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"FINANCIAL RATIOS IN THE GREEK SHIPPING INDUSTRY"

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Dissertation

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Η παρούσα διπλωματική εργασία έχει σκοπό τη μελέτη, την κατανόηση και την εξέταση των χρηματοοικονομικών δεικτών, καθώς και τον τρόπο αλληλεπίδρασής τους με την ελληνική ναυτιλία. Όπως θα καταδειχθεί, η χρήση τους επιδρά και επηρεάζει σε σημαντικό βαθμό τους ανθρώπους, γύρω ή μέσα σε μία ναυτιλιακή εταιρία. Για τον λόγο αυτό, θα γίνει μία εκτεταμένη αναφορά στους χρηματοοικονομικούς δείκτες υπό το πρίσμα δώδεκα (12) ελληνικών ναυτιλιακών εταιριών, την πορεία και την εξέλιξή τους στο χρόνο, η οποία θα καταλήξει στη συγκριτική επισκόπηση των εξαγόμενων συμπερασμάτων.

Λέξεις κλειδιά: χρηματοοικονομικοί δείκτες, ελληνικές ναυτιλιακές εταιρίες

Abstract

The present thesis aims at the study, the understanding and the assessment of financial ratios, as well as at the way they interact with the Greek shipping industry. As will be proven, their use impacts and influences the people both surrounding as well as working within a shipping company to a significant extend. For this purpose, an in-depth reference concerning the financial ratios will be provided under the prism of twelve (12) Hellenic shipping companies, their development and their evolution in time, which will culminate in the comparative survey of the conclusions deduced.

Key Words: Financial Ratios, Greek Shipping Companies

CONTENTS

Introduction

The present dissertation with the title "Financial Ratios in the Greek Shipping Industry" aims at studying 12 Hellenic shipping companies in order to demonstrate their identity and rank in the global shipping industry not to mention assess some of the most important financial ratios, which influence and impact those particular companies as well as the people involved in them both interactively and on the inside. The target of this thesis is to properly explain how the world of shipping interacts with financial ratios and the stock market exchange.

In the first chapter a detailed representation and explanation of financial ratio is attempted, how it is used and which ratios constitute the most important ones in the shipping industry, i.e. an in-depth analysis of those ratios in order to comprehend their use.

In the second chapter, a reference to Greece and the Greek shipping industry in regards to the way the shipowners at times cope with the diminished or increased activity of their vessels. It is a universally well-known fact that Greek shipowners have succeeded in excelling in the shipping world, moving towards the right direction. It is not by chance that in Greece, though a very small country, there are shipowners who have in their possession more than 4,500 vessels, which represents a percentage of 17.8% of the world commercial fleet.

In the third chapter, twelve (12) shipping companies are introduced according to their size, kind and ship category, while at the same time an analysis of those financial ratios which influence them is attempted.

The fourth chapter includes a comparison of the financial ratios relative to all assessed shipping companies as well as their average.

To sum up, this present thesis is finalized with the layout of the conclusions from the comparative survey of the clues from the previous chapters.

For this dissertation data has been selected from annual reports of the companies in question, furthermore for the study of the financial ratios, data and clues from authoritative publications, other dissertations, articles and publicized studies have primarily been used.

1. Financial ratios

From our previous chapter, one theme worthy of elaboration is financial ratios. Financial ratios constitute an imperative factor used nowadays, if not by all shipping companies, at least by the vast majority of them. By applying these valuable tools shipping enterprises are able to assess and improve their operational efficiency, profitability, stability, liquidity, thus providing their investors and stockholders with viable information about the situation or the existence of occasional dangers of a company they want to participate in or they have already invested in (David Ingram, 2019). According to the analysts, financial ratios are a combination method, which is capable of informing interested parties about the financial health of a company by evaluating, comparing and contrasting previous and present financial statements (Andrew Bloomenthal, 2021).

Each company which is listed on the stock exchange is obligated to make its financial statements public so that potential investors as well as shareholders may be informed about its financial status. The main purpose of this policy is to catch the attention of more and more people, who might invest, thus helping the company increase in size and last but not least assure a continuous cash flow. The higher the increase the better the performance of the company. Therefore, this financial information is useful to the company for the immediate and instrumental decision-making procedures and obligatory for the resolution of arising problems.

Another purpose served by the application of financial ratios by the companies is that of comparison between themselves and their competitors in terms of evaluation of profit or loss as well as self assessment by comparing/contrasting financial years. The headquarters of every company evaluate those data and act on a case by case basis for their financial planning. Moreover, financial statements are directly connected to financial ratios, while there are data which are used for the calculation of the latter such as the balance sheet and the income statement.

In short, the definition of the financial ratios is the specification of strong and weak points of a company, profitability or loss, how much information can be provided to and processed by aspiring investors, who are new to the area, informing them at maximum level about opportunities and threats. This policy applicable to every industry, not only the shipping industry which we will deal with this thesis. Obviously there are hundreds of financial ratios which are active but every industry needs and uses a particular number of reliable ratios.

The main categories of financial ratios that we meet in the shipping industry which are the most widespread are:

- **Solvency Ratio:** which is used to calculate whether a company can meet its long-term liabilities
- **Liquidity Ratio:** which is used to determine whether a company can pay its debt obligations

- **Profitability Ratio:** which is used to assess whether a company can efficiently generate profit and values

Furthermore, there is the **Key Ratio** which is used by the investors and companies to collect date from the financial statements, such as balance sheet, income statements and statements of cash flow in comparison to other items of the company.

1.1 Solvency Ratios

On one hand the Solvency Ratio provides the means for the measurement of the ability of a company to face its long-term obligations as well as the assessment of the financial health of a company. On the other hand, the solvency ratios are used by potential investors to evaluate the trustworthiness of a company and approximately predict the expected profit from their investment. Thus, this ratio is about the constant operation for a deep perpetual period of time and it depends on whether the company can pay its debts.

