supply

(MBpd)	2011	2012	2013	2014	2015	2016(f)
Saudi Arabia	9.5	9.8	9.7	9.7	10.5	10.4
	6.3%	4.0%	-1.4%	0.4%	7.4%	-0.1%
Other Middle East	16.3	17.5	18.0	18.3	18.7	20.1
	5.8%	7.1%	3.0%	1.7%	2.4%	7.4%
Latin America	7.5	7.5	7.5	7.6	7.8	7.6
	2.4%	0.2%	0.4%	1.5%	1.5%	-2.2%
Africa	10.5	9.7	9.1	8.5	8.5	7.7
	2.1%	-7.3%	-6.4%	-7.0%	0.6%	-9.9%
FSU	13.5	13.7	13.9	13.9	14.0	14.0
	2.4%	1.5%	1.1%	0.2%	0.6%	0.3%
Others	31.8	32.4	33.0	35.2	36.4	35.7
	-4.6%	1.9%	1.7%	6.6%	3.6%	-2.0%
Total	89.1	90.7	91.2	93.2	95.9	95.5
	0.7%	1.8%	0.5%	2.2%	2.9%	-0.3%

Total includes NGLs and processing gains

Figure 33: Oil demand & supply per year and region, Clarksons research

Crude Exports

(MBpd)	2011	2012	2013	2014	2015	2016(f)
Middle East	17.9	17.4	17.6	17.1	17.4	18.1
	8.9%	-2.8%	0.8%	-2.8%	2.0%	4.0%
Africa	6.3	7.4	6.6	6.3	6.1	5.4
	-13.8%	16.9%	-10.6%	-4.8%	-2.5%	-11.0%
Caribs & L .Am	4.5	4.6	4.3	4.5	4.8	4.7
	1.2%	1.4%	-6.3%	4.3%	6.9%	-2.4%
FSU	4.8	4.9	4.8	4.7	5.1	5.5
	-8.0%	1.9%	-1.8%	-2.3%	9.4%	6.4%
Others	3.6	4.0	3.6	3.8	3.9	5.1
	-12.1%	10.3%	-9.2%	3.5%	5.0%	28.2%
WORLD TOTAL	37.2	38.3	36.9	36.3	37.4	38.7
	-1.1%	2.9%	-3.7%	-1.7%	3.1%	3.6%

Crude Imports

(MBpd)	2011	2012	2013	2014	2015	2016(f)
United States	6.7	6.1	5.1	4.5	4.2	4.5
	-7.4%	-9.0%	-15.7%	-13.3%	-6.4%	6.6%
EU Europe	9.0	9.6	9.0	8.9	9.5	9.4
	-3.9%	6.9%	-5.6%	-1.6%	6.5%	-0.6%
China	4.6	4.9	5.1	5.6	6.1	6.9
	4.2%	7.4%	3.6%	10.1%	9.3%	11.7%
Other Asia	12.8	13.5	13.4	13.3	13.8	14.3
	2.4%	5.3%	-0.8%	-1.0%	4.1%	3.5%
Others	4.1	4.2	4.2	4.0	3.8	3.7
	0.3%	1.4%	0.6%	-4.1%	-5.7%	-1.8%
WORLD TOTAL	37.2	38.3	36.9	36.3	37.4	38.7
	-1.1%	2.9%	-3.7%	-1.7%	3.1%	3.6%

Figure 34: Crude imports and exports per year and region, Clarksons research

Products Exports

(MBpd)	2011	2012	2013	2014	2015	2016(f)
Asia	5.5	5.5	5.8	5.9	6.0	6.5
	4.4%	-1.2%	6.1%	1.9%	1.1%	8.5%
Europe	5.1	5.4	5.5	5.3	5.8	5.8
	4.1%	6.1%	1.4%	-2.8%	8.4%	-0.1%
Latin America	0.7	0.7	0.7	0.7	0.6	0.6
	-14.0%	-1.9%	-2.0%	-1.6%	-12.8%	-4.1%
Others	8.4	8.2	8.7	8.9	9.8	10.2
	3.6%	-1.5%	6.2%	2.3%	9.5%	4.2%
WORLD TOTAL	19.7	19.8	20.7	20.9	22.1	23.0
	3.2%	0.5%	4.5%	0.7%	6.1%	4.0%

Products Imports

(MBpd)	2011	2012	2013	2014	2015	2016(f)
Europe	6.5	6.5	6.8	6.7	7.0	7.3
	2.3%	-0.1%	5.3%	-2.5%	4.1%	5.1%
Total Asia	7.2	7.3	7.7	7.8	8.4	8.6
	5.8%	2.7%	5.0%	1.1%	7.0%	3.5%
Others	6.0	6.0	6.1	6.4	6.8	7.1
	1.1%	-1.3%	3.1%	3.8%	7.1%	3.5%
WORLD TOTAL	19.7	19.8	20.7	20.9	22.1	23.0
	3.2%	0.5%	4.5%	0.7%	6.1%	4.0%

Source: Oil and Tanker Trades Outlook: Clarksons Research. (f)=forecasts.
Crude demand derived from crude and DPP trade. Products demand derived from DPP,
CPP and veg oil trade.

Figure 35: Product imports & exports

In the first eight (8) months of 2016, the fleet grew 3.3% in dwt terms to number 1,893 tankers of 359.9m dwt at the start of September. In the period from January to August, 54 crude tankers of 11.8m dwt were delivered, already 39% above total capacity delivered in 2015, while demolition has remained subdued with just 0.5m dwt reported scrapped. Ordering has slowed with 5.1m dwt contracted in the year to date, compared to 38.7m dwt in full year 2015. The product tanker fleet has continued to grow rapidly, by 4.5% in dwt terms in the first eight months of 2016, with LR2 and MR tanker fleet capacity expanding by 10% and 7% respectively. Limited product tanker ordering combined with continued firm deliveries has led to a further decline in the size of the orderbook in the year to date.

About the tanker market future Clarksons believe that, a seasonal improvement in the tanker market is expected over the winter months and earnings

are not expected to approach the highs reach late last year. Overall, the demand environment remains healthy, with seaborne crude and products trade projected to expand 3.6% and 4.0% respectively in full year 2016. However, in general the crude tanker market is likely to remain under pressure from an accelerated pace of deliveries, with the crude tanker fleet currently expected to expand 5.3% in dwt terms in full year 2016 and by a further 4.7% in 2017. Meanwhile, product tanker fleet growth is expected to remain rapid, with expansion of 5.9% expected in 2016, and 4.0% in 2017, which is likely to continue to exert pressure on the market. The build up of oil inventories in some key regions in recent years also presents a downside risk to the tanker demand outlook. The recent agreement by OPEC to limit oil output could have an impact on oil market dynamics and crude trade patterns, although compliance with quotas has historically been poor and full details have yet to be agreed.[11]

Where Are We In The Tanker Cycle ?

Ship by Type	Market Rate Indicator	2006-15 Average Value	2015		2016 YTD		This Year So Far...	
			Market Rate	% diff. from Average	Market Rate	% diff. from Average		
VLCC	Spot ($/day)	43,583	64,846	49%	43,116	-1%	-50%	Worse!!
	1 year t/c ($/day)	40,821	48,433	19%	40,450	-1%	-20%	Worse
	5 year old ($m)	90.8	80.0	-12%	62.0	-32%	-20%	Worse
VLCC Average				19%		-11%	-30%	Worse!
Suezmax	Spot ($/day)	35,031	46,713	33%	27,668	-21%	-54%	Worse!!
	1 year t/c ($/day)	30,529	35,875	18%	30,021	-2%	-19%	Worse
	5 year old ($m)	63.3	60.0	-5%	45.0	-29%	-24%	Worse!
Suezmax Average				15%		-17%	-32%	Worse!!
Aframax	Spot ($/day)	25,637	37,954	48%	23,756	-7%	-55%	Worse!!
	1 year t/c ($/day)	22,744	26,712	17%	23,789	5%	-13%	Worse
	5 year old ($m)	47.4	46.0	-3%	33.0	-30%	-27%	Worse!
Aframax Average				21%		-11%	-32%	Worse!!
Clean Products (30k dwt)	Spot ($/day)	16,813	21,535	28%	12,802	-24%	-52%	Worse!!
	1 year t/c ($/day)	17,862	17,769	-1%	16,404	-8%	-8%	Bit Worse
	5 year old ($m)	33.6	29.0	-14%	23.0	-32%	-18%	Worse
Clean Products Average				5%		-21%	-26%	Worse!
Tanker Average				13%		-17%	-29%	Worse!

Figure 36: Tanker cycle, Clarksons research

By analyzing the above graph, it can be seen the economic situation that the tanker market faces this year. This year is worse for all the types of vessels.

---

[11] Clarksons' Shipping Market Outlook Autumn 2016

Crude Tanker Market Cycles

■ Tanker Lay-Up	
— VLCC 1 Year T/C	
— Aframax 1 Year T/C	

Source: Clarksons Research
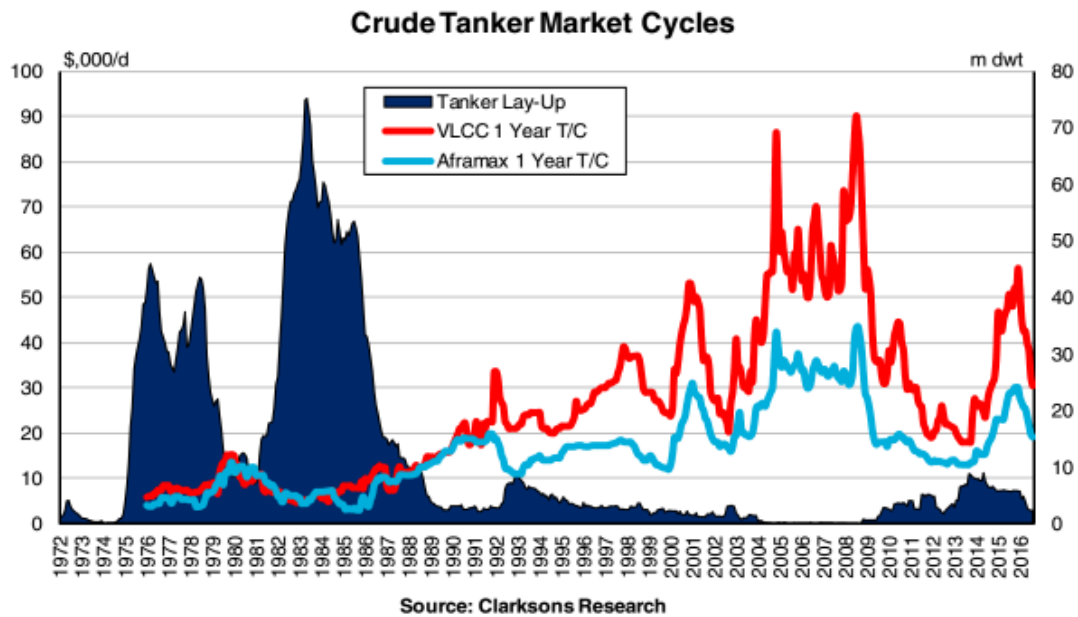
Figure 37: Crude Tanker cycle

As we can observe, 2005 and 2008 were really good years for the tanker industry, reaching a time charter up to 90,000 $/ day. However, after the economic crisis 2010 and over, rates were plummeted.

Oil Tanker Fleet (m.dwt)	Year End			Forecast	
	2013	2014	2015	2016	2017
VLCC	190.2	194.2	200.3	213.5	223.9
	1.6%	2.1%	3.1%	6.6%	4.9%
Suezmax	76.2	75.9	77.4	80.9	86.6
	4.9%	-0.3%	1.9%	4.6%	6.9%
Uncoated Aframax	70.1	68.0	67.9	69.7	71.5
	-1.8%	-2.9%	-0.2%	6.6%	2.7%
LR2 Product Tanker	26.8	28.0	28.0	34.1	36.6
	1.1%	4.5%	0.0%	6.6%	7.4%
Panamax*	29.9	29.8	29.4	30.5	31.5
	0.4%	-0.3%	-1.3%	3.8%	3.2%
Handy (10-60,000 dwt)	77.6	81.2	86.1	90.6	92.7
	3.1%	4.7%	6.0%	5.2%	2.3%
Total Fleet >10k dwt	470.7	477.2	489.0	519.3	542.8
% Change	1.7%	1.4%	2.5%	6.2%	4.5%

*Includes both coated and uncoated vessels

Figure 38: Oil tanker fleet per year, Clarksons research

The above graph shows the historical distribution of each type of vessel and a forecast for the year 2017.
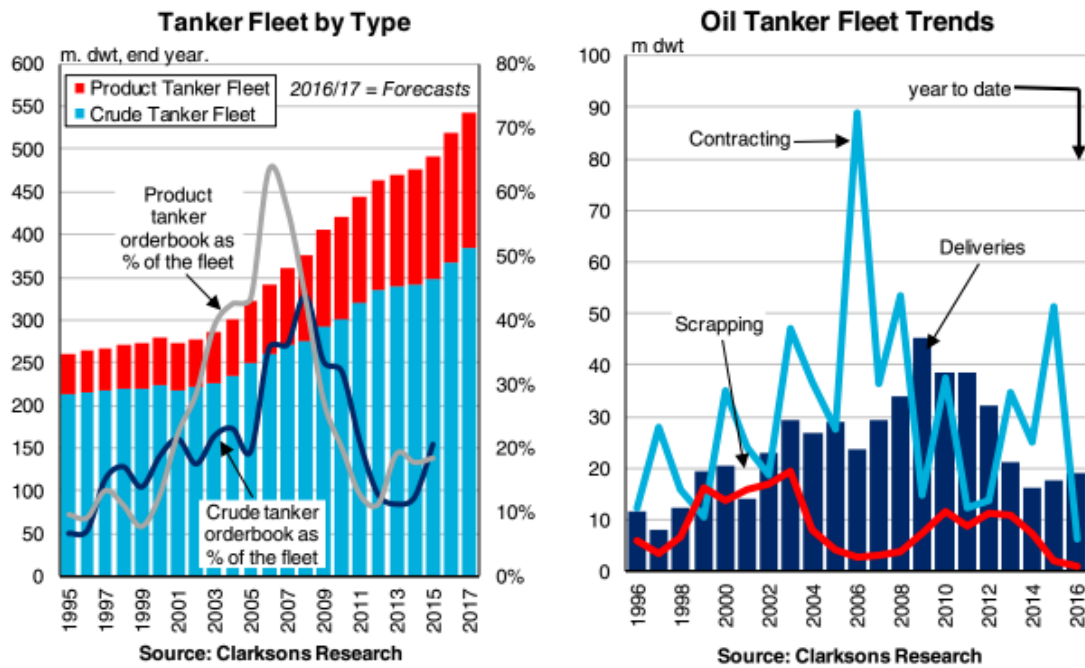
Figure 39: Tanker fleet movements,

We can see that there is a decrease of scrapping for the last two years and a small increase on new deliveries. The most important however is that there is an important decrease in tanker ship contacting.

2.6 Strategic Analysis using S.W.O.T.

This analysis, is a tool used by companies, so as to prepare their strategic planning and orientation. This method analyses the internal and external environment of a company, and detects the strengths, the weaknesses, the opportunities and the threats, that the company faces.

DIANA CONTAINERSHIP INC. SWOT ANALYSIS	
INTERNAL FACTORS	
STRENGTHS (+)	**WEAKNESSES (-)**
1. Experienced management. 2. Partially owned by Diana Shipping, a well-established company, that provides the company with liquidation 3. Not a really old fleet of ships	1. Low profitability 2. Low cash flow from operations 3. High loan amounts

EXTERNAL FACTORS	
OPPORTUNITIES (+)	**THREATS (-)**
1. New acquisitions of fleet, in different industry 2. Growth rate, as containers' trade outlook is positive.	1. Increasing costs 2. High competitions 3.Competitors show better financial efficiency.

CAPITAL PRODUCT PARTNERS SWOT ANALYSIS

INTERNAL FACTORS	
STRENGTHS (+)	**WEAKNESSES (-)**
1. Experienced management. 2. Diversified fleet. (crude oil, chemicals, product, containerships) 3. High Profitability 4. Positive cash flows from operations	1. Possibly high leverage

EXTERNAL FACTORS	
OPPORTUNITIES (+)	**THREATS (-)**
1. New acquisitions of fleet, from free cash flows from operations	1. Increasing costs and oil prices 2. High competition 3. Competitors show also financial efficiency.

Chapter 3 Details about valuation methods

3.1 Valuation Framework

In order to understand the DCF, we have to see the whole matter from the beginning.

Modern Portfolio Theory

An investor can make an optimum investment portfolio, in order to achieve the best expected return on investment, in accordance with the taken risk[12]. Sharpe (1964), Linter (1965) and Mossin (1966) made the well-known "Capital Asset Pricing Model" (CAPM). This pricing model is used highly throughout the years in valuations up to today, with some adjustments and modifications. Through further research CAPM has been criticized and modified reaching its modern form today.

Key aspects of portfolio theory, CAPM, DCF, is the risk. In order for an investor to make an investment and to give some of its wealth, needs to be rewarded for this risk. Business as a notion, contains the aspect of risk, by saying that having success is optimizing the risk reward ratio. There are some categories according to risk of an investor.

i. Risk Seeker, is an investor, who makes investment choices, in a way that may leave them vulnerable in the future.

ii. Risk averse, is an investor, who takes decisions in a more conservative stance towards the future and tries to hedge imminent risk.

iii. Risk neutral, is an investor, who is indifferent to risk when making an investment decision. The risk-neutral investor places himself in the middle of the risk spectrum, represented by risk-seeking investors at one end and risk-averse investors at the other.

Discounted Cash Flow Method

According to Investopedia, discounted cash flow (DCF) is a valuation method used to estimate the attractiveness of an investment opportunity. DCF analysis uses

---

[12] Markowitz, 1952 "Portfolio Selection"

future free cash flow projections and discounts them to arrive at a present value, which is then used to evaluate the potential for investment. If the value arrived at through DCF analysis is higher than the current cost of the investment, the opportunity may be a good one.

The formula for calculating DCF is usually given something like this:

$$PV = CF1 / (1+k) + CF2 / (1+k)2 + \ldots [TCF / (k - g)] / (1+k)n\text{-}1$$

Where:

PV = present value

CFi = cash flow in year i

k = discount rate

TCF = the terminal year cash flow

g = growth rate assumption in perpetuity beyond terminal year

n = the number of periods in the valuation model including the terminal year

Free cash flows can be calculated as **operating profit + depreciation + amortization of goodwill - capital expenditures - cash taxes - change in working capital**. Although the calculations are complex, the purpose of DCF analysis is simply to estimate the money you'd receive from an investment and to adjust it for the time value of money.

Discounted cash flow models are powerful, but they do have shortcomings. DCF is merely a mechanical valuation tool, which makes it subject to the axiom "garbage in, garbage out." Small changes in inputs can result in large changes in the value of a company. Instead of trying to project the cash flows to infinity, terminal value techniques are often used. A simple annuity is used to estimate the terminal value of the past 10 years, for example. This is done because it is harder to come to a realistic estimate of the cash flows as time goes on.

At a time when financial statements are under close scrutiny, the choice of what metric to use for making company valuations has become increasingly important. Wall Street analysts are emphasizing cash flow-based analysis for making judgments about company performance. DCF analysis is a key valuation tool at analysts' disposal. Analysts use DCF to determine a company's current value according to its estimated future cash flows. For investors keen on gaining insights on what drives share value, few tools can rival DCF analysis.

Accounting scandals and inappropriate calculation of revenues and capital expenses give DCF new importance. With heightened concerns over the quality of earnings and reliability of standard valuation metrics like P/E ratios, more investors are turn to free cash flow, which offers a more transparent metric for gauging performance than earnings. It is harder to fool the cash register. Developing a DCF model demands more work than simply dividing the share price by earnings or sales. But in return for the effort, investors get a good picture of the key drivers of share value: expected growth in operating earnings, capital efficiency, balance sheet capital structure, cost of equity and debt, and expected duration of growth. An added bonus is that DCF is less likely to be manipulated by aggressive accounting practices.

DCF analysis shows that changes in long-term growth rates have the greatest impact on share valuation. Interest rate changes also make a big difference. Investors can also use the DCF model as a reality check. Instead of trying to come up with a target share price, they can plug in the current share price and, working backwards, calculate how fast the company would need to grow to justify the valuation. The lower the implied growth rate, the better - less growth has therefore already been "priced into" the stock.

A well-designed DCF model should, by contrast, keep investors out of stocks that look cheap only against expensive peers. DCF models are powerful, but they do have shortcomings. Small changes in inputs can result in large changes in the value of a company. Investors must constantly second-guess valuations; the inputs that produce these valuations are always changing and are susceptible to error[13].

---

[13] Investopedia

According to Morning Star.co, a quicker and easier way to calculate the general value of a stock compared to other investments in the market are the financial ratios and multiples. Valuation methods based on discounted cash flow models determine stock prices in a different and more robust way. DCF models estimate what the entire company is worth. Comparing this estimate, or "intrinsic value," with the stock's current market price allows for much more of an apples-to-apples comparison.[14]

The value of an asset is the present value of the expected cash flows on the asset, discounted back at a rate that reflects the riskiness of these cash flows. Foundation of the above approach is the present value rule, where the value of any asset is the present value of expected future cash flows that the asset generates.

The value of the firm is given using the following DCF model:

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \ldots + \frac{CF_n}{(1+r)^n}$$

CF = Cash Flow

r = discount rate (WACC)

Where "n" is the life of the asset. "CFt" is the cash flow in time t and r is the discount rate, which take the value of asset's Weighted Average Cost of Capital (WACC). The cash flows will vary from asset to asset -- dividends for stocks, coupons (interest) and the face value for bonds and after-tax cash flows for a real project. The discount rate will be a function of the riskiness of the estimated cash flows, with higher rates for riskier assets and lower rates for safer projects. We can in fact think of discounted cash flow valuation on a continuum. At one end of the spectrum, you have the default-free zero coupon bond, with a guaranteed cash flow in the future. Discounting this cash flow at the riskless rate should yield the value of the bond. A little further up the spectrum are corporate bonds where the cash flows take the form of coupons and there is default risk. These bonds can be valued by discounting the expected cash flows at an interest rate that reflects the default risk. Moving up the risk ladder, we get to equities, where there are expected cash flows with substantial uncertainty around

---

[14] Morningstar.co.uk

the expectation. The value should be the present value of the expected cash flows at a discount rate that reflects the uncertainty[15].

The advantages of this method are:

i. Easy concept: Cash flows are "real" and easy to think about, they are not affected by accounting rules.

ii. Familiarity: Cash flow valuation is a straightforward application of familiar present value techniques.

This method works better, when the investment pattern produces positive constant free cash flow growing at a constant rate. Moreover, it is useful when equity investments, are terminal or the investor needs to "cash out", as in leverage buyout situations and private equity investment, where debt must be paid down or investors must be paid out within a certain time frame, so the ability to generate cash is important.

The disadvantages of this method are:

i. Suspect concept: Free cash flow does not measure value added in the short run, value gained is not matched with value given up. Investment is treated as a loss of value. Moreover, free cash flow is partially a liquidation concept, thus firms increase free cash flow by cutting back on investments.

ii. Forecast Horizon: Typically, long forecast horizons are required to recognize cash inflows from investments, particularly when investments are growing. Continuing values have a high weight in the valuation.

iii. Not aligned with what people forecast: Analysts forecast earnings, are not free cash flows.[16]

There are two major free cash flow methods. The first method is the Free Cash Flow for the Firm (FCFF) and the second is Free Cash Flow to Equity(FCFE).

Free Cash Flow to the Firm

---

[15] Damodaran (Investment Valuation second edition 2002)

[16] Penman (Financial Statement Analysis and Security Valuation 5th ed.)

This method should be used as a base for calculating cash flows when the debt ratio is stable. This is because FCFF is difficult to be valued when debt is large or it changes a lot and that will make equity more sensitive to risk and will make growth assumption trickier. Both FCFF and FCFE should give the same return to equity. This method calculates cash flows to both equity and debt holders, so if FCFF is negative, the firm cannot cover its expenses and if FCFF is positive, the firm has a positive cash flow after all expenses are covered. It is calculated using the following formula[17]

FCFF= EBIT(1-Tax rate)+Depreciation-Capital Expnditure-Change in working capital

Free Cash Flow to Equity

This method can be used as a base for finding cash flows when the debt equity ratio is unstable. It describes return to equity holders as the residual return after meeting financial obligations and the firm's investment needs. It is calculated using the following formula

FCFE= Net Income-(Capital expenditure-Depreciation)-(change in noncash working capital)+(New Debt issued- Debt repayments)

This model gives more detail on the cash flow to equity. When assessing cash flow to all claim holders in the firm, the optional debt equity ratio may actually increase the firm value[18]

I have already presented the basic principles of the Discounted Cash Flow Method (DCF), in order to take an idea how this model works and when it can be used. To continue with, so as to take a deeper view of the model, the relevant components need to be broken down.

---

[17] Damodaran (2002) *"Investment Valuation second edition"*
[18] Damodaran (2002) *"Investment Valuation second edition"*

3.2 <u>Discounted Cash Flow Components</u>

- **<u>Free Cash Flows</u>**

Free cash flow (FCF) is a measure of a company's financial performance, calculated as operating cash flow minus capital expenditures. FCF represents the cash that a company is able to generate after spending the money required to maintain or expand its asset base. FCF is important because it allows a company to pursue opportunities that enhance shareholder value.

FCF is an assessment of the amount of cash a company generates after accounting for all capital expenditures, such as buildings or property, plant and equipment. The excess cash is used to expand production, develop new products, make acquisitions, pay dividends and reduce debt. Specifically, FCF is calculated as:

EBIT (1-tax rate) + (depreciation) + (amortization) - (change in net working capital) - (capital expenditure).

Another way to calculate free cash flows is
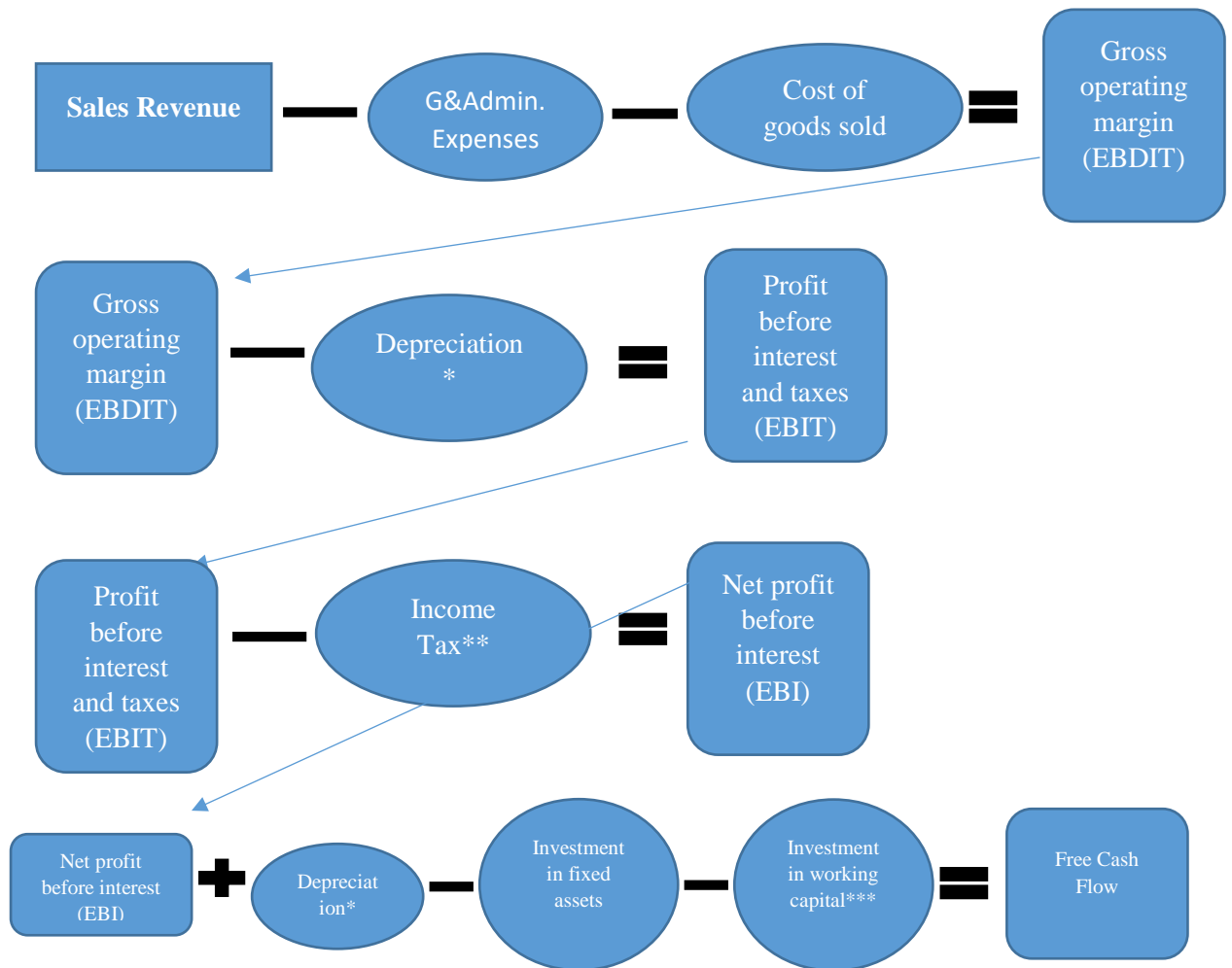
* Depreciation is afterward added back because it is a non-cash item

**Shipping companies often pay little or no taxes

*** Working capital needs (WCN) = Cash + Receivables + Stocks - Payables

Figure 40: Free cash flow calculation diagram

- **Weighted Average Cost of Capital**

The Weighted Average Cost of Capital (WACC), can be defined as the "cost of capital for operations or the cost of capital for the firm". The required return to invest in operations is a weighted average of the required return of the shareholders and the cost of net financial debt and the weights are given by relative values of the equity and the debt in the value of the firm.[19]

---

[19] Penman (2013) *"Financial Statement Analysis and Security Valuation 5th ed."*

$$WACC = r_{WACC} = \left[\frac{D}{V} * R_D * (1 - t)\right] + \left[\frac{E}{V} * R_E\right]$$

Where: R_D is the before-tax marginal cost of debt

R_E is the marginal cost of equity or required return on equity

D is the market value of debt (bonds)

t is the local tax rate

E is the market value of equity (stocks)

The main components of the WACC, are cost of equity and cost of debt.

i.   Cost of Equity

The company's equity is the sum of its retained earnings and the equity share capital. The company's equity belongs wholly to its shareholders, despite lenders having claim on it in the event of bankruptcy. Firm usually need to raise money through equity offerings. The required rate of return on the capital that is offered to investors is the company's cost of equity. In order to calculate the cost of equity I used the Capital Asset Pricing Model.

ii.   Capital Asset Pricing Model (CAPM)

The widely used model can be easily described by the following formula.

$Ke = Rr + \beta(Rm - Rr)$

With the variables being

• K_e the cost of equity

• R_r the risk free rate (usually the US Treasury rate)

• R_m the return of the market portfolio

• β the beta which is a measurement of the company's systemic risk

Beta is a measure of how a stock's return moves as the market moves: How sensitive is the stock to the overall markets? (Penman 2013).

The beta is calculated as follows:

$\beta s = Cov(Rs, Rm) / \sigma m2$

$Cov(Rs, Rm) = \Sigma(Rs - Rs)(Rm - Rm)ni = 1n \quad \sigma m2 = \Sigma(Rm - Rm)2ni = 1n$

• βs measures the risk

• R_s the capital return of the share s

• R_m the capital return of the market portfolio

• Rm the arithmetic mean of the capital return of the market portfolio

• Rs the arithmetic mean of the capital return of the share s

• $\sigma m2$ the variance of the capital return of the market portfolio

Moreover, the company's beta can be calculated by using a regression on the monthly returns for the company and its correlating index S&P 500. This method is used for the calculation of both shipping companies' betas.

iii.   Cost of Debt

The cost of debt is the interest rate that the company pays for the borrowed funds it has acquired. However, it is not that easy to know the terms of the loans that the company holds, as they are rarely published. So the cost of debt can be found by looking at the interest expense of the company in its annual statement and dividing it by the grand total of its short and long term debt.

In this way, WACC is calculated as follows:

$$WACC = E/V \times Re + D/V \times Rd \times (1 - Tc)$$

• R_e is the cost of equity

• R_d is the cost of debt

• E is the market value of the company's equity

• D is the market value of the company's debt

• $V = E + D$

• E/V is the percentage of the company's financing that is equity

• D/V is the percentage of the company's financing that is debt

• T_c is the corporate tax rate that applies

The company's enterprise value (EV) is the net present value of all the future free cash flows, discounted with the weighted average cost of capital (wacc). The formula is as follows:

$$EV = FCF1/(1+wacc)1 + FCF2/(1+wacc)2 + \cdots + FCFn/(1+wacc)n + terminal\ value/(1+wacc)n$$

Terminal Value

Terminal value (TV) represents all future cash flows in an asset valuation model. This allows models to reflect returns that will occur so far in the future that they are nearly impossible to forecast. The Gordon growth model, the discounted cash flow all use terminal values, that can be calculated with perpetuity growth, while an alternative exit valuation approach employs relative valuation methods.

3.3 Dividend Discount Model

According to Damodaran (2006) «The oldest discounted cash flow models in practice tend to be dividend discount models. While many analysts have turned away from dividend discount models on the premise that they yield estimates of value that are far too conservative, many of the fundamental principles that come through with dividend discount models apply when we look at other discounted cash flow models. Basis for Dividend Discount Models When investors buy stock in publicly traded companies, they generally expect to get two types of cashflows - dividends during the holding period and an expected price at the end of the holding period. Since this expected price is itself determined by future dividends, the value of a stock is the present value of dividends through infinity»[20]. The formula used in order to calculate a company's fair value is the following one:

---

[20] Damodaran (2006) "*Valuation Approaches and Metrics: A Survey of the Theory and Evidence*"

$$\textit{Gordon Growth Model}$$

$$P = \frac{D_1}{(r - g)}$$

P= is the company's stock price

D_1= is the company's next year dividend

r= is the company's cost of equity

g= the expected growth rate of the company's dividends

The rationale for the model lies on the present value rule - the value of any asset is the present value of expected future cash flows discounted at a rate appropriate to the riskiness of the cash flows. There are two basic inputs to the model - expected dividends and the cost on equity. To obtain the expected dividends, we make assumptions about expected future growth rates in earnings and payout ratios. The required rate of return on a stock is determined by its riskiness, measured differently in different models – the market beta in the CAPM, and the factor betas in the arbitrage and multi-factor models. The model is flexible enough to allow for time-varying discount rates, where the time variation is caused by expected changes in interest rates or risk across time.[21]

---

[21] Investopedia

Chapter 4 Financial statement analysis

4.1 Financial Statements details

4.1.1 Reformulation of Financial Statements

Profitability that generates value, comes from a firm's business operations. Thus the analysis begins with a reformulation of the statements, to distinguish operating activities from financing activities. This reformulation enforces the rule that no one can value a firm without knowing the business, for distinguishing operating activities identifies the business the firm is in[22].

The main aim of reformulating the financial statements, is to discover the drivers of ROCE (return on common equity) and growth in preparation for forecasting and valuation.

Figure 41: Product & Input markets reformulation of a firm, Penman 5th ed. 2013

---
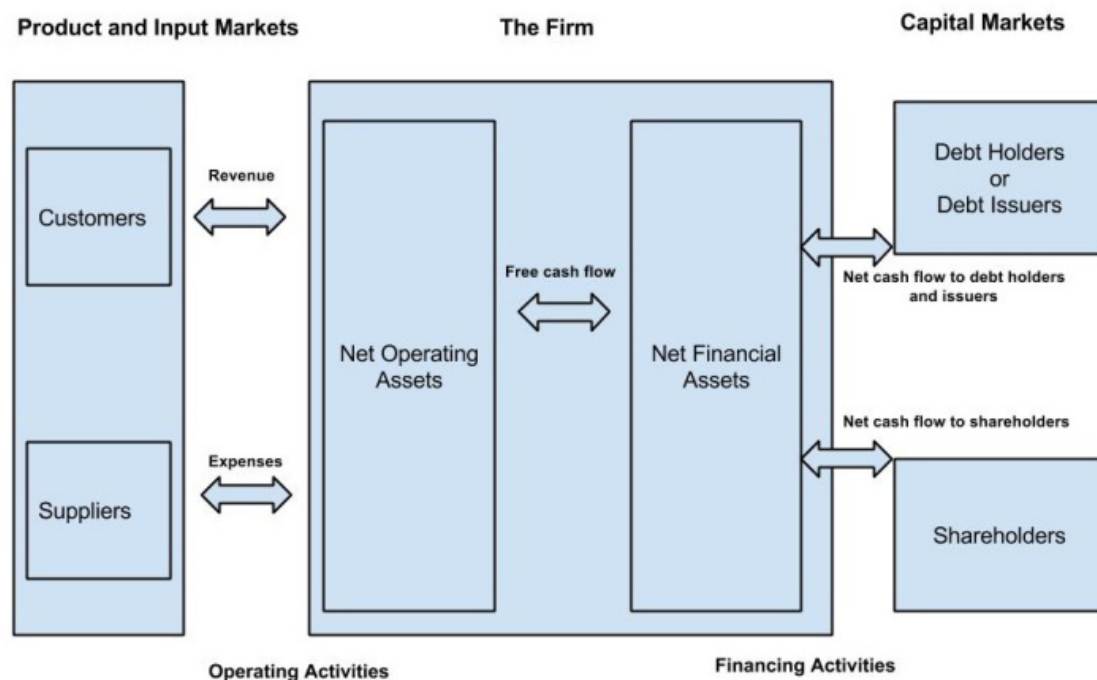
[22] Penman (2013) *"Financial Statement Analysis and Security Valuation 5th ed."*

The Reformulated Balance Sheet

Assets	Liabilities and Stockholders' Equity
Financial assets:	**Financial liabilities:**
- Cash equivalents	- Short-term borrowings
- Short-term investments	- Current maturities of long-term debt
- Short-term notes receivable (?)	- Short-term notes payable (?)
- Long-term non-marketable debt investments	- Long-term borrowing (bank loans, bonds, payable, notes payable)
- Long-term marketable debt securities	- Lease obligations
	- Preferred stock
Operating assets:	**Operating liabilities:**
all else	all else
	Common equity

The Reformulated Income Statement (1)

1. Operating items are separated from financing items.
2. Operating income from sales is separated from other operating income.
3. Tax is allocated to components of the statement, with no allocation to items reported on an after-tax basis

Reformulated Comprehensive Income Statement

Net sales
– Expenses to generate sales
Operating income from sales (before tax)
– Tax on operating income from sales
  + Tax as reported
  + Tax benefit from net financial expenses
  – Tax allocated to other operating income
Operating income from sales (after tax)
±Other operating income (expense) requiring tax allocation
  Restructuring charges and asset impairments
  Merger expenses
  Gains and losses on asset sales
  Gains and losses on security transactions
– Tax on other operating income
± After-tax operating items
  Equity share in subsidiary income
  Operating items in extraordinary income
  Dirty-surplus operating items in Table 8.1
  Hidden-dirty surplus operating items
Operating income (after tax)

Figure 42: Slideshare, The analysis of the Balance Sheet

The above graphs, depict an overview of the reformulation of a company's basic financial statements.

4.2. Risks

In order to make assessments and valuations about a company's value, we need to make forecasts about the future. For that reason, we need to make a risk assessment about the company's risks. Some examples of the risks, that both Diana Shipping Inc and Capital Product Partners face are the following:

➢ **Default Risk**

Default risk or credit risk, is the risk of not receiving timely interest and return of principal as specified in the debt agreement. So we have to review the company's capability of paying interest and principal amounts.[23]

This can be done by calculating and assessing some key ratios, such as:

i.   Interest Coverage Ratio

The interest coverage ratio is a debt ratio used to determine how easily a company can pay interest on outstanding debt. The interest coverage ratio may be calculated by dividing a company's earnings before interest and taxes (EBIT) during a given period by the amount a company must pay in interest on its debts during the same period.[24]

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

The rating agencies so as to calculate the credit premium and thus the cost of capital, use synthetic rating. This represents the default risk of the firm.

For large non-financial service companies with market cap > $ 5 billion

If interest coverage ratio is	Column1	Column2	Column3
>	≤ to	Rating is	Spread is
8.50	100000	Aaa/AAA	0.60%
6.5	8.499999	Aa2/AA	0.80%
5.5	6.499999	A1/A+	1.00%
4.25	5.499999	A2/A	1.10%
3	4.249999	A3/A-	1.25%

---

[23] Penman (2013) *"Financial Statement Analysis and Security Valuation 5th ed."*
[24] Investopedia

2.5	2.999999	Baa2/BBB	1.60%
2.25	2.49999	Ba1/BB+	2.50%
2	2.2499999	Ba2/BB	3.00%
1.75	1.999999	B1/B+	3.75%
1.5	1.749999	B2/B	4.50%
1.25	1.499999	B3/B-	5.50%
0.8	1.249999	Caa/CCC	6.50%
0.65	0.799999	Ca2/CC	8.00%
0.2	0.649999	C2/C	10.50%
-100000	0.199999	D2/D	14.00%

For smaller non-financial service companies with market cap < $ 5 billion

If interest coverage ratio is	Column1	Column2	Column3
>	≤ to	Rating is	Spread is
12.5	100000	Aaa/AAA	0.60%
9.5	12.499999	Aa2/AA	0.80%
7.5	9.499999	A1/A+	1.00%
6	7.499999	A2/A	1.10%
4.5	5.999999	A3/A-	1.25%
4	4.499999	Baa2/BBB	1.60%
3.5	3.9999999	Ba1/BB+	2.50%
3	3.499999	Ba2/BB	3.00%
2.5	2.999999	B1/B+	3.75%
2	2.499999	B2/B	4.50%
1.5	1.999999	B3/B-	5.50%
1.25	1.499999	Caa/CCC	6.50%
0.8	1.249999	Ca2/CC	8.00%
0.5	0.799999	C2/C	10.50%
-100000	0.499999	D2/D	14.00%

Figure 43: Interest coverage ratio and credit risk, Damodaran 2002

This is a table that relates the interest coverage ratio of a firm to a "synthetic" rating and a default spread that goes with that rating. The link between interest coverage ratios and ratings was developed by looking at all rated companies in the

United States. The default spreads are obtained from traded bonds. Adding that number to a riskfree rate should yield the pre-tax cost of borrowing for a firm.[25]

Another key ratio used by the majority of analysts is the following ratio, which takes into account capital expenditures. The Operating Cash flow to Capital Expenditures. is a ratio that measures a company's ability to acquire long-term assets using free cash flow. The cash flow to capital expenditures ratio will often fluctuate as businesses go through cycles of large and small capital expenditures. A higher CF/CapEX ratio is indicative of a company with sufficient capital to fund operations.[26]

$$\text{Cash Flow to Capital Expenditures} = \frac{\text{Cash Flow from Operations}}{\text{Capital Expenditures}}$$

ii.   Debt Ratios

A company's debt ratio is the ratio of total debt to total assets. Total debt includes both short-term and long-term debt. There are several debt ratios, which give users a general idea of the company's overall debt load as well as its mix of equity and debt. The debt to capital ratio is a ratio used to measure a company's financial leverage, calculated by dividing a company's total liabilities by its stockholders' equity. The D/E ratio indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity.