For a more understandable approach we will use the formula of the Solvency Ratio

$$\boldsymbol{Solvency\ Ratio} = \frac{\boldsymbol{Net\ after - Tax\ Income + Non\ cash\ expenses}}{\boldsymbol{Short\ Term\ Liabilities + Long\ Term\ Liabilities}}$$

Net after-tax income (NIAT): is a financial term which is used to describe the profit of a company after taxes. Usually we meet this term in quarterly and annual financial reports
Non cash expenses: The expenses which are not related to cash
Short term liability: A financial obligation which must be paid within a year
Long term liability: A financial obligation which is due after a one year period

Solvency Ratio is also divided into 4 types: Interest Coverage Ratio, Debt-to-Assets Ratio, Equity Ratio and Debt-to-Equity (D/E) Ratio. (Adam Hayes, 2021)

1.1.1 Interest Coverage Ratio (ICR)

Interest Coverage Ratio measures whether a company can handle its current interest payments with the current income. Also, this indicator allows the creditors to decide whether they will lend to a company. According to Adam Hayes, the higher the ratio, the better. A company can be considered a healthy corporation when this ratio is higher than 1.5. When this indicator is 1.5 or below then the company cannot pay its debt which might be equivalent to the risk of bankruptcy. (J.B. Maverick, 2021). The same applies for the shareholders and investors.

The calculation of ICRs is:

$$\boldsymbol{Interest\ Coverage\ Ratio} = \frac{\boldsymbol{EBIT}}{\boldsymbol{Interest\ Expenses}}$$

EBIT means Earnings before Interest and Taxes. It calculates the ability of a company to make profit and the bigger this indicator, the more profitable the company.

1.1.2 Debt-to-Assets Ratio

Debt-to-Assets Ratio or Debt Ratio measures a company's total debt to its total assets. So, it constitutes an indicator which shows the ability to pay the debts with the available assets. When the ratio is below 1.0 the company is able to meet its obligations and pay the debts.

$$\boldsymbol{Debt - to - Assets\ Ratio} = \frac{\boldsymbol{Debt}}{\boldsymbol{Assets}}$$

1.1.3 Debt-to-Equity Ratio

Debt-to-Equity Ratio is one more indicator and its importance is understandable, because it helps the company, the shareholders and the investors to understand the financial leverage of the company. It is responsible for the measurement of the operation of the company by comparing the debt to the equity while at the same time calculating the entire debt against the shareholders' equity. This particular ratio informs the shareholders whether the debt of the company will have to be paid off by their equity. When the ratio is by 1.5 the debt is manageably, however the future investors will not invest their money in such a company. If it exceeds the above number then the company shall be unable to meet their obligations and the next step is likely to be bankruptcy.

$$\boldsymbol{Debt - to - Equity\ Ratio} = \frac{\boldsymbol{Total\ Debt}}{\boldsymbol{Total\ Equity}}$$

$\boldsymbol{Total\ Debt}$: $\boldsymbol{Long\ Term\ Debt + Short\ Term\ Debt + Fixed\ Payments}$

$\boldsymbol{Total\ Equity}$: $\boldsymbol{Total\ Shareholders' Equity}$

1.2 Liquidity Ratio

As we already saw to the previous subchapter, solvency ratio has the role of fulfilling future obligations and showing the capacity of the company to meet them, while liquidity ratio indicates the ability of a company to cover its current obligations. Furthermore, a company is considered powerful when it can attribute to the shareholders the current interests and dividends. Liquidity as a meaning is dependant exclusively by the sales. In a shipping company this may result more complicated than in others, because the materials a shipping company sells depend primarily on the type of company (gas, bulk carrier), the kind of materials the vessel carries and the kind of route it will follow. (Stopford, 2009). Moreover, in order to earn more money it must operate on the peak of the market, i.e. 90% and more of the vessels have already been employed and the market needs more and more vessels to transfer the products.

Obviously, when the market goes up, the shipping companies are on the peak and they have the necessary liquidity to pay off their current debt and interest to the shareholders. The ability of a company to be able to reciprocate to its current obligations attracts more and more investors.

For that reason, the liquidity ratio is one of the most important ratios which is used by the company and the investors. This ratio is divided to three types:

- **Current Ratio**
- **Quick Ratio**
- **Cash Ratio**

1.2.1 Current Ratio

In comparison to the other two, Quick and Cash Ratio, Current Ratio is the simplest one to identify and calculate. It is necessary in the attempt to indicate whether a company has the ability to pay off its short-term obligations. Current Ratio equals current assets divided by current liabilities and in order for a company to be considered safe the outcome must exceed 2. Because of its clarity, this ratio is used to a large extent by future investors and shareholders and in case the result is less than 2, they do will refrain from buying shares of a company, which seems unable to meet its obligation (R.G. Bird, 1977). According to researches conducted both by Merwin in 1942 as well as Tamari in 1966, it was concluded that the Current Ratios of unsuccessful enterprises were lower than the average of those of the industry as a whole. (Paul Barnes, 1987).

Concerning a shipping company, the liquidity plays a major role and determines its ability to fulfill any short time liabilities, including an eventual mortgage or a new investment. A company which can show profit and high liquidity is reassuring to creditors, investors and last but not least shareholders, because they can look forward to attenuation within a reasonable time frame. Also, if after the division of current assets by current liabilities the resulting number exceeds 1.5, the company may boast a strong position in the market. On the other hand, should the result of the equation be below 1.5, the company's position in the market is deemed to be weak and one may be justified to fear that it will be unable of paying its debts.

The formula we use to calculate the Current Ratio as referred to before is:

$$\boldsymbol{Current\ Ratio} = \frac{\boldsymbol{Current\ Assets}}{\boldsymbol{Current\ Liabilities}}$$

1.2.2 Quick Ratio

Although Quick Ratio is more complicated than Current Ratio, it is also more accurate. As a term, it is an indicator which highlights the ability of a company to meet its short-term liabilities with the most liquid assets. Also, because the most liquid assets are those which can easily and quickly be converted into cash, there is another name for this ratio namely 'Acid Test Ratio'. (Shobhit Set, 2021) That means, for the calculation of this ratio we take into account the elements of the quick assets, which can be liquidated in no time. In that case the investors and the company ascertain the cash and cash equivalents.