Debt To Equity Ratio

$$\text{Debt To Equity Ratio} = \frac{\text{Total Debts}}{\text{Total Equity}}$$

Other debt ratios include the market value of debt and equity, showing how the company can borrow more than the book values of debt and equity would indicate.

---

[25] http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.htm
[26] Investopedia

iii.   Equity Ratios

This ratio gives information about the company's equity instead of the debt. An important ratio is the shareholder's equity ratio, which determines how much shareholders would receive in the event of a company-wide liquidation. The ratio, expressed as a percentage, is calculated by dividing total shareholders' equity by total assets of the firm, and it represents the amount of assets on which shareholders have a residual claim. The figures used to calculate the ratio are taken from the company balance sheet.

$$\text{Shareholder Equity Ratio} = \frac{\text{Total Shareholder Equity}}{\text{Total Assets}}$$

Another important key ratio is the Return on Capital Employed, it. is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed (ROCE) and is calculated as follows:

$$ROCE = \frac{EBIT}{Capital\ Employed}$$

Capital Employed as shown in the denominator, is the sum of shareholders' equity and debt liabilities; it can be simplified as (Total Assets – Current Liabilities).

Last but not least, Return on Net Operating Assets (RNOA) recognizes that profitability must be based on the net assets invested in operations. So firms can increase their operating profitability by convincing suppliers, in the course of business, to grant or extend credit terms; credit reduces the investment that shareholders would otherwise have to put in the business. Correspondingly, the net borrowing rate, by excluding non-interest bearing liabilities from the denominator, gives the appropriate borrowing rate for the financing activities.[27]

---

[27] Penman (2003) *"Financial Statement Analysis of Leverage and How It Informs About Profitability and Price-to-Book Ratios"*

$$\boxed{\text{RNOA = Net Operating Profit After Taxes / Average Net Operating Assets}}$$

The rating agencies so as to calculate the credit premium and thus the cost of capital, use synthetic rating. This represents the default risk of the firm.

> ➢ **Liquidity Risk**

Selling at a price less than fundamental value can harm returns. But an investor can get a poor price by simply not finding other investors to sell to. Desiring to sell, the investor may find he/she has to take a low price to attract a buyer. The risk of having to trade at a price that is different from intrinsic value because of scarcity of traders is called liquidity risk. Sellers face liquidity risk, but so do buyers who do their fundamental analysis but cannot find sellers. Short sellers run considerable risk if the cannot find buyers when they wish to buy stocks to cover positions. And the more leveraged the trading position is, the worse is the effect of liquidity risk. (Penman 5$^{\text{th}}$ ed. 2013)

In a much simpler way, liquidity risk occurs when an individual investor, business or financial institution cannot meet short-term debt obligations. The investor or entity may be unable to convert an asset into cash without giving up capital and/or income due to a lack of buyers or an inefficient market.

Key ratios for liquidity risk are the following ones:

i.   Current Ratio

The current ratio is a liquidity ratio that measures a company's ability to pay short-term and long-term obligations. To gauge this ability, the current ratio considers the current total assets of a company (both liquid and illiquid) relative to that company's current total liabilities.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

If this number is below one (1), the company has more short term liabilities (credit period less than a year) than current assets (these that can be converted quickly into cash). A company that has a ratio 1,5 and above, has less probabilities of not meeting its short term obligations.[28]

ii.   Acid Ratio

The acid-test ratio is a strong indicator of whether a firm has sufficient short-term assets to cover its immediate liabilities. Commonly known as the quick ratio, this metric is more robust than the current ratio, also known as the working capital ratio, since it ignores illiquid assets such as inventory. The Acid Ratio is equal to:

$$= \frac{(\text{Cash} + \text{Accounts Receivable} + \text{Short-term Investments})}{\text{Current Liabilities}}$$

Companies with an acid-test ratio of less than 1 do not have the liquid assets to pay their current liabilities and should be treated with caution. If the acid-test ratio is much lower than the current ratio, it means that current assets are highly dependent on inventory.

Except for the ratios used so as to make estimations about the default risk and liquidity risk, faced by the companies, ratios can also be used for profitability analysis. Profitability ratios, provide an opinion about the company's profitability in percentages. In addition, profitability ratios are a class of financial metrics that are used to assess a business's ability to generate earnings compared to its expenses and other relevant costs incurred during a specific period of time. For most of these ratios, having a higher value relative to a competitor's ratio or relative to the same ratio from a previous period indicates that the company is doing well.

Some popular ratios used for profitability analysis are the Return on Assets and Return on Capital. Investors also use the Return on Equity ratio.

i.   Return on Assets

---

[28] Investopedia

Return on Assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as "Return on Investment".

$$= \frac{\text{Net Income}}{\text{Total Assets}}$$

ii. Return on Equity

Return on Equity (ROE) is the amount of net income returned as a percentage of shareholders' equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.[29]

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Average Common Shareholders' Equity}}$$

4.3. Financial Statements

For both companies their financial statements are publicly available. For Diana Containership Inc. as its Initial Public Offer in New York Exchange took place in 2011, its financial statements are available for the period from 2010 to 2016. As far as Capital Product Partners is concerned, its listing is done back in 2007 and consequently, its financial statements are available for the period 2007 to 2016. However, taking into consideration the financial crisis of 2008, the high volatility that the shipping industry faces and all the changes both companies have been went through regarding their fleet composition and market itself, I think that using for both companies their financial statements for the period from 2010 to 2016 is acceptable.

---

[29] Investopedia

In order my analysis to be complete, comparable firms have been selected according to their similar size, risk level and exposure to the same markets.
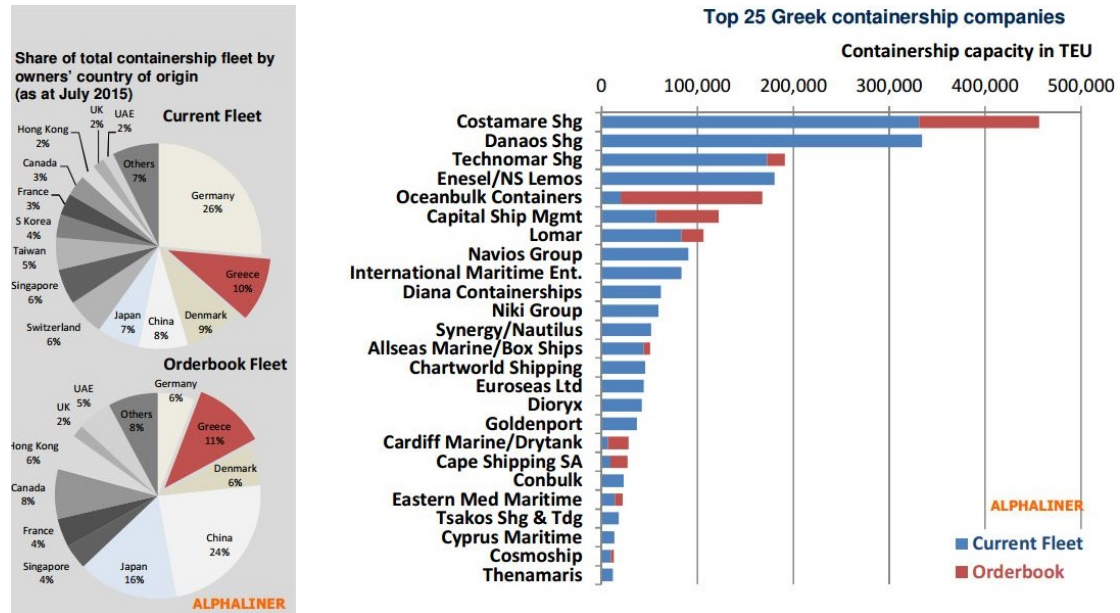
Figure 44: Top 25 greek containership companies, Alphaliner

For Diana Containerships Inc., I have chosen **Costamare Inc**, **Danaos Corporation**, **Global Ship Lease** and **Seaspan Corporation**. Although these companies are of greater containership capacity, the others of similar size as Diana are not publicly listed.

For Capital Product Partners, I have chosen, **Tsakos Energy Navigation**, **DHT Holdings Inc.**, **Scorpio Tankers Inc**. and **Overseas Shipholding Group Inc**.

All this companies are not identical, they have different strategy and fleet composition, though they are all listed companies and they have exposure to relatively similar business. Moreover, the number of comparable firms in my opinion, give a credible industry average.

4.3.1 Historical Financial Statements

For Diana Containerships Inc. the following table gives some insight of the financial statements of the company.

DIANA CONTAINERSHIPS INC. Consolidated Statements of Operations (Expressed in thousands of U.S. Dollars – except for share data)	2010	2011	2012	2013	2014	2015	2016
Operating income	5.735	26.992	56.631	54.015	54.068	62.180	33.194
Operating Expenses	(6.879)	(15.957)	(35.392)	(36.939)	(33.197)	(44.660)	(40.623)
EBITDA	(1.144)	11.035	21.239	17.076	20.871	17.520	(7.429)
Depreciation	(1.454)	(5.937)	(12.476)	(11.070)	(10.309)	(13.140)	(12.740)
EBIT	(2.598)	5.098	8.763	6.006	10.562	4.380	(20.169)
Net Financial Items	(447)	(1.450)	(2.988)	(4.482)	(6.612)	(7.059)	(6.974)
Extraordinary expenses	1.044	(18)	194	(58.870)	(712)	(14.852)	(121.871)
Pre-tax profit	(2.001)	3.630	5.969	(57.346)	3.238	(17.531)	(149.014)
Tax	0	0	0	0	0	0	0
Net Income	(2.001)	3.630	5.969	(57.346)	3.238	(17.531)	(149.014)
Other comprehensive income / (loss) (Actuarial gain/(loss))	-	-	-	-	(68)	73	(25)
Comprehensive income / (loss)	**(2.001)**	**3.630**	**5.969**	**(57.346)**	**3.170**	**(17.458)**	**(149.039)**

Diana Containership Inc, for the period from 2010 to 2012 show a substantial increase in its operating income, however the rate of growth decreases in the next four years. The average growth is 74,05% in its operating income. On the other hand, there was also an average increase in the operating expenses of 45,58%. This fact, aggregated with the increase in financial expenses and the extraordinary expenses, can explain the poor net performance of the company. The company although has a positive stable EBITDA for the period from years 2011 to 2015, the comprehensive income for most years is negative.

The operating income includes time charter revenues and prepaid charter revenue amortization. The two main amounts of the operating expenses include vessel operating expenses and general and administrative expenses. Last but not least, the extraordinary expenses, include impairment losses and losses on vessel's sales.

For Capital Product Partners we have the following table:

| CAPITAL PRODUCT PARTNERS | | | | | | | |
| Consolidated Statements of Operations | | | | | | | |
(Expressed in thousands of U.S. Dollars – except for share data)	2010	2011	2012	2013	2014	2015	2016
Operating income	124.592	130.316	153.950	171.494	192.777	220.344	241.620
Operating Expenses	(41.810)	(57.804)	(60.587)	(70.890)	(74.590)	(83.831)	(94.036)
EBITDA	82.782	72.512	93.363	100.604	118.187	136.513	147.584
Depreciation	(31.464)	(37.214)	(48.235)	(52.208)	(57.476)	(62.707)	(71.897)
EBIT	51.318	35.298	45.128	48.396	60.711	73.806	75.687
Net Financial Items	(32.399)	(32.941)	(25.883)	(15.458)	(16.699)	(18.396)	(23.198)
Extraordinary expenses	-	84.763	(40.434)	66.543	-	-	-
Pre-tax profit	18.919	87.120	(21.189)	99.481	44.012	55.410	52.489
Tax	0	0	0	0	0	0	0
Net Income	18.919	87.120	(21.189)	99.481	44.012	55.410	52.489
Other comprehensive income / (loss) (Actuarial gain/(loss))	4.426	17.518	10.762	462	-	-	-
Comprehensive income / (loss)	**23.345**	**104.638**	**(10.427)**	**99.943**	**44.012**	**55.410**	**52.489**

The company has an average increase in operating income of 11,75%. Also a steady positive EBITDA is depicted with an average increase of 10,87%. In contradiction with Diana Containerships Inc, Capital Product Partners, shows positive results.

The most important aspect of companies, is their capability of producing positive cash flows. The following tables show the cash flows from each activity.

DIANA CONTAINERSHIPS INC. Consolidated Statement of Cash Flows (Expressed in thousands of U.S. Dollars – except for share data)	2010	2011	2012	2013	2014	2015	2016
Net Cash From Operating Activities	(186)	12.504	31.346	31.740	25.487	17.445	(11.963)
Net Cash From Investing Activities	(93.531)	(79.321)	(149.960)	(81.663)	(51.636)	(111.751)	10.574
Net Cash From Financing Activities	104.815	97.073	108.786	38.082	88.467	41.691	(19.683)
Net increase / (decrease) in cash and cash equivalents	11.098	30.256	(9.828)	(11.841)	62.318	(52.615)	(21.072)
Cash and Cash Equivalents at 01.01	-	11.098	41.354	31.526	19.685	82.003	29.388
Cash and cash Equivalents at 31.12	11.098	41.354	31.526	19.685	82.003	29.388	8.316

As it can be derived from the above table, the company for the period from 2011 to 2015, produces positive operating cash flows. However, for the last two years the company has been struggling to overcome the negative financial results and this is reflected to its cash flows statements. The investing activities have been negative for all years, except for 2016, which shows that investments and costs related to newbuilding vessels are made. A negative aspect arising from the net cash from financing activities, is that the company has been receiving more debt throughout the years.

CAPITAL PRODUCT PARTNERS Consolidated Statement of Cash Flows (Expressed in thousands of U.S. Dollars – except for share data)	2010	2011	2012	2013	2014	2015	2016
Net Cash From Operating Activities	50.051	56.539	84.798	129.576	125.277	134.209	155.086
Net Cash From Investing Activities	(79.202)	(16.656)	15.935	(335.346)	(30.327)	(209.937)	(91.782)
Net Cash From Financing Activities	58.070	(18.984)	(110.552)	226.191	5.277	1.719	(46.816)
Net increase / (decrease) in cash and cash equivalents	28.919	20.899	(9.819)	20.421	100.227	(74.009)	16.488
Cash and Cash Equivalents at 01.01	3.552	32.471	53.370	43.551	63.972	164.199	90.190
Cash and cash Equivalents at 31.12	32.471	53.370	43.551	63.972	164.199	90.190	106.678

On the other hand, Capital Product Partners, has been producing positive operating cash flows, for all years, showing an average 22,52% increase. The negative net cash from investing activities, indicate was due to several new build vessels.

4.3.2 Reformulation of Financial Statements

By reformulating the historical financial statements, we prepare these statements for further analysis. There will be a reformulation of the balance sheet and the Income Statement. This reformulation can be illustrated with the following graphs.

Balance Sheet			
Assets		Liabilities and Equity	
Operating assets	OA	Operating liabilities	OL
Financial assets	FA	Financial obligations	FO
		Common stockholders' equity	CSE
Total assets	OA+FA	Total claims	OL+FO+ CSE

Reformulated Balance Sheet				
Operating Assets			Financial Obligations and Owners' Equity	
Operating assets	OA		Financial obligations	FO
Operating liabilities	(OL)		Financial assets	(FA)
			Net financial obligations	NFO
			Common stockholders' equity	CSE
Net operating assets	NOA		Total claims	NFO+ CSE

Figure 45: Reformulated balance sheet, (Internet)

By separating operating and financing activities, the analyst manages to have a more transparent view of the financial position of the company. Here are the reformulated financial statements of both shipping companies:

Diana   Containerships   Inc.   reformulated   financial   statements

DIANA CONTAINERSHIPS INC. Consolidated Balance Sheets (Expressed in thousands of U.S. Dollars except for share data)	2010	2011	2012	2013	2014	2015	2016
Operating assets							
Advances for vessel acquisitions and other vessel costs	-	6.634	-	-	-	-	-
Vessels' net book value	92.077	158.827	260.945	265.372	306.094	384.549	240.352
Property plant & equipment	**-**	**-**	**-**	321	1.089	987	946
Accounts receivable trade	37	163	215	534	691	753	471
Due from related party	398	-	-	-		-	-
Inventories	624	1.832	3.206	1.964	2.307	3.704	2.581
Restricted cash current	-	-	-	-	600	-	9.000
Prepaid expenses and other assets	219	210	1.965	797	845	1.069	2.507
Deferred financing costs	109	991	-	-	-	2.475	2.358
Prepaid charter revenue	-	-	29.918	18.166	6.364	3.798	-
Total operating assets	**93.464**	**168.657**	**296.249**	**287.154**	**317.990**	**397.335**	**258.215**
Operating liabilities							
Accrued liabilities	585	776	1.517	898	1.052	1.341	105
Accounts payable trade and other	436	1.917	2.672	1.739	1.807	2.707	1.471
Deferred revenue current	45	103	1.264	972	491	647	108
Due to related parties	-	318	657	170	136	105	1.050
Deferred revenue non-current	182	364	271	50	-	-	-
Other liabilities non current	-	-	-	80	169	121	171
Total operating liabilities	**1.248**	**3.478**	**6.381**	**3.909**	**3.655**	**4.921**	**2.905**
Net operating assets	**92.216**	**165.179**	**289.868**	**283.245**	**314.335**	**392.414**	**255.310**
Financial assets							
Cash and cash equivalents	11.098	41.354	31.526	19.685	82.003	29.388	8.316
Restricted cash	787	-	9.270	9.870	9.270	9.000	-
Total financial assets	**11.885**	**41.354**	**40.796**	**29.555**	**91.273**	**38.388**	**8.316**
Financial obligations							
Current portion of long-term debt	1.362	-	-	-	5.804	14.897	127.129
Related party financing current	-	-	-	-	-	5.000	-
Long-term debt net of current portion	18.128	-	91.906	98.102	92.494	127.781	-
Related party financing non-current	-	-	-	50.233	50.867	43.950	45.617
Total financial obligations	**19.490**	**-**	**91.906**	**148.335**	**149.165**	**191.628**	**172.746**
Net financial obligations	**7.605**	**(41.354)**	**51.110**	**118.780**	**57.892**	**153.240**	**164.430**
Common stockholders' equity	**84.611**	**206.533**	**238.758**	**164.465**	**256.443**	**239.174**	**90.880**

DIANA CONTAINERSHIPS INC.

**Consolidated Statements of Operations
(Expressed in thousands of U.S. Dollars
– except for share data)**

	2010	2011	2012	2013	2014	2015	2016
Operating revenues							
Time charter revenues	5.735	26.992	68.835	74.337	65.678	70.746	36992
Prepaid charter revenue amortization	-	-	(12.204)	(20.322)	(11.610)	(8.566)	(3.798)
	5.735	**26.992**	**56.631**	**54.015**	**54.068**	**62.180**	**33.194**
Operating expenses							
Voyage expenses	267	731	1.404	705	332	2.619	3.169
Vessel operating expenses	2.885	11.134	28.969	30.870	26.559	35.847	30.213
Depreciation and amortization of deferred charges	1.454	5.937	12.476	11.070	10.309	13.140	12.740
General and administrative expenses	3.524	3.442	3.468	5.059	6.306	6.194	7.241
Management fees	203	650	1.551	305	-	-	-
	8.333	**21.894**	**47.868**	**48.009**	**43.506**	**57.800**	**53.363**
Operating income from sales (after tax)	**(2.598)**	**5.098**	**8.763**	**6.006**	**10.562**	**4.380**	**(20.169)**
Other operating income							
Impairment losses	-	-	-	(42.323)	-	(6.607)	(118.861)
Loss on vessels' sale	-	-	-	(16.481)	(695)	(8.300)	(2.899)
Foreign currency losses / (gains)	1.044	(18)	194	(66)	(17)	55	(111)
Other operating income (after tax)	**1.044**	**(18)**	**194**	**(58.870)**	**(712)**	**(14.852)**	**(121.871)**
Financial income							
Interest and finance costs	(511)	(1.604)	(3.066)	(4.554)	(6.746)	(7.166)	(7.094)
Interest income	64	154	78	72	134	107	120
Financial income (after tax)	**(447)**	**(1.450)**	**(2.988)**	**(4.482)**	**(6.612)**	**(7.059)**	**(6.974)**
Other comprehensive income / (loss) (Actuarial gain/(loss))	-	-	-	-	(68)	73	(25)
Comprehensive income to common	**(2.001)**	**3.630**	**5.969**	**(57.346)**	**3.170**	**(17.458)**	**(149.039)**

Capital Product Partners reformulated financial statements

CAPITAL PRODUCT PARTNERS Reformulated Consolidated Balance Sheets (Expressed in thousands of U.S. Dollars except for share data)	2010	2011	2012	2013	2014	2015	2016
Operating Assets:							
Due from related party	2	0	0	667	55	0	0
Inventories	83	4.010	2.333	2.740	3.434	4.407	4.761
Vessels' net book value	707.339	1.073.986	959.550	1.176.819	1.186.711	1.333.657	1.367.731
Property plant & equipment	0	0	0	0	0	0	0
Above market acquired charters	8.062	51.124	47.720	131.382	115.382	100.518	90.243
Deferred charges, net	2.462	2.138	2.021	5.451	645	3.482	4.154
Trade accounts receivable, net	2.305	3.415	3.194	4.365	2.588	2.680	2.497
Prepayments and other assets	278	1.496	1.259	1.376	1.839	3.941	4.541
Total Operating assets	**720.531**	**1.136.169**	**1.016.077**	**1.322.800**	**1.310.654**	**1.448.685**	**1.473.927**
Operating Liabilities							
Trade accounts payable	526	8.460	4.776	7.519	5.351	8.431	8.686
Accrued liabilities	898	2.286	2.781	5.387	5.636	7.872	7.861
Due to related parties	4.544	10.572	17.447	13.686	17.497	22.154	16.095
Derivative instruments	32.505	12.677	467	0	0	0	0
Deferred revenue	6.019	11.388	10.302	6.936	14.135	11.788	36.019
Other liabilities non current	0	0	0	0	0	0	0
Commitments and contingencies	0	0	0	0	0	0	0
Total Operating Liabilities	**44.492**	**45.383**	**35.773**	**33.528**	**42.619**	**50.245**	**68.661**
Net Operating Assets	**676.039**	**1.090.786**	**980.304**	**1.289.272**	**1.268.035**	**1.398.440**	**1.405.266**
Financial Assets:							
Cash and cash equivalents	32.471	53.370	43.551	63.972	164.199	90.190	106.678
Restricted cash	5.250	6.750	10.500	15.000	15.000	17.000	18.000
Total Financial Assets	**37.721**	**60.120**	**54.051**	**78.972**	**179.199**	**107.190**	**124.678**
Financial Obligations:							
Current portion of long-term debt	0	18.325	0	5.400	4.579	11.922	39.568
Related party financing current	0	0	0	0	0	0	0
Long-term debt	474.000	615.255	458.365	577.915	570.094	555.888	562.619
Related party financing non-current	0	0	2.162	3.503	0	0	0
Total Financial obligations	**474.000**	**633.580**	**460.527**	**586.818**	**574.673**	**567.810**	**602.187**
Net Financial Obligations	**436.279**	**573.460**	**406.476**	**507.846**	**395.474**	**460.620**	**477.509**
Common stockholders equity	**239.760**	**517.326**	**573.828**	**781.426**	**872.561**	**937.820**	**927.757**

CAPITAL PRODUCT PARTNERS Consolidated Statements of Operations (Expressed in thousands of U.S. Dollars – except for share data)							
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Operating revenues							
Revenues	113.562	98.517	84.012	116.520	119.907	156.613	205.594
Revenues - related party	11.030	31.799	69.938	54.974	72.870	63.731	36.026
	124.592	**130.316**	**153.950**	**171.494**	**192.777**	**220.344**	**241.620**
Operating expenses							
Voyage expenses	7.009	11.565	5.114	5.776	5.907	6.479	9.920
Voyage expenses - related party	0	165	554	314	338	411	360
Vessel operating expenses – related party	30.261	30.516	23.634	17.039	13.315	11.708	10.866
Vessel operating expenses	1.034	4.949	22.126	38.284	48.714	58.625	66.637
General and administrative expenses	3.506	10.609	9.159	9.477	6.316	6.608	6.253
Depreciation and amortization	31.464	37.214	48.235	52.208	57.476	62.707	71.897
	73.274	**95.018**	**108.822**	**123.098**	**132.066**	**146.538**	**165.933**
Operating income from sales (after tax)	**51.318**	**35.298**	**45.128**	**48.396**	**60.711**	**73.806**	**75.687**
Other operating income							
Loss / (gain) on sale of vessels to third parties	0	0	1.296	(7.073)	0	0	0
Vessels' impairment charge	0	0	(43.178)	0	0	0	0
Gain on sale of claim	0	0	0	31.356	0	0	0
Gain from bargain purchase	0	82.453	0	42.256	0	0	0
Foreign currency gain/(loss), net	0	0	0	0	0	0	0
Other Operating income (after tax)	**0**	**82.453**	**(41.882)**	**66.539**	**0**	**0**	**0**
Financial income							
Interest expense and finance costs	(33.259)	(33.820)	(26.658)	(15.991)	(19.225)	(20.143)	(24.302)
Interest and other income	860	879	775	533	2.526	1.747	1.104
Gain/(Loss) on interest rate swap agreement	0	2.310	1.448	4	0	0	0
Financial Income after tax	**(32.399)**	**(30.631)**	**(24.435)**	**(15.454)**	**(16.699)**	**(18.396)**	**(23.198)**
Other comprehensive income / (loss) (Actuarial gain/(loss))	4.426	17.518	10.762	462	0	0	0
Comprehensive income to common	**23.345**	**104.638**	**(10.427)**	**99.943**	**44.012**	**55.410**	**52.489**

4.4. Risk Assessment of both shipping companies

In order to assess certain types of risks, the financial statements of all the companies and their chosen competitors are taken, so as to calculate and compare key ratios.

➢ **Default Risk**

i. Interest Coverage Ratio

The interest coverage ratio is a debt ratio used to determine how easily a company can pay interest on outstanding debt, so generally a high ratio is favorable, but it depends on the industry and the general economy.

The interest coverage ratio for Diana Containerships Inc. and the average ratio of the chosen comparables, is as follows

INTEREST COVER RATIO
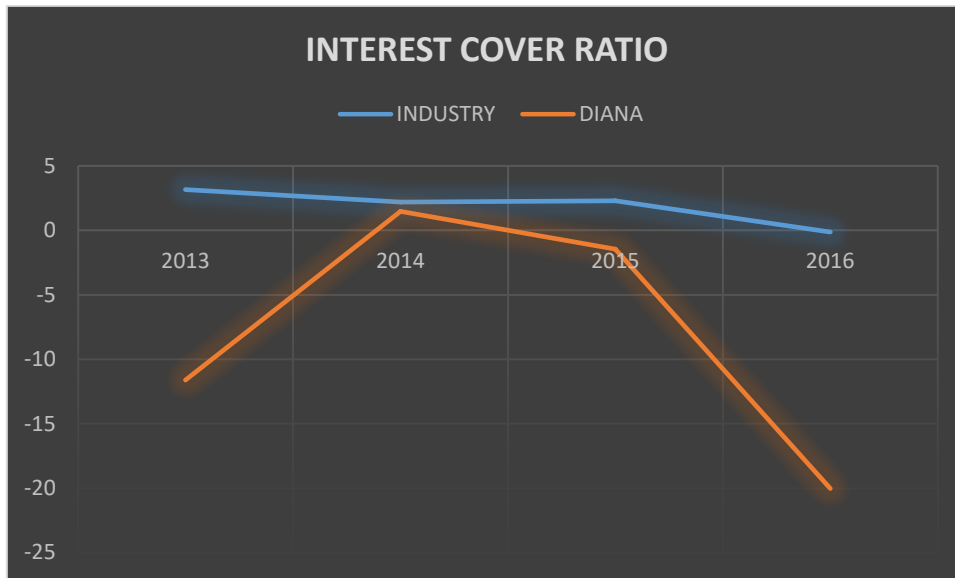
Figure 46: Diana Interest cover ratio

For the period from 2013 to 2015 the industry average is between 2 and 3 and for the year 2016, is negative, because of the negative results in the containership industry. Diana's ratio for all years is negative except for 2014, showing the cumulative negative results that the company faces and for year 2016 showed a really negative ratio of -20, resulted by impairment losses of 118,9 million dollars from vessel valuation.

The interest coverage ratio for Capital Product Partners and the average ratio of the chosen comparable, is as follows
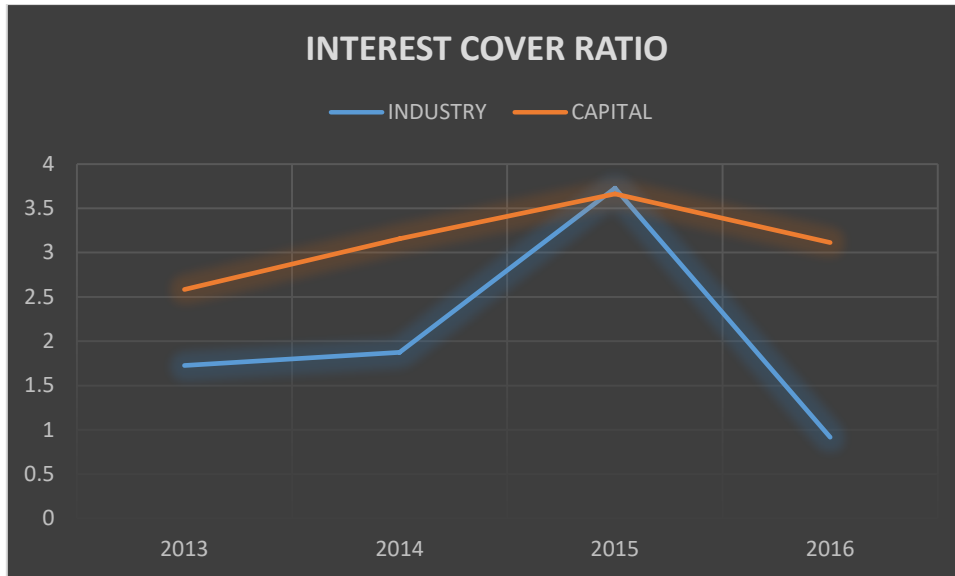
Figure 47: Capital Interest cover ratio

This chart shows Capital Product Partners, to have a ratio between 2,58 and 3,60 and to be above the average numbers of the industry. Moreover, for the year 2016 the company presents a lot lower decline than the industry, showing a stable financial position.

Another key ratio used by the majority of analysts, is the following ratio which takes into account capital expenditures. The Operating Cash flow to Capital Expenditures. is a ratio that measures a company's ability to acquire long-term assets using free cash flow. The cash flow to capital expenditures ratio will often fluctuate as businesses go through cycles of large and small capital expenditures. A higher CF/CapEX ratio is indicative of a company with sufficient capital to fund operations.
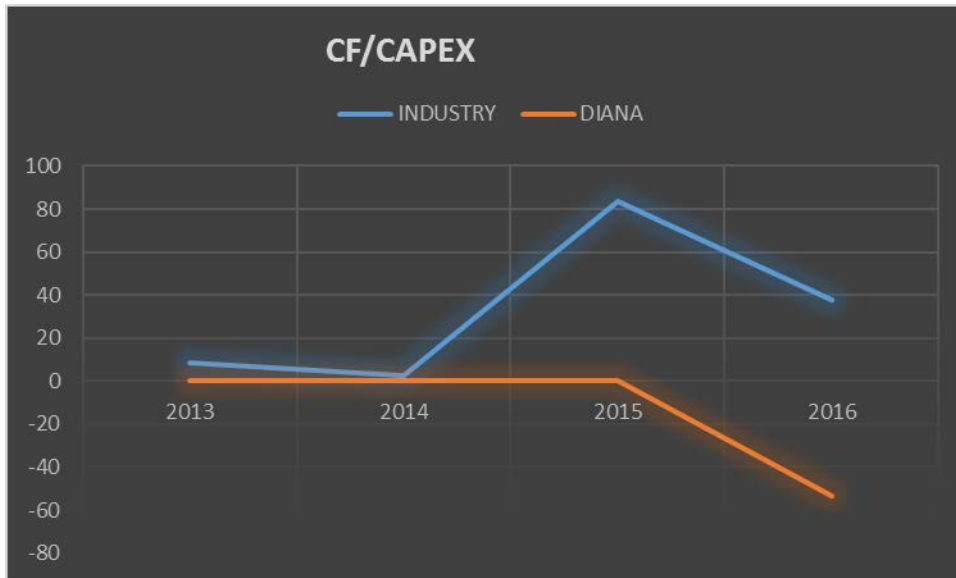
Figure 48: Diana CF/CAPEX

Also from this graph we observe that, the industry's average ratio is positive revealing the other companies' ability to acquire assets using their free cash flows from their operating activities. However, Diana due to the negative results, shows results way down from the average ratios for all the years and for that reason, in order to acquire new property, maybe new loans or acquired money from its Shareholders, are needed.
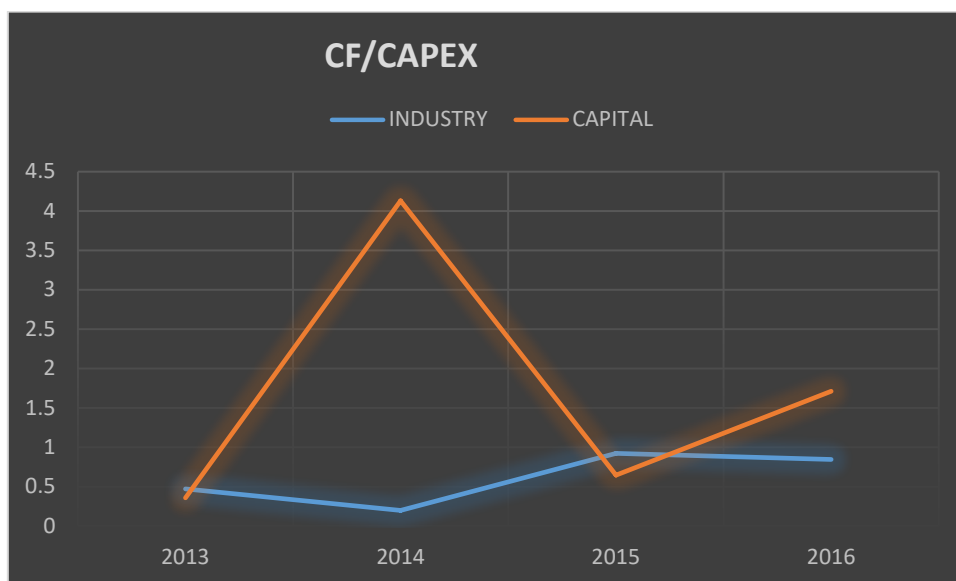
Figure 49: Capital CF/CAPEX

This chart shows that Capital except for 2014, has a ratio near the industry's average. The company thanks to its positive cash flows from operating activities can obtain assets, without a lot leverage or outside capitals, maintaining its financial structure and not jeopardizing its revival.

ii.   Debt Ratios

A company's debt ratio is the ratio of total debt to total assets. Total debt includes both short-term and long-term debt. There are several debt ratios, which give users a general idea of the company's overall debt load as well as its mix of equity and debt. The debt to capital ratio is used to measure a company's financial leverage, calculated by dividing a company's total liabilities by its stockholders' equity. The D/E ratio indicates how much debt a company is using to finance its assets relative to the amount of value represented in shareholders' equity.
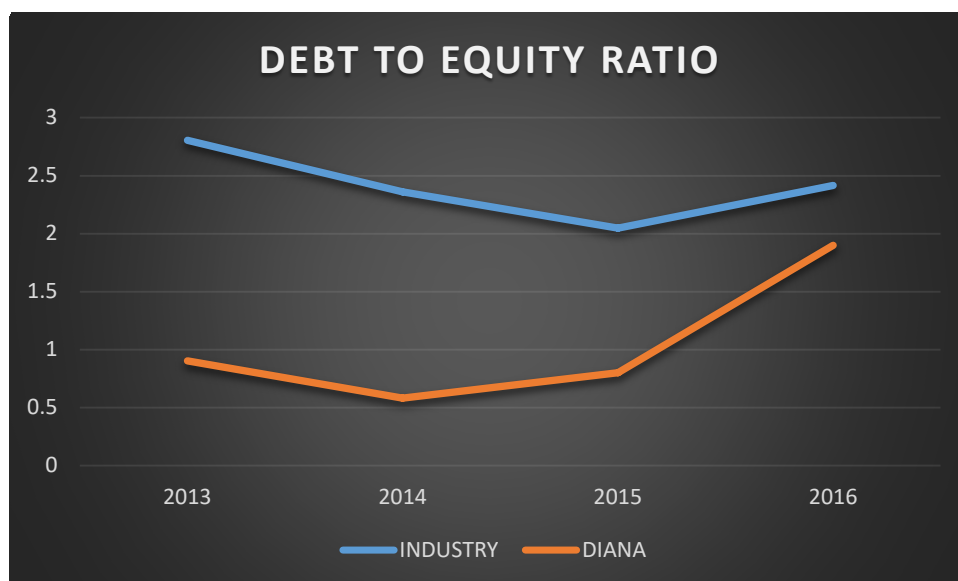
Figure 50: Diana D/E

The average debt ratio for the industry, is between 2,1 and 2,8, but for Diana the ratio is lower. For years 2013-2015 the ratio is below 1 and for the year 2016 is 1,90. The company despite its low performance, is not high leveraged. Shipping industry is of extensive capital investments and a high ratio in many companies is of high probability.
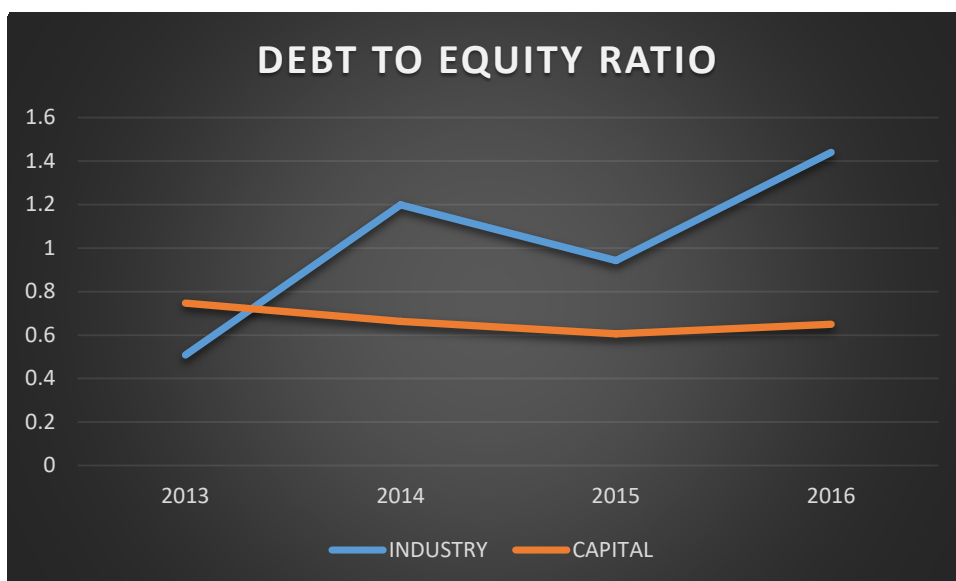
Figure 51: Capital D/E

This ratio for the industry, is between 0,5 and 1,43, but for Capital the ratio except for 2013, is lower. For years 2013-2015 the ratio is below 1, showing a stable low leveraged firm, with financing its business with not a lot of leveraged capitals.

iii.   Equity Ratios

These ratios give information about the company's equity instead of the debt. An important ratio is the shareholder's equity ratio, which determines how much shareholders would receive in the event of a company-wide liquidation. The ratio, expressed as a percentage,
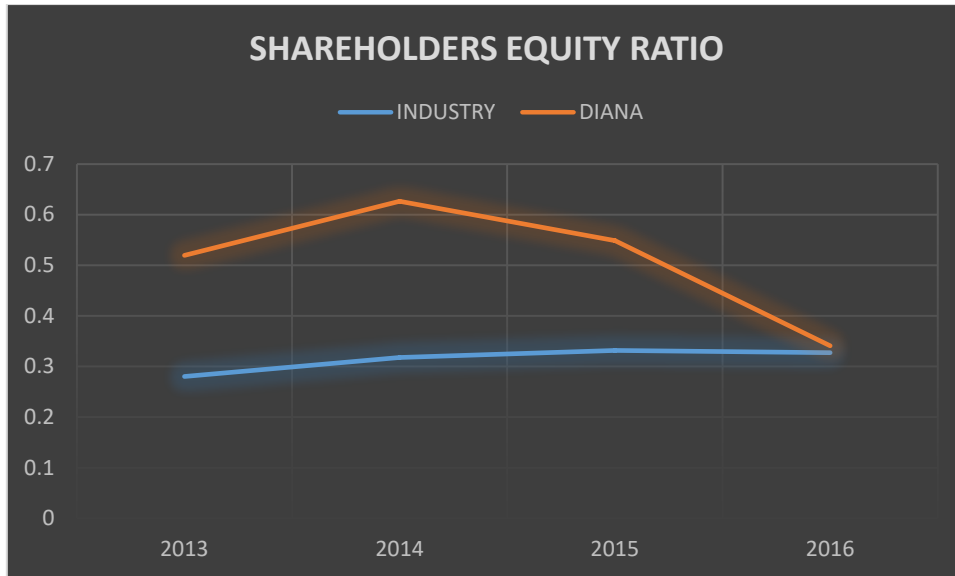
Figure 52: Diana shareholders' equity ratio

As it can be observed, Diana have a higher ratio or percentage from the industry for all the years. This can be explained, by the above lower debt ratio. Diana's shareholders have a higher claim on the company's assets, compared to the other companies.
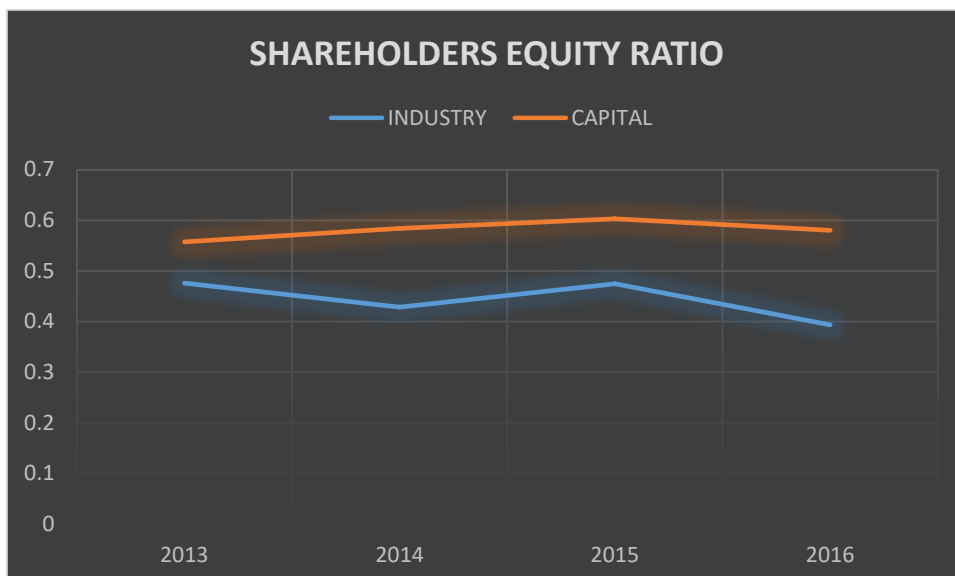
Figure 53: Capital shareholders' equity ratio

Also in this chart we can see that due to the lower leverage proportion that the company has, its shareholders have more claim on the assets, than those of the average industry.