Both investors and the company do not calculate the elements which have the lowest liquidity rate, because they want to verify whether the company can meet its current liabilities within a year, with the available cash and cash equivalents. If the rate is above 1 or thereabout, then the reliant members feel satisfied when the period of collecting the demands and paying the debts are equal. On the contrary, when the rate is below 1, then the company will not be able to pay its own debts and short-term liabilities, which will inevitably result in failure to cover the demands of the shareholders.

To sum up the Quick Ratio is to be considered of superior purpose in comparison to the Current Ratio, for the liquid assets are the current ones, which can effortlessly and with almost no consequences be turned into cash in order to pay the debts of the company

The formula we use to calculate Quick Ratio is:

$$\boldsymbol{Quick\ Ratio} = \frac{(\boldsymbol{Cash}\ \&\ Cash\ Equivalents\ +\ Marketable\ Securities\ +\ Accounts\ receivable)}{\boldsymbol{Current\ Liabilities}}$$

OR

$$\boldsymbol{Quick\ Ratio} = \frac{(\boldsymbol{Current\ Assets} - \boldsymbol{Inventories} - \boldsymbol{Prepaid\ Expenses})}{\boldsymbol{Current\ Liabilities}}$$

Cash and Cash Equivalents: Company assets either in cash or of a kind easily and immediately convertable into cash.

Marketable Securities: Available assets which can be liquidated on demand

Accounts receivable: An account of assets marked on the balance sheet which shows money due to the company in the foreseeable future.

Inventories: Any raw materials, used to manufacture products available for sale.

Prepaid Expenses: i.e. Eventual advance payments for expenditures which have not been recorded as expenses in the current accounting period and are programmed to appear in the following one.

1.2.3 Cash Ratio

Cash Ratio concerns exclusively the available cash and cash equivalents of a company and its ability to pay any and all short-term liabilities. Cash Ratio measures the liquidity of a company in cash or material, which can be immediately converted into cash for the repayment of liabilities within the next calendar year. Furthermore, it represents an important factor for interested investors and lenders in order to determine the value of a company and evaluate the amount of money they are willing to invest in or lend to this company (Bhavana, 2022).

Comparing to the other liquidity ratios, i.e. Current and Quick Ratio, this factor is definitely more stable and reliable for the calculation concerning the financial ability of a company to pay its debts, since, this particular ratio is related expressedly to cash or cash equivalents, leaving any other assets out of the equation (Will Kenton, 2021). Some investors put their trust mainly in this ratio, because they consider that their investment will return them a huge profit, even though a high Cash Ratio does not necessarily impact to the performance of the company, the reason for this being that a high Cash Ratio might easily be interpreted as an indicator for the incapacity of a company to utilize its cash either in expanding or investing in profitable new enterprises

The analysts calculate this ratio with the following formula:

$$\textbf{Cash Ratio} = \frac{\textbf{Cash} \ \& \ Cash \ Equivalents}{\textbf{Current Liabilities}}$$

When the division of Cash & Cash Equivalents by Current Liabilities is equal to 1, it means that the company has the same amount of money at its disposal to pay its liabilities. The other scenarios are: a) the result of the equation exceeds 1, which means the company disposes of sufficient cash and cash equivalents to be able to fulfill any obligations arising within the following 12 months and b) the result is less than 1, which allows the conclusion that the firm is facing a liquidity problem which might easily lead to its failure to meet short-term liabilities.

1.3 Profitability Ratio

Beyond Solvency Ratios and Liquidity Ratios, there is also the so-called 'Profitability Ratio'. This particular ratio is important to all companies, since the ultimate purpose is to successfully reach high profitability. Profitability Ratio is the measurement of the company's ability to generate income within a specified period of time (Hyo-Won Kang, 2015). The meaning of profitability plays an important role for every party involved, namely investors, stakeholders, the firm management and last but not least every single employee. The company's board of directors bears the responsibility to ensure and maximize the utility of all assets available to them through the profitability for the purpose of returning profits in the form of dividends to their shareholders and Profitability Ratio is the instrument for proving that the firm is on the right path (Studip Das, 2010).

Furthermore, Profitability Ratio is used to compare two competing companies, which sell the same product, or to contrast and estimate advantageousness in house throughout a number of years. In our case, in the shipping industry the comparison takes place through the type of vessel which carries the product. Every vessel can be considered as an individual company and treated as such.

As with the afore mention ratios, Profitability Ratio is divided into several sub-ratios, with the most important being 4:

- **Return on Equity (ROE)**
- **Return on Assets (ROA)**
- **Return on Sales (ROS)**
- **Gross Profit Margin**

1.3.1 Return on Equity (ROE)

Return on Equity is an important sub-ratio which is used by stock analysts and investors in an attempt to realistically verify and assess the current financial status of a company. It is a way to find out whether the company is profitable which means that it will yield significant earnings to interested investors. It is related to revenue, balance sheet, operating costs and shareholders' equity during a specific time space. The combination of the above enables the shareholders to know if the company can produce profit and maximize their investments. To be more specific, ROE is a key ratio, which measures the ability of the enterprise to earn return on its equity investments (Adam Hayes, 2021).

Moreover, if ROE has a high rate, then the company probably finds itself in a healthy financial situation, meaning it has put its assets to right use; therefore the investors will get earnings. However, ROE can also be considered a misleading ratio, because its height may be the result of a mortgage.

The formula we use to calculate ROE is:

$$\boldsymbol{Return\ on\ Equity} = \frac{\boldsymbol{Net\ Income}}{\boldsymbol{Shareholders' Equity}}$$

1.3.2 Return on Assets (ROA)

Return on Assets is also a remarkable indicator which is used to interpret how efficiently a company uses its assets to create profit. Every involved party can use this ratio to measure the profitability of a company in relation to its total assets. According to the analysts, ROA is used by the investors to better understand, whether and how a company succeeds in converting their investment into net income as well as how probable the possibility of earning more money by small investments will be (Marshall Hargrave, 2021).