Another important key ratio is the Return on Capital Employed. is a financial ratio that measures a company's profitability and the efficiency. The following graph is calculated taking into consideration the average capital employed.
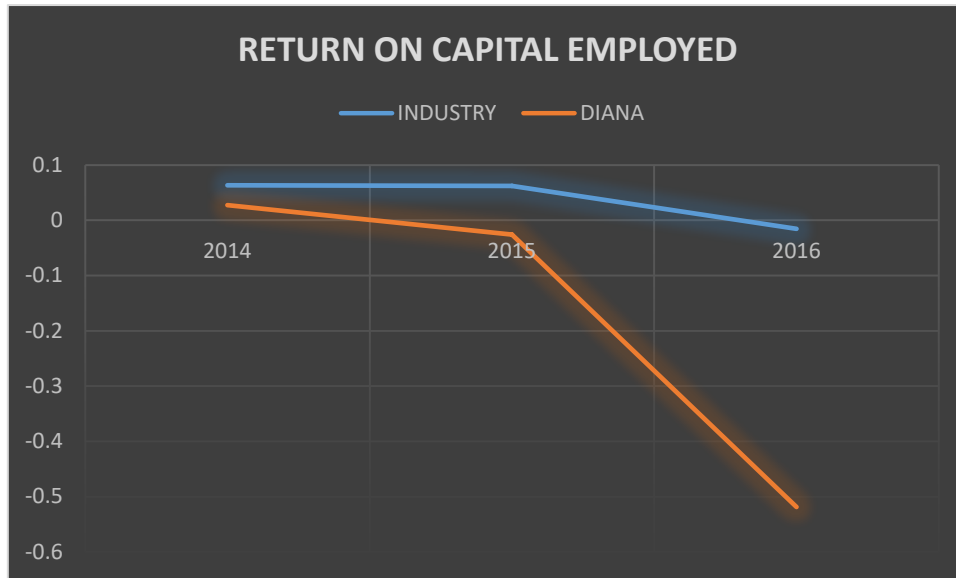
Figure 54: Diana ROCE

The average ratio for the industry is above Diana's. For the years 2014 and 2015 the industry's average ratio, is 6% and Diana's is 2% and negative for the year 2015. So for those years Diana underperformed compared to the other companies of the industry, who have also shown a decrease on their financial performances.

RETURN ON CAPITAL EMPLOYED

— INDUSTRY — CAPITAL
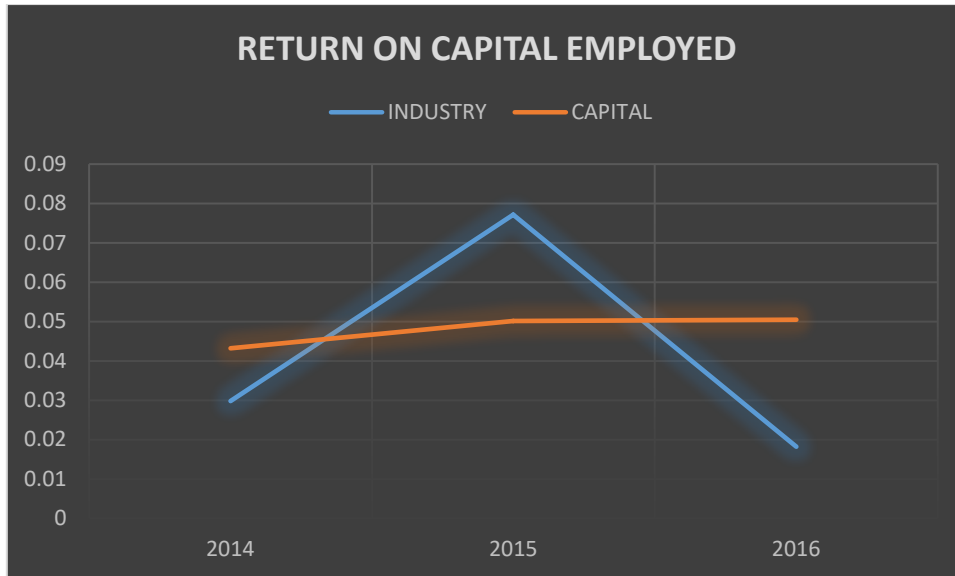
Figure 55: Capital ROCE

This chart depicts Capital Product Partners, to have a stable ROCE of 4,3% to 5%, showing its solid positive financial performance, throughout the years.

Last but not least, Return on Net Operating Assets (RNOA) recognizes that profitability must be based on the net assets invested in operations. So firms can increase their operating profitability by convincing suppliers, in the course of business, to grant or extend credit terms; credit reduces the investment that shareholders would otherwise have to put in the business. Correspondingly, the net borrowing rate, by excluding non-interest bearing liabilities from the denominator, gives the appropriate borrowing rate for the financing activities. The following chart is calculated using the average Net Operating Assets.
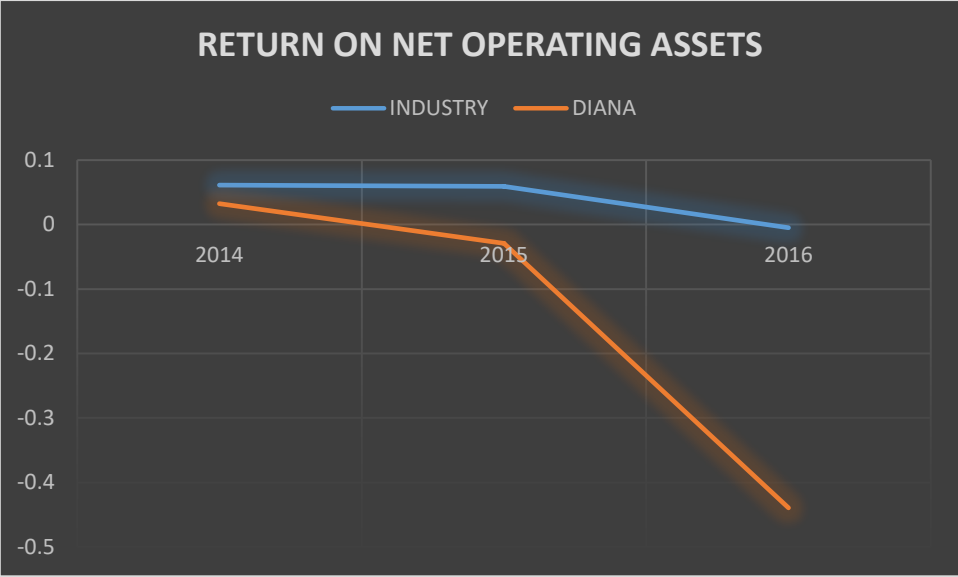
Figure 56: Diana RNOA

This chart depicts Diana having a RNOA of 0,033 for the year 2014 and for the other years to be negative. The industry for the years 2014 and 2015 has RNOA close to 0,06 and for the year 2016, also shows a negative ratio. By taking into consideration all the ratios Diana Containerships Inc. underperformed the industry's financial performance.
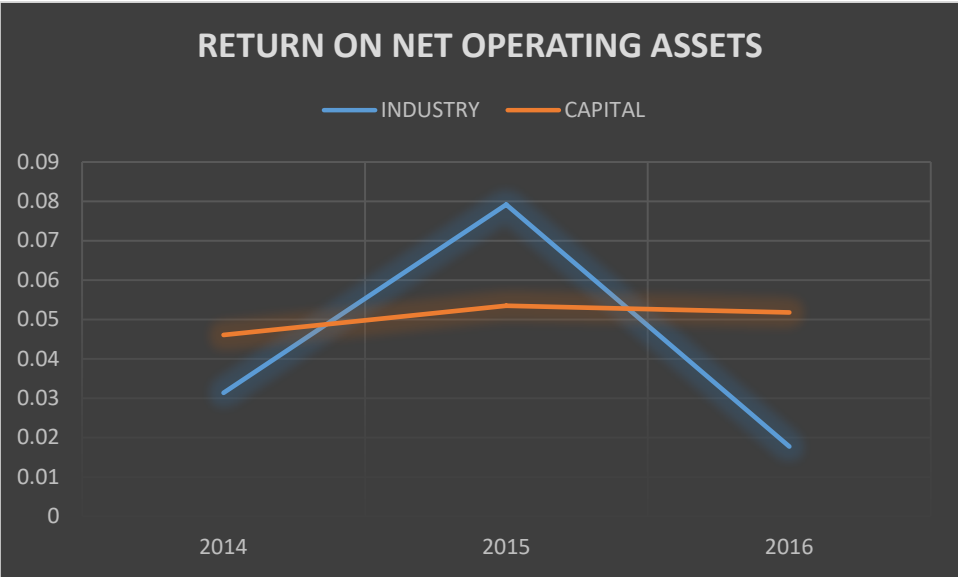
Figure 57: Capital RNOA

This chart depicts Capital having a RNOA of 0,0460 for year 2014 and for the other years 0,05. The industry for the year 2014 has RNOA 0,0314 and for the year 2015 has RNOA close to 0,08. In 2016 and by taking into consideration all the ratios Capital Product Partners. over performed the industry's financial performance.

➢ **Liquidity Risk**

The following charts will depict the key liquidity ratios for both companies.

i.   Current Ratio

The current ratio is a liquidity ratio that measures a company's ability to pay short-term and long-term obligations.
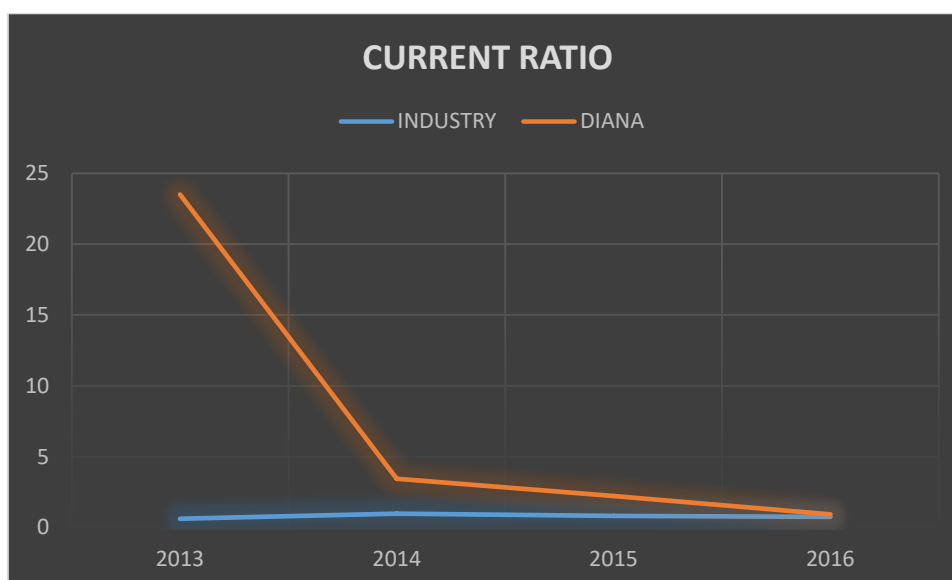
Figure 58: Diana current ratio

This chart shows that Diana has a better ratio than the industry. In particularly, for the period from 2013 to 2015 has maintained a ratio higher than 1, showing the company's ability to cover its short term liabilities. In 2016, this ratio is diminished, because as it is mentioned and to the Auditor's Report, the company has not complied with certain covenants included in its bank loan agreement and for that reason its loan liabilities are reclassified to current liabilities. Lastly, from the above table we may observe that the industry shows low current ratio, below 1.
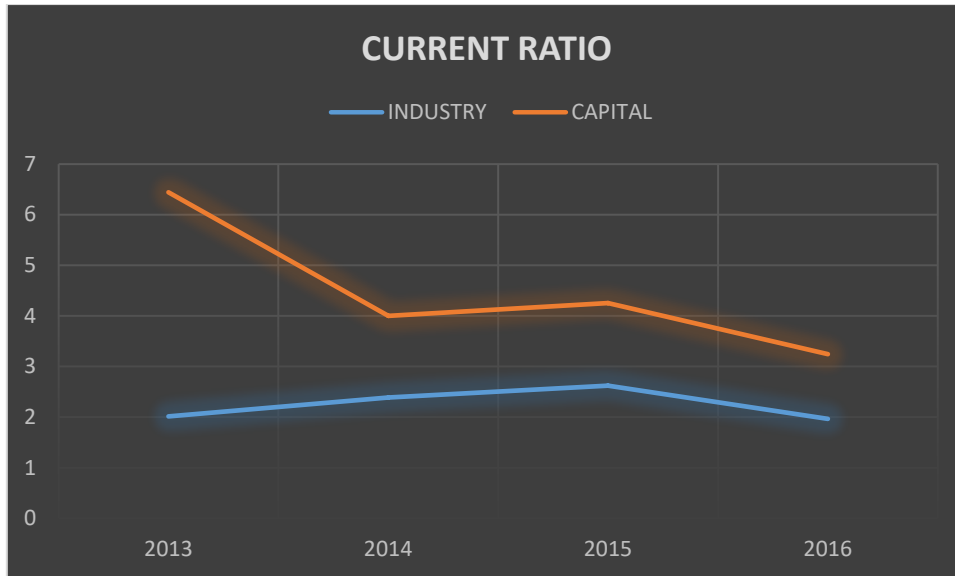
Figure 59: Capital current ratio

Capital Product Partners, also shows a greater current ratio, than the industry's average. For all the years, the ratio is above 1. In contradiction with, the Containership Industry, this industry (for this limited sample of comparables), show a greater current ratio.

ii.   Return on Assets

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings
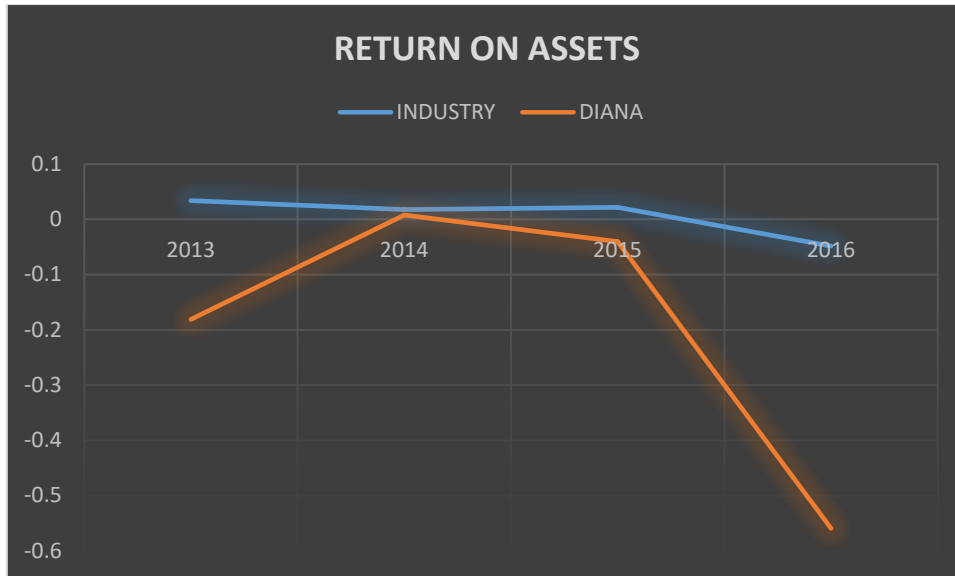
Figure 60: Diana ROA

Also this chart shows the company's struggle to overcome the negative financial results. Diana underperformed the industry, showing that the company's assets could be used more efficiently.
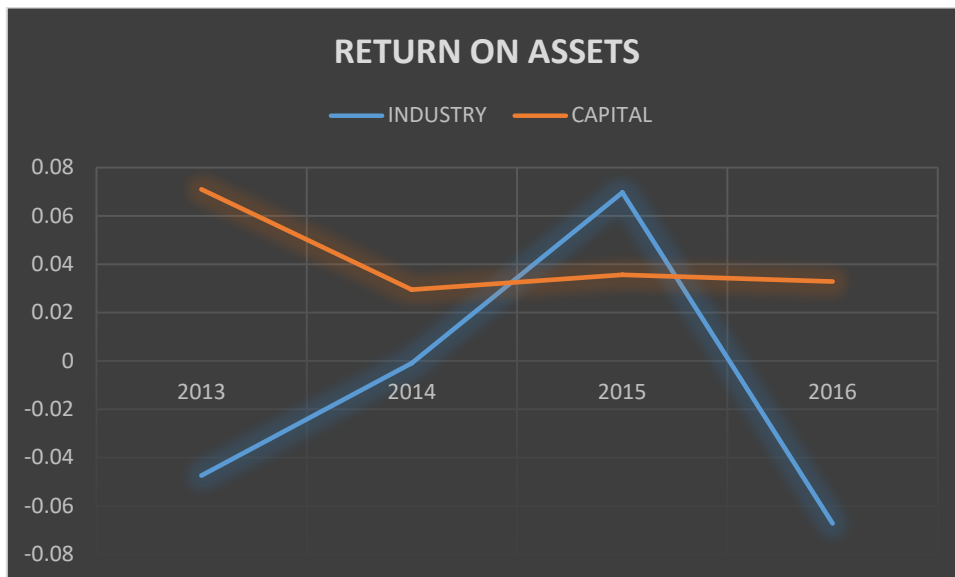
Figure 61: Capital ROA

On the other hand, Capital show a stable return on its assets, over performing the industry average, except for 2015.

iii.   <u>Return on Equity</u>

Return on equity (ROE) is the amount of net income returned as a percentage of shareholders' equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. The calculation of the following charts was made by using the average shareholders' equity.
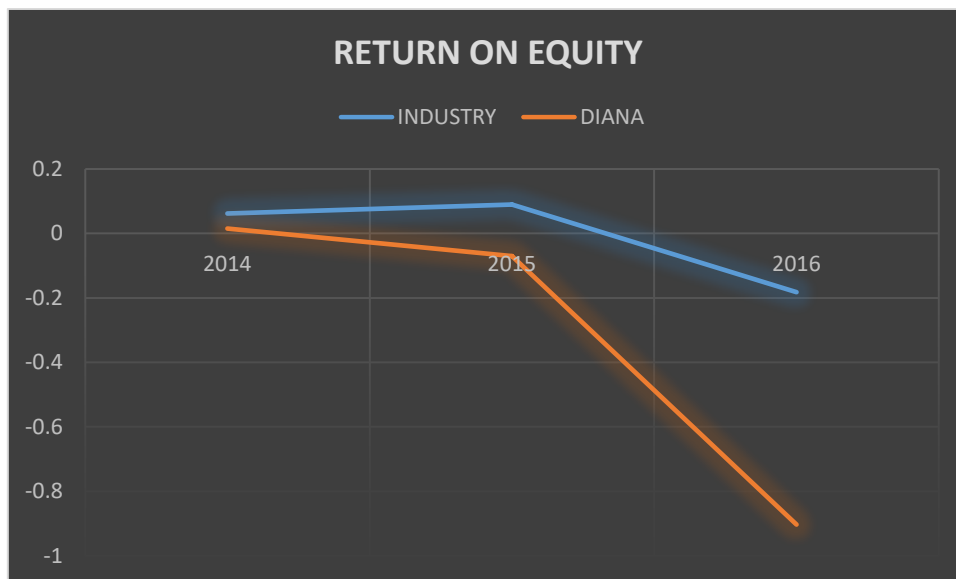
Figure 62: Diana ROE

This chart shows that the returns that Diana's shareholders made, for the year 2014 was 1,5%, a really low return. The industry also made a low return of 6%, but it was significantly higher than the company's. For the other two (2) years Diana had losses.
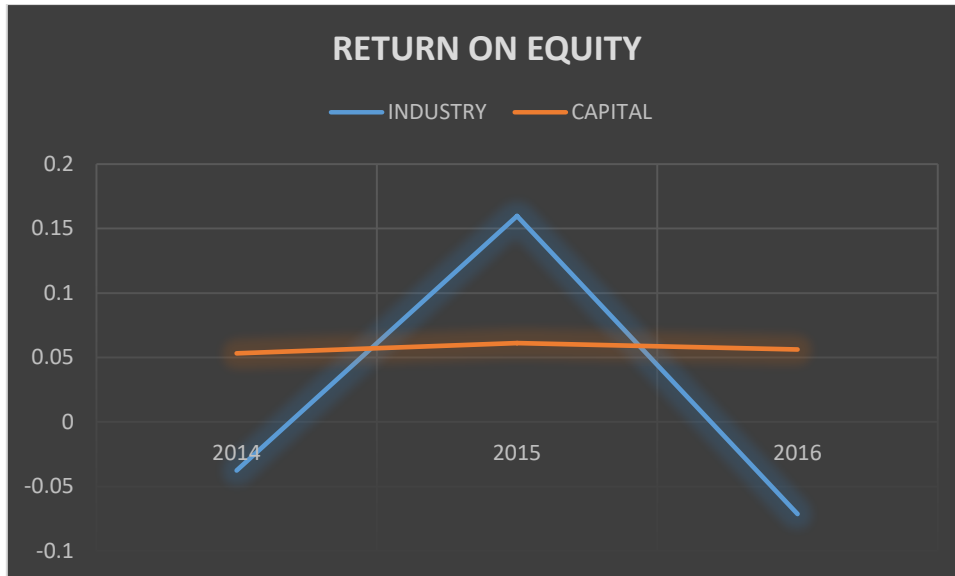
Figure 63: Capital ROE

On the other hand, Capital show a stable return of between 5% and 6%, over performing the industry. For the year 2015, the company had a lower return, as the industry showed return 16% and the company had 6%.