Everything is dependent on the efficiency of the firm. The calculation compares the efficiency of the company either with others in the same industry or the investment itself. In the shipping industry, every enterprise can be evaluated per se on a yearly basis or according to the investments and the expanding of any factor (bulks, gas etc.). Also, by using ROA the company owners are provided with information concerning the firm's leverage and the sum of its debt.

The calculation of Return on Assets is as follows:

$$\textbf{Return on Assets} = \frac{\textbf{Net Income}}{\textbf{Total Assets}}$$

Quite obviously, both of these ratios, Return on Equity (ROE) and Return on Assets (ROA), have a lot in common in terms of measuring how effectively a company utilizes its resources, but there still remain some differences. First of all ROA measures the debt of a firm whereas ROE does not. Furthermore, in ROA the debt financial leverage is included. Secondly, ROA measures the company's profit from resources or assets while ROE concentrates on the earnings a company receives from the investment of the shareholders.

1.3.3 Return on Sales (ROS)

Return on sales is an indicator through which the operational efficiency of a company is evaluated. Moreover, it measures the profitability of a company and both the investors and the creditors use this ratio to calculate with accuracy the revenues and the possibility to increase their profit. Over and above that, this ratio is applied to compare previous years with the current one and calculate the average of ROS to assess the situation the company finds itself in. When ROS is increased, then the analysts estimate that the performance of the company is promising whereas when it is decreased, the company is probably facing financial problems. (Adam Hayes, 2021)

Most importantly however, ROS constitutes a reliable assessment for the investors to compare the performance of competing companies within the same industry. In the shipping industry, the potential investors find the trend by calculating a company's ROS and compare it to that of others. In addition, in this sector the comparison focuses on the size and type of the companies in question. Ideally this ratio should be applied to compare enterprises which follow similar business models and present equivalent annual sales figures.

The calculation of the ratio Return on Sales is:

$$\textbf{Return on Sales} = \frac{\textbf{Operating Profit}}{\textbf{Net Sales}}$$

OR

$$\textbf{Return on Sales} = \frac{\textbf{EBIT}}{\textbf{Net Sales}}$$

Actually, Operating Profit is considered as earnings before interest and so it is the same with EBIT.

1.3.4 Gross Profit Margin

Last but not least, Gross Profit Margin or Gross Margin is an extremely important ratio since for the majority it concerns the performance of a company, while the analysts use it to indicate the sales with emphasis on whether they can cover the costs. Gross Profit Margin is a metric which analyzes the financial health of a company and its importance constitutes in providing future investors with a convenient tool to help them understand, where their money is best placed, after the comparison of similar companies within the same sector. Moreover, a high Gross Profit Margin effectively shows, that the company boasts high revenues exceeding by far the costs of goods sold.

To simplify, the calculation of Gross Profit Margin results from subtracting the Costs of Goods Sold (COGS) from the Net Sales, while the resulting outcome is divided by Net Sales. To calculate the percentage of Gross Profit Margin we multiply it by 100. (Andrew Bloomenthal, 2021)

The formula we explicate is:

$$\textbf{Gross Profit Margin} = \frac{(\textbf{Net Sales} - \textbf{COGS})}{\textbf{Net Sales}}$$

$$\boldsymbol{Gross\ Profit\ Margin\ Rate} = \frac{(\boldsymbol{Net\ Sales} - \boldsymbol{COGS})}{\boldsymbol{Net\ Sales}} \times \mathbf{100}$$

For the afore mention calculation instead of using Net Sales, we can of course use the Total Revenues of the company.

1.3.5 Operating Margin

Operating Margin is a ratio which is labeled into profitability ratios; however the effect is the same as with the Return on Sales (ROS). It is the ratio which presents the efficiency of a company to generate profit from sales.

The formula in this ratio is:

$$\boldsymbol{Operating\ Margin} = \frac{\boldsymbol{EBIT}}{\boldsymbol{Revenues}}$$

1.4 Sales Growth

Sales Growth is an indicator used to measure a company's performance in the field of sales within a pre-determined period of time. This parameter is essential for the financial growth not to mention for the survival of the company. When a company can boast good sales growth, this will unavoidably reflect on the employees in terms of salary as well as on the shareholders, because their profits will increase. On the other hand, a negative sales growth has an unfavorable effect on everyone involved, which makes it imperative for the company to diversify its strategy and change its business plan.

This is why the investigators divide the sales growth into 2 categories, namely the Positive and the Negative Sales Growth. A Positive Sales Growth means increased profits for the company based on the conditions on the market being favorable and the strategy that is followed being synchronized accordingly, the product being accepted by the customers and the company adapting its business moves to an ever changing market, such as the shipping industry. Negative Sales Growth signifies a red signal for a company, the sales are not the accepted model that the company was looking forward to and some reasons which might have affected this adverse result are increased competition, disapproving reception for the product on the market and in particular as far as the shipping industry is concerned, the market is on a trough. (Martin Stopford, 2009)

The Sales Growth could be subdivided into the following:

- Month to month Sales Growth
- Quarterly Growth
- Half-yearly Sales Growth
- Annual Sales Growth
- Product Sales Growth

The most common type of Sales Growth that investors and shareholders in the shipping industry apply is the Annual Sales Growth in order to compare the current year with the previous ones and probe the financial stability of a company.

The Sales Growth is calculated by first subtracting the previous period sales from the current period sales and then dividing the result by the previous period sales and finally multiplying it with 100.

The formula is:

$$\boldsymbol{Sales\ Growth} = \frac{(\boldsymbol{Current\ Period\ Sales} - \boldsymbol{Prior\ Period\ Sales})}{\boldsymbol{Prior\ Period\ Sales}}$$

$$\textbf{\textit{Sales Growth Rate}} = \frac{(\textbf{\textit{Current Period Sales}} - \textbf{\textit{Prior Period Sales}})}{\textbf{\textit{Prior Period Sales}}} \times \mathbf{100}$$

1.5 EBITDA Growth

EBITDA (Earnings Before Interest, Tax, Depreciation and Amortization) is used to compare the profitability of a company or multiple companies within the same industry since the effects of financing and accounting decisions are eliminated. Furthermore, the analysts use this ratio as a shortcut to estimate the cash flow of a company, available for the payment of long-term debts. EBITDA Growth is a financial ratio used to measure the ability of a company to optimize their expense to sales ratio. Moreover, the analysts use this ratio to explain the percentage of EBITDA for any year in comparison to previous ones. The higher the EBITDA Growth the better the potential of the company's growth, meaning it has a monumental impact on the company's decision making, helping both the board of directors and the investors to indicate and evaluate the company's status of sales.

The calculation of EBITDA Growth is straight forward and uncomplicated. According to the analysts, the EBITDA Growth is calculated by first subtracting the previous year EBITDA from the current year EBITDA and then dividing the result by the previous year EBITDA and finally multiplying it with 100.

The formula for EBITDA Growth is:

$$\textbf{\textit{EBITDA Growth}} = \frac{\textbf{\textit{EBITDA of Present Year}} - \textbf{\textit{EBITDA of Previous Year}}}{\textbf{\textit{EBITDA of Previous Year}}}$$

$$\textbf{\textit{EBITDA Growth Rate}} = \frac{\textbf{\textit{EBITDA of Present Year}} - \textbf{\textit{EBITDA of Previous Year}}}{\textbf{\textit{EBITDA of Previous Year}}} \times \mathbf{100}$$

1.6 Net Income Growth

Net Income Growth is a measurement of the Net Income as reported by the company's financial statements from one period to the next one, which can be calculated yearly, quarterly and even monthly. This measurement is used by the analysts and shareholders to estimate which companies have succeeded in expanding their profits. Shipping companies enlisted in the stock exchange market, namely the New York Stock Exchange (NYSE) and Nasdaq (NDAQ), are obligated to publish their reports, including the Net Income Growth, since they are influenced by the goals and the challenges of the firm and therefore should therefore be assessed in conjunction with other metrics, such as margin, industry life cycle etc.

The formula of the Net Income Growth yearly is:

$$\boldsymbol{Net\ Income\ Growth} = \frac{\boldsymbol{This\ Year\ Net\ Income}}{\boldsymbol{Previous\ Year\ Net\ Income}}$$

1.7 Net Cash Flow

The Net Cash Flow constitutes an indicator responsible for informing analysts as well as any other interested party, about the viability and the financial health of a company. This ratio is extraordinarily important, because of its immediate impact on the amount of cash gained or lost by the company in a specific period of time. Like the Net Income Growth the Net Cash Flow as well can be measured monthly, quarterly and yearly. This particular ratio shows whether a company can produce a positive Net Cash Flow and indicates the viability or in case of a negative Net Cash Flow the lack thereof, in which case the board of directors will be inclined to admit that the company needs change of strategy to reach its own and its investors' goals.
The Net Cash Flow is divided into 3 types:

- Operations
- Investing
- Financing

The Net Cash Flow must stem from operating activities, including income from the sale of product but also services, or any cash inflow, cash dividends as well cash interest accrued. Moreover, operating outflow such as labor cost, equipment repair, maintenance etc, are also considered operating activities. Secondly, any cash flow earned by the company from the sale of bonds, equipment and equity as well as cash outflows such as the amount of cash needed to acquire property or to purchase assets (vessels) are labeled investing activities And last but not least, financing activities are

considered those in which investment gains such as bonds, stocks and other investments have been acquired but also investment losses.

The formula of the Net Cash Flow is:

$$\begin{aligned} &\boldsymbol{Net\ Cash\ Flow} \\ &\quad = \boldsymbol{Operating\ Cash\ Flow} + \boldsymbol{Financing\ Cash\ Flow} \\ &\quad + \boldsymbol{Investing\ Cash\ Flow} \end{aligned}$$

1.8 Free Cash Flow

Free Cash Flow measures the profitability of company, excluding the non-cash expenses of the income statement, including the cash spent on equipment and assets. Free Cash Flow (FCF) is responsible for the cash available to the company to pay out dividends and interests to investors and repay creditors. In short, it is an indicator which shows the amount of cash produced each year, without the burden of any internal and external obligations (Jason Fernando, 2021). But how can the analysts be sure that the Free Cash Flow is satisfactory? A positive Free Cash Flow does not necessarily imply fruitful stock trends and vice versa. The FCF trends can be used by the analysts as a measure of risk. If this trend has stayed stable for the last 4 to 5 years, then the shares have run a lower risk of being negatively affected.

Free Cash Flow has various calculations with the most important being:

$$\begin{aligned} &\boldsymbol{Free\ Cash\ Flow} \\ &\quad = \boldsymbol{Net\ Income} + \boldsymbol{Non\ Cash\ Expenses} \\ &\quad - \boldsymbol{Increase\ in\ Working\ Capital} - \boldsymbol{Capital\ Expenditures} \end{aligned}$$

2. Greek Shipping Industry

Greece is a small country surrounded for the better part by sea and counts approximately 6000 islands, islets and skerries, 227 of which are inhabited. Due to this large number of islands Greece's coastline exceeds 15000 kilometers, making it 9th in the world ranking of countries with the longest coastlines (Ministry of Culture and Tourism, 2007). No wonder Hellenic history, Mythology and Culture have always been intertwined with the sea. According to history the Greeks, already in ancient years learned how to exploit the sea, either for transferring men and goods from one place to another and doing business or for fishing and diving to find aliment. It is a well known fact that Greece as a country is connected to three continents (Asia, Africa and Europe) and is enclosed by the Aegean, the Ionian and the Mediterranean Sea. This has always enticed the Hellenes to find a way to meet other people, to communicate with them, exchange information and eventually enter into commercial transactions using raw materials as payment. It follows that the only immediate way for such achievements was by sea. Therefore they constructed ships in which they deposited their goods and raw materials for transfer. Being what we call a maritime nation by tradition but also as a country, Greece has always played a major role at sea since antiquity. No wonder numerous Greeks connected their names to amazing battles which changed the world, Emperor Constantine Palaiologos IA, King Phillip II of Macedonia, Prince Theseus and Alexander the Great to name but a few'. (Greek Shipping, 2009)