Chapter 5 Forecasted Financial Statements

5.1 Forecasted Financial Statement Analysis

Here are the forecasted financial statements for both shipping companies.

DIANA CONTAINERSHIPS INC.
Consolidated Balance Sheets
(Expressed in thousands of U.S.
Dollars except for share data)

	2016	2017e	2018e	2019e	2020e	2021e	2022e	2023e
Operating assets								
Advances for vessel acquisitions and ot	-	-						
Vessels' net book value	240.352	243.477	246.642	249.848	253.096	256.386	259.719	263.096
Property plant & equipment	946	946	946	946	946	946	946	946
Accounts receivable trade	471	542	560	578	597	616	636	657
Due from related party	-	-	-	-	-	-	-	-
Inventories	2.581	2.970	3.067	3.167	3.271	3.378	3.488	3.602
Restricted cash current	9.000	9.000	9.000	9.000	9.000	9.000	9.000	9.000
Prepaid expenses and other assets	2.507	2.885	2.979	3.077	3.177	3.281	3.388	3.498
Deferred financing costs	2.358	2.714	2.802	2.894	2.988	3.086	3.186	3.291
Prepaid charter revenue	-	-	-	-	-	-	-	-
Total operating assets	**258.215**	**262.533**	**265.996**	**269.510**	**273.075**	**276.693**	**280.364**	**284.090**
Operating liabilities								
Accrued liabilities	105	121	125	129	133	137	142	147
Accounts payable trade and other	1.471	1.693	1.748	1.805	1.864	1.925	1.988	2.053
Deferred revenue current	108	124	128	133	137	141	146	151
Due to related parties	1.050	1.208	1.248	1.289	1.331	1.374	1.419	1.465
Deferred revenue non-current	-	-	-	-	-	-	-	-
Other liabilities non current	171	197	203	210	217	224	231	239
Total operating liabilities	**2.905**	**3.343**	**3.452**	**3.565**	**3.681**	**3.802**	**3.926**	**4.054**
Net operating assets	**255.310**	**259.190**	**262.544**	**265.945**	**269.394**	**272.891**	**276.438**	**280.036**
Financial assets								
Cash and cash equivalents	8.316	13.812	14.263	14.729	15.210	15.706	16.219	16.749
Restricted cash	-	-	-	-	-	-	-	-
Total financial assets	**8.316**	**13.812**	**14.263**	**14.729**	**15.210**	**15.706**	**16.219**	**16.749**
Financial obligations								
Current portion of long-term debt	127.129	146.301	151.077	156.010	161.104	166.364	171.796	177.405
Related party financing current	-	-	-	-	-	-	-	-
Long-term debt net of current portion	-	-	-	-	-	-	-	-
Related party financing non-current	45.617	52.496	54.210	55.980	57.808	59.695	61.644	63.657
Total financial obligations	**172.746**	**198.797**	**205.288**	**211.990**	**218.912**	**226.059**	**233.440**	**241.062**
Net financial obligations	**164.430**	**184.985**	**191.024**	**197.261**	**203.702**	**210.353**	**217.221**	**224.313**
Common stockholders' equity	**90.880**	**74.206**	**71.520**	**68.683**	**65.692**	**62.538**	**59.218**	**55.723**

Figure 64: Diana Forecasted Balance Sheet

DIANA CONTAINERSHIPS INC. Consolidated Statements of Operations (Expressed in thousands of U.S. Dollars – except for share data)	2016	2017e	2018e	2019e	2020e	2021e	2022e	2023e
Operating revenues								
Time charter revenues	36.992	38.200	39.447	40.735	42.065	43.438	44.857	46.321
Prepaid charter revenue amortization	(3.798)	0	0	0	0	0	0	0
	33.194	38.200	39.447	40.735	42.065	43.438	44.857	46.321
Operating expenses								
Voyage expenses	3.169	1.393	1.438	1.485	1.534	1.584	1.635	1.689
Vessel operating expenses	30.213	21.700	22.409	23.140	23.896	24.676	25.482	26.314
Depreciation and amortization of deferred charges	12.740	9.167	9.286	9.407	9.529	9.653	9.779	9.906
General and administrative expenses	7.241	7.265	7.502	7.747	8.000	8.261	8.531	8.809
Management fees	-	0	0	0	0	0	0	0
	53.363	39.525	40.635	41.779	42.959	44.174	45.427	46.718
Operating income from sales (after tax)	(20.169)	(1.325)	(1.188)	(1.045)	(894)	(736)	(570)	(396)
Other operating income								
Impairment losses	(118.861)	-	-	-	-	-	-	-
Loss on vessels' sale	(2.899)	-	-	-	-	-	-	-
Foreign currency losses / (gains)	(111)	-	-	-	-	-	-	-
Other operating income (after tax)	(121.871)	-	-	-	-	-	-	-
Financial income								
Interest and finance costs	(7.094)	(4.042)	(4.174)	(4.310)	(4.451)	(4.596)	(4.747)	(4.901)
Interest income	120	149	-	-	-	-	-	-
Financial income (after tax)	(6.974)	(3.893)	(4.174)	(4.310)	(4.451)	(4.596)	(4.747)	(4.901)
Other comprehensive income / (loss) (Actuarial gain/(loss))	(25)	0	0	0	0	0	0	0
Comprehensive income to common	(149.039)	(5.218)	(5.362)	(5.355)	(5.345)	(5.332)	(5.317)	(5.298)

Figure 65: Diana Forecasted Income Statement

In order to calculate the forecasted financial statements of Diana Containership Inc., some assumptions about the future growth of the elements composing the financial statements needed to be made. The company faces some financial difficulties, as many other companies in the shipping sector do, due to the historical low levels in time charter rates for containerships and the high supply of containerships. However, by taking into consideration Clarkson's positive outlook for containers trade, at about 3,4% increase in the future years, the assumption is made that, the time-charter revenues are going to grow by that amount for the years up to 2023. In my opinion, this assumption is not raw, taking into consideration that the company's management has a lot of experience and knowledge, so as to take advantage of any opportunities in the market. Moreover, by taking the operating income for the period from 2010 to 2015, the company shows an average operating income growth of 70,80%. However, this amount is really high for a company to maintain and particularly for a company that has financial difficulties.

Year	Operating income	Growth
2010	(2.598)	
2011	5.098	296%
2012	8.763	72%
2013	6.006	-31%
2014	10.562	76%
2015	4.380	-59%
	Average	**70,80%**

Figure 66: Diana Operating Income Growth

As far as the expenses are concerned, the estimations are made based on the operating revenues. To be more precise, operating revenues are used as a value driver and as variable that influences all the other expenses. In this way, the relationship between all the expenses except for depreciation and the operating revenues, is found and then the average ratio is calculated. The relationships of all the elements of the financial statements, can be found in the Appendix A.

The company's vessels values are calculated according to Clarkson's outlook, about the container capacity growth, which will grow in the future at about, 1,3%. This means that, the company's vessels investments will grow about 1,3% per year. By taking the vessels' values for the period from 2010 to 2016, the company shows an average growth of 24%. However, this growth cannot be maintained by the company.

Year	Vessels' net book value	Growth
2010	92.077	
2011	158.827	72%
2012	260.945	64%
2013	265.372	2%
2014	306.094	15%
2015	384.549	26%
2016	240.352	-37%
	Average	**24%**

Figure 67: Diana Vessels net book value growth

The calculation for the company's vessels depreciation is made as the average percentage of Net Book Value of vessels and other property and not as a percentage of operating revenues, as depreciation is directed to the company's assets. The average percentage is 3,77%.

Finally, the other elements of the balance sheet, are estimated as a percentage of the key value driver, operating revenues.

The forecasted financial statements of Capital Product Partners are the following:

CAPITAL PRODUCT PARTNERS
Reformulated Consolidated Balance Sheets
(Expressed in thousands of U.S. Dollars except for share data)

	2016	2017e	2018e	2019e	2020e	2021e	2022e	2023e
Operating Assets:								
Due from related party	-	-	-	-	-	-	-	-
Inventories	4.761	4.254	4.466	4.690	4.924	5.170	5.429	5.700
Vessels' net book value	1.367.731	1.415.015	1.463.935	1.514.545	1.566.905	1.621.075	1.677.118	1.735.098
Property plant & equipment	0	-	-	-	-	-	-	-
Above market acquired charters	90.243	80.627	84.658	88.891	93.336	98.003	102.903	108.048
Deferred charges, net	4.154	3.711	3.897	4.092	4.296	4.511	4.737	4.974
Trade accounts receivable, net	2.497	2.231	2.342	2.460	2.583	2.712	2.847	2.990
Prepayments and other assets	4.541	4.057	4.260	4.473	4.697	4.931	5.178	5.437
Total Operating assets	**1.473.927**	**1.509.895**	**1.563.559**	**1.619.150**	**1.676.740**	**1.736.402**	**1.798.212**	**1.862.247**
		-	-	-	-	-	-	-
Operating Liabilities								
Trade accounts payable	8.686	7.760	8.148	8.556	8.984	9.433	9.905	10.400
Accrued liabilities	7.861	7.023	0	0	0	0	0	0
Due to related parties	16.095	14.380	15.099	15.854	16.647	17.479	18.353	19.271
Derivative instruments	0	0	0	0	0	0	0	0
Deferred revenue	36.019	32.181	33.790	35.479	37.253	39.116	41.072	43.126
Other liabilities non current	0	0	0	0	0	0	0	0
Commitments and contingencies	0	0	0	0	0	0	0	0
Total Operating Liabilities	68.661	61.345	57.037	59.889	62.884	66.028	69.329	72.796
Net Operating Assets	**1.405.266**	**1.448.551**	**1.506.521**	**1.559.261**	**1.613.857**	**1.670.374**	**1.728.882**	**1.789.451**
Financial Assets:								
Cash and cash equivalents	106.678	95.311	100.076	105.080	110.334	115.851	121.643	127.725
Restricted cash	18.000	18.000	18.000	18.000	18.000	18.000	18.000	18.000
Total Financial Assets	**124.678**	**113.311**	**118.076**	**123.080**	**128.334**	**133.851**	**139.643**	**145.725**
Financial Obligations:								
Current portion of long-term debt	39.568	35.352	37.119	38.975	40.924	42.970	45.119	47.375
Related party financing current	0	-	-	-	-	-	-	-
Long-term debt	562.619	502.668	527.801	554.191	581.901	610.996	641.546	673.623
Related party financing non-current	0	-	-	-	-	-	-	-
Total Financial obligations	602.187	538.020	564.921	593.167	622.825	653.966	686.665	720.998
Net Financial Obligations	**477.509**	**424.709**	**446.845**	**470.087**	**494.491**	**520.116**	**547.021**	**575.272**
Common stockholders equity	927.757	1.023.842	1.059.677	1.089.174	1.119.366	1.150.259	1.181.861	1.214.178

Figure 68: Capital Forecasted Balanace Sheet

CAPITAL PRODUCT PARTNERS Consolidated Statements of Operations (Expressed in thousands of U.S. Dollars – except for share data)	2016	2017e	2018e	2019e	2020e	2021e	2022e	2023e
Operating revenues								
Revenues	205.594	215.874	226.667	238.001	249.901	262.396	275.516	289.291
Revenues - related party	36.026	0	0	0	0	0	0	0
	241.620	215.874	226.667	238.001	249.901	262.396	275.516	289.291
Operating expenses								
Voyage expenses	9.920	9.653	10.135	10.642	11.174	11.733	12.320	12.936
Voyage expenses - related party	360	364	382	401	421	442	465	488
Vessel operating expenses – related party	10.866	27.666	29.049	30.501	32.027	33.628	35.309	37.075
Vessel operating expenses	66.637	37.247	39.109	41.065	43.118	45.274	47.538	49.915
General and administrative expenses	6.253	9.651	10.133	10.640	11.172	11.730	12.317	12.933
Depreciation and amortization	71.897	65.047	67.296	69.622	72.029	74.519	77.095	79.761
	165.933	149.627	156.105	162.872	169.941	177.327	185.044	193.106
Operating income from sales (after tax)	75.687	66.247	70.563	75.129	79.960	85.069	90.472	96.185
Other operating income								
Loss / (gain) on sale of vessels to third parties	-	-	-	-	-	-	-	-
Vessels' impairment charge	-	-	-	-	-	-	-	-
Gain on sale of claim	-	-	-	-	-	-	-	-
Gain from bargain purchase	-	-	-	-	-	-	-	-
Foreign currency gain/(loss), net	0							
Other Operating income (after tax)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Financial income								
Interest expense and finance costs	(24.302)	(21.712)	(22.798)	(23.938)	(25.135)	(26.392)	(27.711)	(29.097)
Interest and other income	1.104	986	1.036	1.087	1.142	1.199	1.259	1.322
Gain/(Loss) on interest rate swap agreement	0	0	0	0	0	0	0	0
Financial Income after tax	**(23.198)**	**(20.726)**	**(21.762)**	**(22.851)**	**(23.993)**	**(25.193)**	**(26.452)**	**(27.775)**
Other comprehensive income / (loss) (Actuarial gain/(loss))	0							
Comprehensive income to common	**52.489**	**45.521**	**48.800**	**52.278**	**55.967**	**59.876**	**64.020**	**68.410**

Figure 69: Capital Forecasted Income Statement

For that company, the estimation of the financial statements' elements is made by taking into consideration the company's past performance and making some assumptions. This choice is made because the company shows a stable positive financial performance. The company for the period from 2010 to 2016 showed an average growth on revenues of 12% and for the future years, the assumption is made that the company will maintain a 5% growth on revenues up to year 2023.

AVERAGE GROWTH ON REVENUES

Year	Revenues	Growth	Year	Operating income	Growth
2010	124.592		2010	51.318	
2011	130.316	5%	2011	35.298	-31%
2012	153.950	18%	2012	45.128	28%
2013	171.494	11%	2013	48.396	7%
2014	192.777	12%	2014	60.711	25%
2015	220.344	14%	2015	73.806	22%
2016	241.620	10%	2016	75.687	
				Average Growth	
	Average Growth Revenues	**12%**		**Operating Income**	**10%**

Figure 70: Capital average growth of revenues

As far as the expenses are concerned, the estimations are made based on the operating revenues. To be more precise, operating revenues are used as a value driver and as variable that influences all the other expenses. So the relationship for all the expenses except for depreciation, with the operating revenues, is found and then the average ratio is calculated. The relationships of all the elements of the financial statements, can be found in the Appendix B.

The company's vessels values are calculated according to Clarkson's outlook, and the company's weighted ratio for each type of vessel.

Total Fleet		Clarksons Outlook	Weighted
Crude/Product	1	4,30%	0,12%
Crude Oil	3	5,90%	0,51%
Chemical/ Product	17	4,30%	2,09%
Eco Chemical/ Product	3	4,30%	0,37%
Capesize Bulk Carrier	1	0	0,00%
Container Carrier	10	1,30%	0,37%
Total	**35**		
		Total	**3,46%**

Figure 71: Capital weighted vessel fleet growth

By taking the vessels' values for the period from 2010 to 2016, the company shows an average growth of 13%. Also this growth cannot be maintained by the company.

Year	Vessels' net book value	Growth
2010	707.339	
2011	1.073.986	52%
2012	959.550	-11%
2013	1.176.819	23%
2014	1.186.711	1%
2015	1.333.657	12%
2016	1.367.731	3%
	Average	**13%**

Figure 72: Capital Vessels' net book value growth

The calculation for the company's vessels depreciation, is made as the average percentage of Net Book Value of vessels and other property and not as a percentage of operating revenues, as depreciation is directed to the company's assets. The average percentage is 4,60%.

Finally, the other elements of the balance sheet, are estimated as a percentage of the key value driver, operating revenues.

Chapter 6 Valuation of companies

6.1 Discount Cash flow model

The central valuation method that is used in order to calculate the fair value of these two shipping companies is the Discounted Cash Flow Method (DCF). So after calculating the forecasted financial statements, the other step is to calculate the free cash flows. For both companies and generally for all the calculations, tax is ignored. This simplification is made, because both companies in their financial statements did not so any income taxes for all the years. The companies do not pay direct income taxes due to the flags (Liberia, Panama, etc.), that their ships have, apart from some minor taxes to the United States according to the total tonnage. As already have been mentioned the calculation of the company's free cash flow is made

> FCFF= EBIT(1-Tax rate)+Depreciation-Capital Expenditure-Change in working capital

i. Capital Expenditures (CAPEX)

The calculation of both companies' capital expenditures, is made as the difference between the net vessel's values for year "t" and year "t-1", as this amount is the highest in the cash outflows from investing activities, according to the Statement of Cash Flows. When assessing the fleet growth for the companies the historical data was not sufficient, so as to find an average growth. As a result, the future growth for both companies' fleet is taken from Clarksons outlook for future ship capacities.

ii. Change in Working Capital

The annual change in Net working Capital in the free cash flow calculation, is made as the change in current assets – current liabilities.

Here are the results for the calculated free cash flows, in accordance with the above mentioned assumptions:

	DIANA CONTAINERSHIPS INC.	2017e	2018e	2019e	2020e	2021e	2022e	2023e
	EBIT	(1.325)	(1.188)	(1.045)	(894)	(736)	(570)	(396)
+	Depreciation	9.167	9.286	9.407	9.529	9.653	9.779	9.906
-	Capital Expenditure	12.292	12.451	12.613	12.777	12.943	13.112	13.282
-	Change in Working Capital	(13.249)	(4.220)	(4.357)	(4.500)	(4.647)	(4.798)	(4.955)
=	Free Cash flow to Firm	8.800	(134)	107	358	621	895	1.182

Figure 73: Diana Free cash flow to firm

Due to the fact that current liabilities of Diana Containership Inc. have a great portion of long term debt, the change in Net working Capital is negative. We need to deal this matter carefully, because if a company's working capital is negative for a great deal of time, concerns will probably be arisen, about the firm's ability to meet its short term liabilities.

	CAPITAL PRODUCT PARTNERS	2017e	2018e	2019e	2020e	2021e	2022e	2023e
	EBIT	66.247	70.563	75.129	79.960	85.069	90.472	96.185
+	Depreciation	65.047	67.296	69.622	72.029	74.519	77.095	79.761
-	Capital Expenditure	112.331	116.215	120.232	124.389	128.689	133.138	137.741
-	Change in Working Capital	13	2.690	3.006	3.359	3.754	4.195	4.688
=	Free Cash flow to Firm	18.949	18.953	21.513	24.240	27.145	30.234	33.517

Figure 74: Capital Free cash flow to firm

As it derives from the above tables, Capital's free cash flow is much more robust than Diana's and this shows the different financial performance these companies show, strictly in the financial data, because they act in different sectors.

After, showing the valuation of the Free Cash Flows to the firm, in order to calculate the enterprise value, we have to discount the future free cash flows, in nowadays with each company's Weighted Average Cost of Capital (WACC). These are the key aspects of WACC.

i.   <u>Cost of Equity</u>

In order to calculate the company's cost of equity according to the following formula, we needed to calculate each company's beta and to utilize a risk free rate and the return of the market.

$$Ke = Rr + \beta(Rm - Rr)$$

<u>Risk free rate.</u>

Taking into consideration that both companies, are traded on Nasdaq, for a risk free rate, it is used the U.S 5-year bond rate of 1,83%, as in my opinion it is both a risk free element for an investor to invest and is from the country that the companies are traded.

<u>Return of the Market</u>

These companies are traded on Nasdaq, but by regressing the returns of the Nasdaq Index and the returns of each company, no statistically important relationship could be found and for that reason, I used the returns of S&P 500, which is highly used for public listed companies in the U.S.

<u>Beta</u>

As I have already mentioned, in order to find each company's beta, I regressed the returns of each company with the returns from both Nasdaq and S&P 500 indexes, with the statistical program EVIEWS, for the period from 2014 to 2017. Regressing the Nasdaq returns, I could not find any statistically significant beta. For the regression of S&P500, these are the results

```
Dependent Variable: RETURN_DIANA
Method: Least Squares
Date: 07/21/17   Time: 21:20
Sample: 1/02/2014 7/19/2017
Included observations: 893
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.003779	0.003061	-1.234778	0.2172
RETURN_SP500	0.712369	0.384450	1.852954	0.0642

R-squared	0.003839	Mean dependent var		-0.003517
Adjusted R-squared	0.002721	S.D. dependent var		0.091492
S.E. of regression	0.091368	Akaike info criterion		-1.945614
Sum squared resid	7.438105	Schwarz criterion		-1.934876
Log likelihood	870.7167	Hannan-Quinn criter.		-1.941511
F-statistic	3.433439	Durbin-Watson stat		1.797288
Prob(F-statistic)	0.064219			

Figure 75: Anova table for Diana

As it can be observed, the beta for Diana is statistically significant for 90% confidence interval. Moreover, the R^2 is low, indicating that the changes in the company's returns are not directly related to the changes of the returns of the index. This can be explained, because firms with long-term contracts had delayed fluctuations compared to the overall market portfolio. Furthermore, the company's poor performance, may forces investors to take different investing choices, without taking into consideration the index movement.

```
Dependent Variable: RETURN_CAPITAL
Method: Least Squares
Date: 07/22/17   Time: 11:38
Sample: 1/02/2014 7/19/2017
Included observations: 893
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001124	0.000871	-1.290708	0.1971
RETURN_SP500	1.166664	0.109385	10.66572	0.0000

R-squared	0.113219	Mean dependent var		-0.000695
Adjusted R-squared	0.112224	S.D. dependent var		0.027590
S.E. of regression	0.025996	Akaike info criterion		-4.459505
Sum squared resid	0.602134	Schwarz criterion		-4.448767
Log likelihood	1993.169	Hannan-Quinn criter.		-4.455401
F-statistic	113.7575	Durbin-Watson stat		1.885142
Prob(F-statistic)	0.000000			

Figure 76: Anova table for Capital

On the other hand, Capital's returns are more correlated to the movement of S&P500 index. Also the low R-squared can be a result of the long-contract lag, of the return's fluctuations. The beta is statistically significant.

By taking into account all the above information, the cost of equity for both companies, is calculated as follows:

CAPITAL ASSET PRICING MODEL					
Cost of Equity			WACC	rd*D/D+E + re*E/D+E	
Re=Rf+beta*(Rm-Rf)					
Rf	Risk free rate				
U.S. 5-Year Bond	1,83%				
Rm	Return of the market				
S&P 500	13,92%				
risk premium	(Rm-Rf)				
	12,09%				
Betas regression on SP&500 Nasdaq not statistically significant					
Diana Containerships Inc	0,712		Cost of equity	10,44%	
Capital Product Partners	1,17		Cost of equity	15,97%	

Figure 77: Cost of equity for both shipping companies

ii.   Cost of Debt

In order to calculate the cost of debt for both companies, we needed information about the leverage that each company faces. However, due to the fact that it is really difficult to know the exact terms of each loan the Cost of Debt for each company, is calculated as the percentage of the Interest Expense to the Total interest bearing Debt of the company for year 2016.

Cost of Debt	Interest Expense/Total Debt
Diana Containerships Inc	4,11%
Capital Product Partners	4,04%

Finally, the calculation of each company's WACC, can be depicted as follows:

Total EV	outstanding shares 31.12.2016	Share price	Market Value OF Equity	Debt	Total EV
Diana Containerships Inc	1.645.467	0,71	1.168.282	172.746.000	173.914.282
Capital Product Partners	123.290.000	3,56	438.912.400	602.187.000	1.041.099.400
	WACC				
Diana Containerships Inc	4,15%				
Capital Product Partners	9,07%				

Figure 78: Cost of debt & WACC for both shipping companies

The fair value for each company, according to the above estimations, can be calculated as follows:

DIANA CONTAINERSHIPS INC.	2017e	2018e	2019e	2020e	2021e	2022e	2023e
EBIT	(1.325)	(1.188)	(1.045)	(894)	(736)	(570)	(396)
+ Depreciation	9.167	9.286	9.407	9.529	9.653	9.779	9.906
- Capital Expenditure	12.292	12.451	12.613	12.777	12.943	13.112	13.282
- Change in Working Capital	(13.249)	(4.220)	(4.357)	(4.500)	(4.647)	(4.798)	(4.955)
= Free Cash flow to Firm	8.800	(134)	107	358	621	895	1.182
Container trade growth 2016	3,40%						
Terminal Value	215.258						
Long run	3,60%						
WACC	4,15%						
Free Cash flow to Firm	8.800	(134)	107	358	621	895	1.182
Terminal Value							215.258
Total Free Cash Flow	8.800	(134)	107	358	621	895	216.440
Discount Factor	0,96	0,92	0,89	0,85	0,82	0,78	0,75
Total Discounted Cash Flow	8.449	(123)	94	304	506	701	162.835
Firm's Value	172.767						
Total Debt	172.746						
Equity Value	21						
outstanding shares	1.168.282						
Equity Value per share	0,02						

Figure 79: Diana DCF equity value

As a result, the fair price for Diana Containerships Inc. in making the assumption that the company can maintain a long run growth of 3,6%, by improving the utilization of the company's fleet and that the market of containerships after 2023, will improve further and go away of the historical lows that the sector faces in 2016 (cyclical economy), is 0,02$/ share.

CAPITAL PRODUCT PARTNERS	2017e	2018e	2019e	2020e	2021e	2022e	2023e
EBIT	66.247	70.563	75.129	79.960	85.069	90.472	96.185
+ Depreciation	65.047	67.296	69.622	72.029	74.519	77.095	79.761
- Capital Expenditure	112.331	116.215	120.232	124.389	128.689	133.138	137.741
- Change in Working Capital	13	2.690	3.006	3.359	3.754	4.195	4.688
= Free Cash flow to Firm	18.949	18.953	21.513	24.240	27.145	30.234	33.517
50% Average Growth revenue	**5,00%**						
Terminal Value	**661.082**						
Long run	**4,00%**						
WACC	**9,07%**						
Free Cash flow to Firm	107.766	116.279	128.416	141.927	156.971	173.725	192.390
Terminal Value							661.082
Total Free Cash Flow	107.766	116.279	128.416	141.927	156.971	173.725	853.472
Discount Factor	0,92	0,84	0,77	0,71	0,65	0,59	0,54
Total Discounted Cash Flow	98.804	97.744	98.970	100.287	101.693	103.189	464.785
Firm's Value	1.065.472						
Total Debt	602.187						
Equity Value	463.285						
outstanding shares	123.290.000						
Equity Value per share	3,76						

Figure 80: Capital DCF equity value

As it can be observed the fair value for Capital Product Partners, by making the above assumptions, that the company will maintain a long run growth of 4% after the year 2023, is 3,76$/share. The company as it has already been mentioned, for the period from 2010 to 2016 had an average growth rate on its revenues 12%, so maintaining a 4% growth it is not highly unlikely.

6.2 <u>Relatives Valuation</u>

Valuation in respect of multiples of the competitors of the company can be made in order to calculate the company's fair value of. In my valuation, I have used as multiples, the P/E ratio, the P/BV ratio and the Enterprise Value/EBITDA. In order to calculate, those multiples, financial data from the selected competitors for the year 2016 is used.

<u>P/E ratio</u>

The ratio of Price/Earnings per share, for the industry is calculated as the average P/E ratio of the selected comparable shipping companies. After calculating the average ratio, the company's values are calculated as Average Industry P/E * firm's earning per share.

RELATIVES VALUATION METHOD	2016		Price to Earnings (P/E)
	Price	Earnings per share	
COSTAMARE	6,5	0,79	8,23
DANAOS	2	-3,34	-0,60
GLOBAL SHIP LEASE	1,36	-1,42	-0,96
SEASPAN	6,46	-1,89	-3,42
AVERAGE		Average	0,8133

DIANA	EPS	-16,28
P/E Value		-13,24

Figure 81: Diana P/E equity value

Diana due to its poor performance, does not show positive EPS, so the price of the company cannot be estimated.

RELATIVES VALUATION METHOD	2016		Price to Earnings (P/E)
	Price	Earnings per share	
DHT	4,16	0,1	41,60
OSG	2,88	-3,25	-0,89
TENN	4,99	0,47	10,62
SCORPIO	3,72	-0,15	-24,80
AVERAGE		Average	6,6327

CAPITAL	EPS	0,34
P/E Value		2,26

121

The fair value according to P/E ratio is 2,26$/share. As we observe the industry average is affected highly by the ratio of DHT and TENN, in order to be positive. Generally, 2016 was not a good year for the shipping industry.

P/BV ratio

This ratio is calculated as the company's market price per share/ Book value of equity per share. After obtaining the average industry P/BV ratio, the company's value is the average industry P/BV * firm's Book Value per share.

RELATIVES VALUATION METHOD	2016 Price	Price to BV(P/B) Book Value	shares	BV	P/BV
COSTAMARE	6,5	1.074.424.000	74.800.000	14	0,45
DANAOS	2	487.713.000	109.802.000	4	0,45
GLOBAL MARITIME	1,36	328.893.000	47.854.351	7	0,20
SEASPAN	6,46	1.747.249.000	102.869.000	17	0,38
AVERAGE				Average	0,3703

DIANA	BV/share	9,93
P/BV		3,68

Figure 83: Diana P/BV equity value

This multiple, gives a highly positive value for the company of 3,68$/share, showing that the company's book values, differ from those that the market estimates.

RELATIVES VALUATION METHOD	2016 Price	Price to BV(P/B) Book Value	shares	BV	P/BV
DHT	4,16	685.011.000	93.389.610	7	0,57
OSG	2,88	254.332.000	90.949.577	3	1,03
TENN	4,99	1.417.450.000	84.905.078	17	0,30
SCORPIO	3,72	1.315.200.000	161.118.654	8	0,46
AVERAGE				Average	0,5879

CAPITAL	BV/share	7,74
P/BV		4,55

Figure 84: Capital P/BV equity value

This multiple also gives a high value for Capital Product Partners of 4,55$/share.

Enterprise Value to EBITDA

This ratio is calculated as the average of the comparable companies. Using the financial data of 2016, I calculated, the Enterprise Value of each company and the EBITDA. The enterprise value is calculated by the following formula.

EV = market value of common stock + market value of preferred equity + market value of debt + minority interest - cash and investments. Then the average industry ratio is multiplied with the firm's EBITDA.

RELATIVES VALUATION METHOD	2016	Price to Earnings (EV/EBITDA)		
	Enterprise Value	EBITDA		
COSTAMARE		1.736.164	273.777	6,34152613
DANAOS		2.650.819	-145.863	-18,173348
GLOBAL SHIP LEASE		430.712	22.325	19,292807
SEASPAN		3.668.366	223.357	16,4237778
		AVERAGE		5,97119085

DIANA	EBITDA			-129.300 shares	Price/share
EV/EBITDA				-772.075 9.150.574	-84,374486
(market capitalization) + (value of debt) + (minority interest) + (preferred shares) - (cash and cash equivalents)					
	COSTA	DANAOS	GLOBAL	SEASPAN	
MARKET CAPITALIZATION	486.200	219.604	65.082	664.534	
DEBT	1.414.862	2.504.932	419.873	3.371.733	
MINORITY INTEREST	0	0	0	0	
PREFERRED SHARES		0	0	0	
CASH	164.898	73.717	54.243	367.901	
EV	1.736.164	2.650.819	430.712	3.668.366	

Figure 85: Diana EV/EBITDA equity value

Due to the fact that the company has negative EBITDA this multiple cannot be used.

RELATIVES VALUATION METHOD		2016		(EV/EBITDA)		
	Enterprise Value		EBITDA			
DHT		981.151		124.854	7,85838481	
OSG		595.928		58.023	10,2705441	
TENN		1.997.154		203.230	9,8270646	
SCORPIO		2.382.155		198.210	12,0183411	
			AVERAGE		9,99358366	
CAPITAL	EBITDA			147.584 shares		
EV/EBITDA				1.474.893	123.290.000	11,962795
(market capitalization) + (value of debt) + (minority interest) + (preferred shares) - (cash and cash equivalents)						
	DHT	OSG		TENN	SCORPIO	
MARKET CAPITALIZATION	388.501	261.935		423.676	599.361	
DEBT	701.945	525.082		1.753.855	1.882.681	
MINORITY INTEREST	0	0		0	0	
PREFERRED SHARES		0		7400	0	
CASH	109.295	191.089		187.777	99.887	
EV	981.151	595.928		1.997.154	2.382.155	

Figure 86: Capital EV/EBITDA equity value

Because the company has a high positive EBITDA in accordance with the high industry ratio, , the price per share for Capital Product Partners, is overvalued at 11,96$/share.

6.3 <u>Asset Valuation</u>

Another secondary method, used in order to calculate the fair value of each company is the Asset Valuation Method. This method, evaluates the company by assessing the market value of the real property, or other assets of the company that produce cash flows. This method, is used before buying an asset or during the liquidation of a company.[30]

By taking into consideration estimations made by the market outlook of Clarkson's research of April 2017, some raw assumptions are made for the second hand prices, for the ships of each company. For some ships of the fleet, that there was not sufficient information, as market value is taken the carrying amount.

---

[30] Investopedia

VESSEL	TEU	YEAR BUILT	CARRYING AMOUNT	SECONDHAND PRICE
SAGITTA	3426	2010	11,40	8
CENTAURUS	3426	2010	11,40	8
NEW JERSEY	4923	2006	17,90	7
PAMINA	5042	2005	15,00	7
DOMINGO	3739	2001	5,00	5
PUELO	6541	2006	41,60	12
PUCON	6541	2006	41,70	12
MARCH	5576	2004	9,20	7
GREAT	5576	2004	9,20	7
HAMBURG	6494	2009	37,20	16
ROTTERDAM	6494	2008	35,80	16
		TOTAL	**235,40**	**105,00**

	Carrying Amount	Second Hand Prices
Vessels Values	235.400	105.000
Other Assets	26.179	26.179
Firm's Value	261.579	131.179
Total Debt	172.746	130.546
Equity Value	88.833	633
outstanding shares	1.168.282	1.168.282
Equity Value per share	76,04	0,54

Figure 87: Diana asset valuation "Container Intelligence Monthly" Appendix C

Vessel Name	Year Built	DWT/TEU	Second Hand Price	Carrying Amount
Miltiadis M II	2006	162,397	32,5	40,5
Amore Mio II	2001	159,982	47,2	47,2
Aias	2008	150,393	32,5	42
Amoureux	2008	149,993	32,5	42
Aristotelis8	2013	51,604	23	31,4
Ayrton II	2009	51,26	20	33
Alexandros II6	2008	51,258	19	30,9
Aristotelis II6	2008	51,226	19	33,6
Aris II6	2008	51,218	19	31,7
Amadeus 5	2015	50,108	34,3	34,3
Active	2015	50,136	33,9	33,9
Amor	2015	49,999	31,4	31,4
Axios	2007	47,872	18	23,2
Assos	2006	47,872	18	24,4
Avax	2007	47,834	18	22,9
Atrotos	2007	47,786	18	23,7
Anemos I	2007	47,782	18	26,5
Apostolos	2007	47,782	18	26,5
Akeraios	2007	47,781	18	23,8
Atlantas II	2006	36,76	18	19,3
Agisilaos	2006	36,76	18	20,2
Aktoras	2006	36,759	18	19,7
Aiolos	2007	36,725	18	20,5
Arionas9	2006	36,725	18	20,5
Alkiviadis	2006	36,721	18	21,7
Cape Agamemnon	2010	179,221	24	40,7
CMA CGM Magdalena	2016	115,639 / 9,288	85,7	85,7
CMA CGM Amazon	2015	115,534 / 9,288	86,4	86,4
CMA CGM Uruguay	2015	115,639 / 9,288	87,3	87,3
Archimidis	2006	108,892 / 8,266	20	53,1
Agamemnon	2007	108,892 / 8,266	20	55,5
Hyundai Prestige7	2013	63,010 / 5,023	10	47,1
Hyundai Privilege7	2013	63,010 / 5,023	10	47,2
Hyundai Platinum7	2013	63,010 / 5,023	10	47,2
Hyundai Premium7	2013	63,010 / 5,023	10	46,3
Hyundai Paramount7	2013	63,010 / 5,023	10	46,4
			951,70	1.367,70

	Carrying Amount	Asset Valuation
Vessel Value	1.367.000	951.700
Other Assets	230.874	230.874
Firm's Value	1.597.874	1.182.574
Total Debt	602.187	602.187
Equity Value	995.687	580.387
outstanding shares	123.290.000	123.290.000
Equity Value per share	8,08	4,71

Figure 88: Capital asset valuation according to Clarksons research Autumn 2016 Appendix D

6.4 Dividend growth model

Finally, only for Capital Product Partners, is made a calculation of the company's fair value of equity, by taking into consideration the dividend history of the company. Diana Containerships Inc., in my opinion, due to the fact of its poor performance is not really probable to give dividends to shareholders. According to the financial statements of the company this is the historical dividends since 2007.

Dividends History	CAPITAL PRODUCT PARTNERS			Growth
2007	0,75			
2008	1,62			
2009	2,28			
2010	1,09			
2011	0,93			
2012	0,93			
2013	0,93			
2014	0,93			
2015	0,94			
2016	**0,46**			Growth
2017	**0,48**	**0,08**	per two months	3,00%
	Cost of equity	15,97%		
Value of the Firm/share	3,70			

Figure 89: Capital equity value with dividend growth model

For the period from 2011 to 2015 the dividend that is given to the shareholders, was 0,93$ per year. So the company gives a stable amount of dividends. For the year 2016 the dividend was 0,46$/share and for the next year the dividend will be 0,48$ share, so there is an increase of 4,35%. Taking into account the stable dividend in the past and the positive financial performance, we make the assumption that the dividend will maintain a long run growth of 3%. By using the stable growth formula, where "D1" is the dividend of year 2017, "g" is the stable growth of 3% and "r" is the cost of equity of the firm, the value of the company is 3,70$/share.

$$P = \frac{D1}{r - g}$$

6.5 Sensitivity Analysis

In all methods of valuations, some raw assumptions are made about the future of the firm. Nobody has the ability to forecast exactly what the financial situation of the market will be so as to produce perfect projections about the industry or the future financial performance of the company. So in order to make those forecasts, we need to construct some scenarios about the key aspects, which affect directly the value of the company. In my opinion, the two most important elements of a company's valuations are the Weighted Average Cost of Capital (WACC) and the long run growth of the company's revenues, that will lead the profitability of the company in higher levels. For that reason, a sensitivity analysis is made, so as to present, how the value of the company's equity is affected by those elements.

DIANA'S EQUITY VALUE PER SHARE SENSITIVITY ANALYSIS				
		WACC		
Long run growth	4,15%	5%	6%	7%
2,80%	-82,22	-106,07	-117,90	-124,09
3,20%	-58,48	-98,81	-114,90	-122,51
3,60%	0,02	-87,39	-110,89	-120,56
4%	371,78	-66,85	-105,28	-118,09

CAPITAL'S EQUITY VALUE PER SHARE SENSITIVITY ANALYSIS				
		WACC		
Long run growth	9,07%	10%	11%	12%
2,80%	3,20	2,58	2,05	1,60
3,20%	3,36	2,70	2,13	1,66
3,60%	3,54	2,83	2,22	1,73
4,00%	3,76	2,97	2,32	1,80

Figure 90: Sensitivity analysis

This table shows, how each company's equity value per share, is affected by changes. As we can observe, Diana Containerships Inc., has a really deteriorated financial performance and this fact is underlined by the company's external auditors, about its ability to be going concern. Moreover, the market does not seem to have a different opinion about the financial performance of the company, as it has a low price of 0,71$ after a reverse split of 1 to 6 shares. So in every change of the long run

growth, below 3,6% the value of the company's equity becomes negative, underlying the possibility of the company to be under financial distress in the future. Finally, if the company manages to maintain a stable growth of 4% after 2023, then the valuation is skyrocketed, although this is a highly optimistic scenario.

On the other hand, Capital Product Partners, has a more robust price per share showing its positive financial performance in the last years. As we can observe the company's value is highly sensitive to the change of the WACC. Generally, it is not really unjustifiable to anticipate changes in the long run growth and the WACC, in the volatile shipping industry, which is affected by many elements, as world trade growth, oil prices, seaborne trade, world production growth and etc.