The origin of Greek shipping is so ancient and amazingly intertwined with mythology and goes on uninterruptedly until our days. The first Greeks, according to the historians, lived during the Minoan age. The Minoans were traders from Crete, who had learned the art of shipping from the Phoenicians (Merryn Wainwright, 2018). After this era mythology introduces us to the most famous heroes and wars such as Odysseus and the Trojan War, Jason and the Argonautical Quest etc., all of which involved sea fare. There were years and years in which the Greeks used their abilities at sea, either for war or for the constant discovery of new areas, cultures, traditions, and people. The most glorious of all being undoubtedly Alexander the Great, whose conquests involved remarkable parts of Asia, a tour de force unthinkable without the contribution of his navy under the command of his brilliant admiral Nearchos.

After the premature death of Alexander the Great and the collapse of his empire, the Romans appeared in 168 B.C. and dominated the area until the Byzantine Era which started in 330 A.D. and lasted until 1453. During those centuries the main purpose both of the Byzantine and the Roman Empire was the discovery of new lands and their only means to achieve such an undertaking was by building improved vessels. After the arrival of the Ottomans, the conquered people of the Mediterranean fell into decadence and eventually to a stillstand in evolution, which for Greece had a particularly damaging effect in the field of ship construction. That was the cause why the shipping influence of the Hellenic people declined and was not revived until the Greek Revolution in 1821 and it still evolving until today.

It was within the last century that the Greeks started creating empires of companies which led the way to an outstanding global shipping community. The Greek fleet is usually operated by a family or a strategic leader who is the shipping entrepreneur (I. Theotokas, 1998). The family character of Greek companies implies that their size is mostly small or medium, with each vessel constituting a pro forma separate company. Thus Greek shipping firms are operated by the founder and the family members who hold high positions in the hierarchy, exercise control and assist in the decision-making process (I. Theotokas, 2007). This pattern is the most common one and almost as a holy legacy has been followed by the majority of successors of family-held businesses, namely 45% of the players in the Greek shipping industry, not to mention by newly entered shipowners (L. Icaza, S. Marzo, T. Popa, U. Sahbaz, G. Saravelos, 2009)

The Greek shipping industry has played a determinative role in the Greek economy for more than 30 years since Greek shipping has managed to defend its place at the top of the Maritime world (I. Lagoudis, I. Theotokas, 2007). According to a research of Deloitte in 2020, the Greek shipowners' control spans over almost 20% of the 'world fleet'. To be precise they have in their possession 4.536 vessels (17,8% of the global capacity and 349,2 million deadweight), while as reported by another research from the UGS Annual Report 2018- 19, (based on the IHS Markit World Shipping Encyclopedia 2019) the fleet owned by Greeks in 2019, numbers 4.936 vessels with a total of 390 million dwt, representing roughly 21% of the global fleet. Japan follows on the second place with 3.822 vessels and a global capacity of 11,5% with 225,1 million total deadweight while China comes in third with more vessels than the first two (6.125 vessels) although the total deadweight is estimated at 206,3 million occupying 10,5% of the global capacity. But the question arises how many of the Greek shipowners actually use the Greek flag?

Admittedly the Greek flag is not preferred by the Greek shipowners; because apart from it entraining excessive costs, the Greek register it is ruled by red tape which is almost impossible to overcome. The majority of the Greek owned vessels carry the flag of the Marshall islands (791 flags) or that of Liberia with 775 flags, whereas the Greek owned vessels under the Greek flag do not amount to more than 747. John Aggelikousis has to be cited here as being one of the remaining few operating nearly his entirely fleet, namely 105 of 119 vessels under the Greek flag, followed by his sister Anna Aggelikousi who operates 31 of 51, Andreas Martinos with 42 vessels Diamantis Diamantidis with 37 etc.

It is worth mentioning that the Greek vessels have been evolving in the broad sense of the word with the passage of time. For instance the average age of the Greek vessels back in 2000 was 20.3 years while in 2018 it lessened to 9.3 years. Newly constructed vessels mean pioneer solutions which in turn improve the fleet both environmentally and economically. Moreover, these companies and the vessels are obliged to adhere to the regulations of the International Maritime Organization (IMO) and conform to the buffer framework in order to better prevent environmental disasters, not to mention protect seafarers' lives. The IMO has the characteristics of ensuring the integrity of human lives as well as protecting the environment and preventing or at least limiting marine and atmosphere pollution by ships.

The Greek shipowners deserve recognition for the appropriate decisions taken with regard to the timing, the situation on the market and the trading be it with newbuildings or secondhand vessels. Greek shipping companies with a background such as Danaos, Costamare, Tsakos, Capital etc. are living proof that, even when times are hard, with proper handling, smart decisions and last but not least flexibility one can acquire the recognition for being at the top of the most dynamic and fast-growing companies (I. Theotokas, 2007)

2.1. Company and Market

The shipping industry is a global business which influences from all over the world in aspects ranging from economical, geopolitical, touristic fields etc. Shipping is so gigantic and complex with over 5.000 years of history and so far reaching, that nowadays the shipping industry includes more than 60.000 commercial ships globally and transfers approximately 99,6% of all materials. Suffice it to mention, that in 2005 approximately 7 billion tons of cargo between 160 countries were transported, with the most important ports being Amsterdam, Copenhagen, London, Piraeus, Hong Kong etc. (Martin Stopford, 2009). Shipping is an industry which provides job opportunities for every kind of personnel. Apart from the seafarers and the companies' internal staff, the shipping industry needs personnel at ports, at shipyards, at scrap yards etc. for its smooth operation at all levels, making the shipping world an ideal environment for lucrative business transactions, while at the same time offering promising prospects for professional evolution.

For its existence, for the very meaning of shipping, two parties are essential, namely the shipowner, who provides a vessel and the cargo owner who desires to sell products all over the world. The negotiations as well as the finding of the proper vessel for a specific cargo are handled by the so-called shipbroker. (Th. Pagonis, N. Pentheroudakis, 2019) The broker is responsible for referring the wishes and demands of each party to the other and has to successfully conclude a deal between them. Another transaction which has to be approached successfully is the deal between the ship owner's vessel and the port authorities. The shipowner or the Master of the vessel has to comply with every regulation of the ports their ships will touch, i.e. applying for permission concerning the vessel's arrival, stay and departure etc.. The mediator for this kind of transaction is the so-called Shipping Agent.

From all the above, it is perceivable how colossal an industry the shipping world actually represents. This is why nowadays, where conglomerates of goods and materials have to be transferred on a daily basis, the shipping services have been divided by analysts into distinctive, separate markets and every company is free to choose which ones they want to be a part of.

2.1.1. Types of Fleets

As afore mentioned in the above subchapter, a shipowner or the group of owners before creating a company have to choose what type of fleet they wish to present. In the next chapters it will become apparent, that the majority of shipowners were

already part of the shipping industry, mostly either as masters or engineers. The merchant fleet can be divided into 4 main categories:

- Bulk Cargo Fleet
- General Cargo Fleet
- Specialized Cargo Fleet
- Non-Cargo Fleet

The first one, the Bulk Cargo fleet, has to be subdivided into 3 segments, namely Tankers, Bulk Carriers and Combined Carries. Vessels, whose deadweight exceed 10.000, such as VLCC (>200.000 dwt), Suezmax (120-199.999 dwt), Aframax (80-120.000 dwt), Handy (10-60.000 dwt) are considered Tankers, whereas vessels with a deadweight below 10.000 fall into the category of Small Tankers. This type of vessels carries crude oil and oil products in general. Bulk Carriers are vessels which transfer ore, coal, grain and corn. Exactly like Tankers, Bulk Carriers are divided into several types, such as Capesize (> 100.000 dwt), Panamax (60-100.000 dwt), Handymax (40-60.000) as well as smaller vessels like Handy (10-40.000). Last but not least, Combined Carriers constitute a smaller category and include vessels which can transfer dry and wet cargo. (M. Stopford, 2009)

The next type is the General Cargo Fleet, which includes all container ships appropriate for the transfer of cargoes which need to be filled in containers. A containership is configured in a specialized way, which allows it to stow all of its decks. According to the circumstances, i.e. weather, capacity, kind of material, the size of the vessel etc., the appropriate use is decided upon. All of the above but most of all it is the size of the vessel which is the deciding factor for the choice of cargo. A containership is measured in Twenty Foot Equivalent Units or TEU and is divided into different types because of it. That means that a container-ship which surpasses 3.000 TEUs is classified as Large, whereas if it ranges between 1.000 to 2.999 TEUs it is considered Medium and finally a vessel, capable of carrying 100 to 999 TEUs is compartmentalized as Small. Furthermore, the General Cargo Fleet includes the Ro-Ro vessels used to carry wheeled cargoes such as cars and trucks. Their size could span from 100 TEUs as high up as 50.000 TEUs, followed by yet another category, the so-called MPPs, a type of multipurpose vessel, usually equipped with their own loading gear, adaptable for the transport of an array of goods and as working ship alike. General cargo vessels carry various goods such as chemicals, food, machinery, clothes, to name but a few. In 2007 the absolute number of MPPs amounted to 2.618 with their TEUs spanning from 100 to 2.000. (Martin Stopford, 2009).

The 3rd category referred to above is the Specialized Cargo Fleet. Cargoes such as chemicals, gas, forest products, vehicles, refrigerated cargo and finally people, which are more demanding in terms of transportation are including in this group. This particularly sensitive cargo category requires a special fleet of vessels to guarantee their safe transport, i.e. chemical tankers, gas tankers, refrigerated ships and vessels which are equipped with heavy lifts etc. These particular vessels are constructed to be able to transport their cargo exactly the same way it was loaded. This is why LNGs and LPGs transfer liquefied gas at very low temperatures and Refrigerated ships

transport frozen commodities including meat, fruits and vegetables, to name but a few (M. Stopford, 2009)

Last but not least, there is also the Non-Cargo fleet included in the commercial shipping industry. This particular fleet is related to maritime business activities, since it consists of tugs which are used in ports, Dredgers which are responsible for clearing shipping channels and cruise ships and ferries which carry people.

2.1.2 Shipping Markets

The shipping industry, as already demonstrated in previous subchapters, is enormous and the quantities and qualities of commodities which are transferred are colossal, which is why the analysts decided to split it into 4 closely related shipping markets with the purpose of analyzing the shipping world under different spectra and be able to discover vital data in their attempt to interpret and evaluate this particular industry. These 4 sub-markets that the shipping community is divided into are:

- The Freight Market, where the shipowners trades for the transportation of the cargo with the owner of the latter.
- The Sale and Purchase (S&P) Market, where the shipowners negotiate the acquisition and vending of secondhand vessels.
- The Newbuilding Market, where the shipowners order new vessels.
- And last but not least the Demolition Market, where the owners make a profit from "relinquishing" vessels, which have outgrown their usefulness in a scrap yard.