Chapter 7 Summary, conclusion and recommendations

7.1 Conclusion

By taking into consideration all the above assumptions and all the trends of the shipping industry, according to estimations made by studying the outputs of several researches and presentations of Clarksons, Alix Partners and Drewry, the results that have been produced by all the valuation methods, are shown in the following tables.

CAPITAL PRODUCT PARTNERS VALUATION SUMMARY				
Valuation Method	Equity Value Per share ($)	Market Value Per share ($) 28/7/17	Difference	Recommendation
Discounted Free Cash Flow	3,76	3,78	0,02	SELL/HOLD
Relative Valuation P/E	2,26	3,78	1,52	SELL
Relative Valuation P/BV	4,55	3,78	-0,77	BUY
Relative Valuation EV/EBITDA	11,96	3,78	-8,18	BUY
Asset Valuation	4,71	3,78	-0,93	BUY
Dividend Growth Model	3,70	3,78	0,08	SELL

DIANA CONTAINERSHIPS INC. VALUATION SUMMARY				
Valuation Method	Equity Value Per share ($)	Market Value Per share ($) 28/7/17	Difference	Recommendation
Discounted Free Cash Flow	0,02	0,71	0,69	SELL
Relative Valuation P/E	-13,24	0,71	13,95	SELL
Relative Valuation P/BV	3,68	0,71	-2,97	BUY
Relative Valuation EV/EBITDA	-84,37	0,71	85,08	SELL
Asset Valuation	0,54	0,71	0,17	SELL
Dividend Growth Model	-	0,71	-	-

Figure 91: Summary of valuations for both companies

The objective of this particular thesis, was to calculate each shipping company's fair value, more accurately and to compare it with real life market price in Nasdaq, by using different valuation methods. As primary valuation method, is used the Discounted Free Cash Flow method and as secondary the other valuation methods and particularly, the relatives' valuation by using some key industry ratios, the asset valuation and the dividend growth model. The results conducted from that effort give different values for the company's equity.

To begin with, for Capital Product Partners, the DCF method and the Dividend Growth methods, give really close results to those the capital market anticipates, thus

the assumptions made in the thesis, are in the same direction with those that analysts and investors expect. Moreover, the asset valuation method, show that the company also has margin of improving its value. The price to earnings ratio P/E, because of the poor performance for year 2016, gives a lower value.

Regarding Diana Containerships Inc., the results show that the company faces some financial difficulties. The DCF method, with the assumptions that I have already mentioned in previous paragraphs, calculate a really marginal positive value of 0,02$/share. The relatives' method of price to earnings P/E ratio and the enterprise value to EBITDA, both calculate negative values, underlining the company's poor financial performance compared to the other comparable shipping companies. However, it is important to declare that this comparable firms are not all the same with the company and may have different non-systematic risk. The price to book value of the equity P/BV give an optimistic value of the company of 3,68$, however it is far away from the price, that investors anticipate. Finally, the only valuation method, which gives a value of the company's equity, near the market price is the asset valuation, which evaluates the total assets of the company in their market value.

Finally, by an overall assessment of the valuations methods used in this thesis, we may export the result, that for companies with stable, robust financial performances, the discounted cash flow methods can be used in order to form a view about their fair values, if we can have sufficient data to make severe estimations. However, for companies like Diana Containerships Inc., which face financial difficulties, this valuation methods, may not calculate a fair view of the company's value and thus, the usage of the Asset Valuation method may be more appropriate. Nevertheless, the recommendation of this thesis, is that further research can be conducted in order to examine the validity of the Discounted Cash Flow methods, for valuation of shipping companies. Moreover, future studies, can examine some other shipping companies, with more diversified fleet, or other who face financial difficulties in order to assess these valuation methods.

REFERENCES

Annual Reports

- *Annual reports of Diana Containerships Inc. http://www.dcontainerships.com*

- *Annual reports of Capital Product Partners. http://www.capitalpplp.com/overview.cfm*

- *Annual reports of DHT tankers. http://www.dhtankers.com*

- *Annual reports of Overseas shipholding group Inc. http://www.osg.com*

- *Annual reports of Scorpio trankers. http://www.scorpiotankers.com*

- *Annual reports of Tsakos energy navigation. http://www.tenn.gr/en/about.html*

- *Annual reports of Costamare Inc. http://www.costamare.com*

- *Annual reports of Danaos. http://www.danaos.com/home/default.aspx*

- *Annual reports of Global Ship Lease http://www.globalshiplease.com/*

- *Annual reports of Seaspan Corp. http://www.seaspancorp.com/*

Books

- Penman, S. (2013), "*Financial Statement analysis and security valuation 5th edition*", New York, McGraw-Hill

- Petersen, C., Plenborg, T. (2012) "*Financial Statement Analysis: Valuation, Credit Analysis and Executive Compensation*", Harlow, Pearson Education Limited

- Damodaran, A. (2006) "*Damodaran on Valuation: Security Analysis for Investment and Corporate Finance 2nd edition*", New York, John Wiley and Sons

- Damodaran, A. (2002) "*Investment Valuation: Tools and Techniques for Determining the Value of Any Asset 2nd edition*", New York, John Wiley and Sons

- Brealey, R., Myers S., *Allen, F.* (2014) "*Principles of Corporate Finance global edition 11th edition*", New York, McGraw-Hill Irwin

Reports and Presentations

- Alix Partners *"Global Container Shipping Outlook Mar 2017"*, available from: https://emarketing.alixpartners.com/rs/emsimages/2017/pubs/EI/AP_Global_Container_Shipping_Outlook_Mar_2017.pdf, 1-8

- Clarksons Research *"Capital Market Monthly March 2017"*, 1-12

- Clarksons Research *"Container Intelligence Monthly April 2017"*, 1-24

- Clarksons Research *"Oil & Tanker Trades Outlook April 2017"*, 1

- Clarksons Research *"Shipping Review & Outlook Autumn 2016"*, 1-194

- Clarksons Research *"Shipping Intelligence Weekly 12 May 2017"*, 1-20

- Morningstar co. (2013), *"The Discounted Cash Flow Method",* available from: *http://www.morningstar.co.uk/UK/NEWS/65385/THE-DISCOUNTED-CASH-FLOW-METHOD.ASPX*

- Damodaran A. (2011) *"An Introduction to Valuation. Approaches to Valuation – The Big Picture View"*

- *Damodaran A. (2006) "Valuation Approaches and Metrics: A Survey of the Theory and Evidence" chapter 8*

- Tavatidis A. (2014) *"Discounted Cash Flow Valuation method in Shipping"* Diploma Thesis, Laboratory of Maritime Transport, NTUA Athens

- Ricardo J. Sanchez & Lara Mouftier, adapted from *Alphaliner (2017),* available from: *http://www.porteconomics.eu/2017/04/05/which-will-be-the-actual-shipping-cycle-in-the-future-the-traditional-or-a-new-one/*

- Slideshare, *"The analysis of the Balance Sheet and the Income Statement"*, available from: *https://www.slideshare.net/Ellena98/chapter-9-4388319*

- Karamperidis S. (2013) "*Development of an Index for Maritime Container Transport Costs, Connectivity and Risks for the UK ,* Newcastle University

- Fernandez (2013d), *"Valuing Companies by Cash Flow Discounting: 10 Methods & 9 Theories"* IESE Business School, 1-4

Internet

- *http://www.capitalpplp.com/overview.cfm*

- *http://people.stern.nyu.edu/igiddy/valuationmethods.htm.*

- *http://pages.stern.nyu.edu/~adamodar/New_Home_Page/background/valintro.htm.*

- *http://www.dcontainerships.com/*

- *http://www.dhtankers.com*

- *http://www.osg.com*

- *http://www.scorpiotankers.com*

- *http://www.scorpiotankers.com*

- *http://www.costamare.com*

- *http://www.danaos.com/home/default.aspx*

- *http://www.seaspancorp.com/*

- *http://www.investopedia.com/*

- *http://www.harperpetersen.com/harpex/harpexRH.csv*

- *https://finance.yahoo.com/quote/*

- *http://www.nasdaq.com/*

- *https://www.bloomberg.com/*

- *https://www.economist.com/*

- *http://www.brattle.com/news-and-knowledge/news/yvette-austin-smith-and-evan-cohen-co-author-article-on-the-use-of-net-asset-value-in-bankruptcy-valuation-disputes*

APPENDIX A

RELATIONSHIPS OF THE FINANCIALS STATEMENTS ITEMS	
Income Statement	
Voyage expenses/Operating Revenues the average amount	3,65%
Vessel operating expenses/Operating Revenues the average amount	56,81%
General and administrative expenses/Operating Revenues the average amount	19,02%
Management fees/Operating Revenues the average amount	1,32%
Depreciation and amortization of deferred charges/(Net book value of vessels & PPE) the average amount	3,77%
Interst Income/Operating Revenues the average amount	0,39%
Financial Expenses/Operating revenues the average amount	10,58%
Balance Sheet	
Advances for vessel acquisitions and other vessel costs	-
Vessels' net book value	1,3% According to Clarksons Research about total containership capacity
Property plant & equipment	constant
Accounts receivable trade/Operating revenues	1,42%
Due from related party	-
Inventories/Operating revenues	7,78%
Restricted cash current	constant
Prepaid expenses and other assets/Operating revenues	7,55%
Deferred financing costs/Operating revenues	7,10%
Prepaid charter revenue	-
Accrued liabilities/Operating revenues	0,32%
Accounts payable trade and other/Operating revenues	4,43%
Deferred revenue current/Operating revenues	0,33%
Due to related parties/Operating revenues	3,16%
Deferred revenue non-current	-
Other liabilities non current/Operating revenues	0,52%
Cash and cash equivalents/Operating revenues average 2 years	36,16%
Current portion of long-term debt/Operating revenues	382,99%
Related party financing current	-
Long-term debt net of current portion	-
Related party financing non-current	137,43%

APPENDIX B

RELATIONSHIPS OF THE FINANCIALS STATEMENTS ITEMS	
Income Statement	
Voyage expenses/Operating Revenues the average amount	4,47%
Vessel operating expenses/Operating Revenues the average amount	12,82%
General and administrative expenses/Operating Revenues the average amount	17,25%
Management fees/Operating Revenues the average amount	4,47%
Depreciation and amortization of deferred charges/(Net book value of vessels & PPE) the average amount	4,60%
Interst Income/Operating Revenues the average amount	0,46%
Financial Expenses/Operating revenues the average amount	10,06%
Balance Sheet	
Advances for vessel acquisitions and other vessel costs	-
Vessels' net book value	3,46% Weighted Sum for every type of ship according to Clarksons Outlook
Property plant & equipment	-
Above market acquired charters/Operating revenues	37,35%
Deferred charges, net/Operating revenues	1,72%
Inventories/Operating revenues	1,97%
Trade accounts receivable, net/Operating revenues	1,03%
Due from related party	-
Prepayments and other assets/Operating revenues	1,88%
Cash and cash equivalents	44,15%
Restricted cash	constant
Trade accounts payable/Operating revenues	3,59%
Accrued liabilities/Operating revenues	3,25%
Due to related parties/Operating revenues	6,66%
Derivative instruments	constant
Deferred revenue /Operating revenues	14,91%
Long-term debt/Operating revenues	232,85%
Current portion of long-term debt/Operating revenues	16,38%

APPENDIX C

Liner Vessel Prices			End Year, $m.*			Three Month		
			2014	2015	2016	Mar	Trend	
CONTAINERSHIPS								
1,000 teu grd	5yo	2012	5.5	8.5	7.5	7.8	STEADY	1%
1,000 teu grd	10yo	2007	3.3	6.0	4.3	4.5	HIGHER	6%
1,000 teu grd	15yo	2002	2.5	4.0	3.0	3.0	STEADY	-3%
1,700 teu grd	5yo	2012	12.0	12.0	8.5	9.0	STEADY	2%
1,700 teu grd	10yo	2007	8.0	8.5	5.5	6.0	STEADY	1%
1,700 teu grd	15yo	2002	5.0	5.5	3.5	4.0	HIGHER	5%
2,500 teu grd	5yo	2012	16.0	16.0	10.0	11.0	STEADY	3%
2,500 teu grd	10yo	2007	10.5	11.0	5.8	7.0	HIGHER	7%
2,500 teu grd	15yo	2002	6.5	6.8	3.8	5.0	HIGHER	13%
2,750 teu gls	Resale		22.0	30.0	26.0	26.0	STEADY	0%
2,750 teu gls	5yo	2012	14.5	16.0	10.0	11.0	STEADY	3%
2,750 teu gls	10yo	2007	8.5	11.0	5.8	7.0	HIGHER	6%
2,750 teu gls	15yo	2002	6.0	6.8	3.8	5.0	HIGHER	13%
3,500 teu gls^	5yo	2012	14.0	16.0	7.0	8.0	STEADY	0%
3,500 teu gls^	10yo	2007	10.0	11.5	5.0	6.0	HIGHER	8%
3,500 teu gls^	15yo	2002	7.5	8.0	4.5	5.5	HIGHER	9%
3,800 teu gls'	Resale		35.0	37.0	30.0	30.0	STEADY	-2%
4,500 teu gls^	5yo	2012	19.0	16.0	7.0	9.0	HIGHER	9%
4,500 teu gls^	10yo	2007	14.5	12.0	5.5	7.3	HIGHER	13%
4,500 teu gls^	15yo	2002	10.3	9.0	5.0	6.5	HIGHER	15%
4,800 teu gls'	Resale		43.0	44.0	34.0	34.0	STEADY	-2%
5,100 teu gls^	5yo	2012	21.0	18.0	8.0	10.0	HIGHER	8%
5,100 teu gls^	10yo	2007	15.5	13.0	6.3	8.3	HIGHER	16%
6,600 teu gls	Resale		64.0	60.0	44.0	44.0	STEADY	-3%
6,600 teu gls	5yo	2012	44.0	36.0	16.0	18.0	STEADY	2%
6,600 teu gls	10yo	2007	22.0	20.0	9.5	13.0	HIGHER	12%
8,800 teu gls	Resale		85.0	88.0	68.0	68.0	STEADY	0%
8,800 teu gls	5yo	2012	60.0	56.0	26.0	24.0	LOWER	-5%
Secondhand Cont'ship Index			**25**	**36**	**25**	**27**	**STEADY**	**3%**
RO-RO TRAILERS, euro m.								
Ro-Ro 2500 lm	5yo	2012	24.0	28.0	33.0	33.0	STEADY	0%
Ro-Ro 2500 lm	10yo	2007	17.0	21.0	26.0	26.5	STEADY	2%
Ro-Ro 2500 lm	15yo	2002	13.0	16.5	21.0	21.5	STEADY	2%
Ro-Ro 4000 lm	5yo	2012	27.0	36.0	42.0	42.0	STEADY	0%
Ro-Ro 4000 lm	10yo	2007	18.0	27.0	35.0	35.5	STEADY	1%
Ro-Ro 4000 lm	15yo	2002	15.0	20.5	28.0	28.5	STEADY	2%

Prices are sourced from Clarksons Platou brokers, based on the ship specifications on page 5. We would urge readers to use all the prices quoted here with caution and to contact us directly for information about specific prices. Container Index based on Jan '96 =100. *Ro-Ro prices in euro m. ^Narrow beam (old "Panamax"). 'Wide beam (old "Post-Panamax").

APPENDIX D

2.1.1 VLCC Market

Summary			
	2015	2016	+/- this year
Voyage Earnings*			
AG-West	$68,365	$46,462	-32%
AG-Far East	$61,646	$39,880	-35%
WAF-China	$63,508	$43,302	-32%
Revenue (per day)*			
Avg.Spot Earnings (modern)	$64,846	$43,116	-34%
1 Yr TC Rate (modern)	$48,433	$40,450	-16%
	2015	Sep-16	+/- this year
Asset Values ($m)^			
NB Price (320k dwt)	$93.5	$86.0	-8%
5-year-old D/H (310k dwt)	$80.0	$62.0	-23%
Tonnage Supply (m.dwt)^			
Fleet	200.3	208.5	4%
Orderbook	41.8	37.9	-9%
	2015	2016	+/- this year
Fleet Trends (no. vessels)"			
Deliveries	20	27	103%
Demolition	2	0	-100%
Contracting	72	14	-71%
Secondhand Sales	40	15	-44%

*Full year/ytd average. ^As at end year/start month.
"Total full year/ytd, % +/- based on annualised figures.

2.1.2 Suezmax Market

Summary			
	2015	2016	+/- this year
Voyage Earnings*			
W.Africa-Med.	$42,840	$25,133	-41%
Gulf-WC India	$40,205	$23,043	-43%
Revenue (per day)*			
Avg.Spot Earnings (modern)	$46,713	$27,668	-41%
1 year TC Rate (modern)	$35,875	$30,021	-16%
	2015	Sep-16	+/- this year
Asset Values ($m)^			
NB Price	$63.00	$56.00	-11%
5-year-old D/H	$60.00	$45.00	-25%
10-year-old D/H	$42.00	$32.50	-23%
Tonnage Supply (m.dwt)^			
Fleet	75.1	76.8	2%
Orderbook	17.9	14.6	-18%
	2015	2016	+/- this year
Fleet Changes"			
Deliveries	11	12	64%
Demolition	0	1	
Contracting	57	2	-95%
Secondhand Sales	38	10	-61%

*Full year/ytd average. ^As at end year/start month.
"Total full year/ytd, % +/- based on annualised figures.

2.1.3 Aframax Market

Summary			
	2015	2016	+/- this year
Voyage Earnings*			
Baltic-UKC	$44,990	$27,171	-40%
Med-Med	$36,530	$22,090	-40%
UKC-UKC	$39,729	$25,219	-37%
Caribs-USGulf	$36,522	$20,428	-44%
Revenue (per day)*			
Avg.Spot Earnings (modern)	$37,977	$23,756	-37%
1 Yr TC Rate (modern)	$26,712	$23,789	-11%
	2015	Sep-16	+/- this year
Asset Values ($m)^			
NB Price	$52.00	$46.00	-12%
5-year-old	$46.00	$33.00	-28%
10-year-old	$31.00	$21.00	-32%
Tonnage Supply (m.dwt)^			
Crude Aframax Fleet	67.7	69.1	2%
Crude Aframax Orderbook	11.7	10.2	-13%
	2015	2016	+/- this year
Fleet Changes (Crude Tankers)"			
Deliveries	4	15	463%
Demolition	3	4	100%
Contracting	66	4	-91%
Secondhand Sales	21	16	14%

*Full year/ytd average. ^As at end year/start month.

"Total full year/ytd, % +/- based on annualised figures.

2.1.4 Product Tanker Market

Summary			
	2015	2016	+/- this year
Voyage Earnings*			
AG-Japan (Clean - 55,000t)	$24,847	$15,483	-38%
UKC-USAC (Clean - 37,000t)	$19,276	$12,038	-38%
USG-ECSA (Clean - 38,000t)	$24,416	$16,544	-32%
Revenue (per day)*			
Avg.Spot Earnings (Clean)	$21,535	$12,802	-41%
1 Yr TC Rate, MR (47k dwt)	$17,769	$16,404	-8%
	2015	Sep-16	+/- this year
Asset Values ($m)^			
5-year-old LR2 (115k dwt)	$48.50	$35.50	-27%
NB Price, MR (51k dwt)	$35.50	$33.25	-6%
5-year-old MR (47k dwt)	$29.00	$23.00	-21%
Tonnage Supply (m.dwt)^			
Fleet	143.2	149.6	4%
Orderbook	26.4	20.0	-24%
	2015	2016	+/- this year
Fleet Changes"			
Deliveries	151	114	13%
Demolition	26	16	-8%
Contracting	195	12	-91%
Secondhand Sales	115	59	-23%

*Full year/ytd average. ^As at end year/start month.

"Total full year/ytd, % +/- based on annualised figures.

Includes product tankers >10,000 dwt (all coated non-IMO tankers, all IMO 3 tankers, all IMO 2 tankers 25k dwt and above which have an average tank size >3,000cbm, or, where average tank size unkown, no. of tankers <16 (25-40k dwt), <18 (40-55k dwt), <30 (55-85k dwt), and tankers of unknown IMO grade 25k dwt and above and all uncoated tankers below 60k dwt, excluding tankers with any stainless steel tanks and specialised tankers).

2.1.5 Chemical Tanker Market

Summary			
	2015	2016	+/- this year
Freight Rates ($ per tonne)*			
5,000t Rott - Far East	$84.84	$81.91	-3%
5,000t Houston - Far East	$63.06	$73.34	16%
1 Yr T/C Rates ($/day)*			
13,000 dwt IMO II	$10,146	$11,188	10%
19,999 dwt Stainless Steel	$15,233	$15,894	4%
	2015	**Sep-16**	**+/- this year**
Asset Values ($m)^			
5-year-old (13,000 dwt IMO II)	14.0	14.0	0%
5-year-old (19,999 dwt S/S)	27.0	26.3	-3%
Tonnage Supply (m. dwt)^			
Fleet	40.4	41.8	3%
Orderbook	6.8	5.4	-20%
	2015	**2016**	**+/- this year**
Fleet Developments*			
Deliveries	85	73	-14%
Demolition	11	7	-36%
Contracting	114	26	-77%
Secondhand Sales	122	58	-52%

*Full year/ytd average. ^As at end year/start month.

*Total full yearlytd, % +/- based on annualised figures.

Chemical tanker fleet includes IMO 1 tankers, IMO 2 tankers not meeting product tanker criteria, tankers of an unknown IMO grade below 25,000 dwt and tankers with stainless steel tanks not designated as specialised tankers.