It is worth mentioning that every one of these sub-markets plays a decisive role in the healthy operation of the shipping industry and this is why, the renowned economist Jevons in the 19th century provided a definition, which explained: "The central point of a market is the central exchange, mart or auction room where traders agree to meet and transact business…. But this distinction of locality is not necessary. The traders may be spread over a whole town, or region or country and yet make a market if they are…. in close communication with each other". It goes without saying that the main principal of the above definition is still effective against a general background nowadays, since in our century this maxim applies even more than it did in the 19th century, for 21st century innovative high-tech communication equipment has made physical contact obsolete. Every market specializes in different set of transactions. For instance the Sale and Purchase Market deals in second hand vessels, the Freight Market is in charge of sea transportation, the Newbuilding Market trades in new vessels and the Demolition Market's objective is the vending of vessels which are for scrapping (Martin Stopford, 2009).

As outlined above, every one of the four sub-markets plays a paramount role second to none of the three others, attending to its own interests and assisting involved parties, with the end goal of maximizing the benefits for and the profits of the shipping industry. Let us consider first of all the Newbuilding Market, with its myriads of negotiations and trades between shipowners and proprietors of the

shipyards for newbulding vessels. The interpretation of a 'Newbulding' specifies that a vessel which did not exist before was constructed or will be constructed in a shipyard by a shipbuilder according to the precise demands of the client and under the supervision of the marine engineer. The shipowner or purchaser particularizes in detail the size and type of vessel and retains the services of the marine engineer and engages the shipyard he considers suitable for his needs. The shipyards make up a large and diversified group with more than 300 enterprises worldwide. Every shipyard, according to its size, personnel and machinery may in turn specialize in the production of a particular type of vessel or have the means for mass production of several models. It must be underlined here that the acquisition of a newbulding vessel with specific features constitutes a multimillion dollar deal with a multitude of clauses involved; it is common for the shipowner to employ a broker to handle such negotiations. The job of a broker consists in informing the shipyard about the demands of the shipowner and then draft a binding contract, which will outline each party's obligations within an agreed upon timeline, follow the progress of the operations until delivery and last payment, all of which obviously for an appropriate commission. According to H. Clarkson, the typical pattern of shipyard stage payments is the following:

a) Signing of contract accompanied by 10% of the payment
b) Steel cutting 22.5%
c) Keel laying 22.5%
d) Launching 22.5%
e) Delivery 22.5 % last payment

The next market which is very similar to the previous one is the Sale and Purchase Market. Exactly like the Newbuilding Market, the S & P Market is a place where shipowners negotiate the purchase and sale of vessels, with the main difference being, that the vessels in question are not new but second-hand vessels. The S & P Market is typically characterized by a rather simple kind of private transaction between the owners which in this case are the seller and the buyer. The procedure which is followed is quite simple, too. First of all the seller puts the vessel on the market, either by himself or through a broker. Secondly, the condition of the vessels has to be assessed and its price negotiated (either by the seller personally or through his/her proxy i.e. the broker) taking into account the current situation of the market. When the market is on trough it follows that the owner is in immediate need of money and therefore the price of the vessel will be low; on the other hand when the market is on peak the vessel might reach a price as high as or even above a newly building, since the buyer's urgent need for a vessel is apparent, probably because otherwise he might find himself unable to keep up his obligations towards or meet the needs of cargo owners he wants to do business with. After negotiations concerning price and conditions the two parties either accept the proposed offer or the counter offer and a Memorandum of Agreement is drawn up, which sets out the terms of the sale and where it will take place. A Memorandum of Agreement (MOA) also known as partnership, is an agreement between two or more parties who agree to fulfill an agreed upon work or target. It has to be pointed out that the MOA is a non legal document and can therefore not be executed in a court. After the MOA the buyer

hires a surveyor to make the necessary inspections and evaluate the condition of the vessel. It is the surveyor's responsibilities to conduct a thorough physical inspection, to have divers check the vessel underwater thus ensuring that it fulfills all requirements of the classification society. The condition of the vessel determines whether the buyer will ultimately decide to go ahead with the acquisition of the ship or turn to another dealership. Last but not least, the so called closing. The closing constitutes the final stage, where the vessel is delivered to the new owners where upon the transfer of the agreed amount of money to the seller's bank is due.

After the purchase of a vessel, be it secondhand or newbuilding, the shipowner starts searching appropriate kinds of cargo to load and transfer. This is where the Freight Market comes into the picture, or as Jevons wrote in the 19th century the so called "Baltic Shipping Exchange", since the first trade of shipping took place in the Baltic Coffee House. Nowadays as mentioned above, unlike the practices applied in the past, the need for physical contact has become obsolete and the exchanges are fulfilled via telephone calls, e-mails or messaging services. Moreover, the Freight Market is divided into separate markets for different kind of vessels. These markets have immediate connection among each other but they are compartmentalized according to the types of vessel, such as tankers, bulk carriers, container-ships, gas tankers and chemical tankers and they are impacted both by short term and long term freight rates. Furthermore transactions in the Freight Market are classified into two different types of transaction: a) the freight contract, where the charterer purchases transport from the shipowner at a fixed price per ton of cargo; and b) the time charter under which a vessel is hired on a daily basis (Martin Stopford, 2009). The Freight Market, due to its vastness and its immediate and direct contribution to the needs and requirements of three parties, namely first the shipowner, who provides the vessel and therefore consents to reveal the technical characteristics of it, such as speed, cargo capacity, dimensions etc., second the cargo owner or charterer, who requires transport for his cargo from one port to another, who will disclose information concerning the quantity and quality of the cargo in question, as well as any other characteristics and last but not least the time schedule and third the broker, who applying all the above mentioned factors searches the market for a suitable and available vessel to contract and bringing the first two parties together contributes to the closing of the deal. It is worth mentioning here, that the most important factor, after finding both a suitable shipowner as well as a relevant cargo owner, is the decision on the kind of contract that will have to be signed.

The most common contractual arrangements are four. First and foremost, the Voyage Charter (VC), which provides transport for a specified cargo from port A to port B for an agreed upon price per ton (Martin Stopford, 2009). The broker fixes a vessel under a specific price per ton, the terms are agreed by the charter-parties involved where upon the deal is closed. In case the terms outlined in the deal of the charter-parties are not followed there will be a claim by the injured party. For example, if laytime (i.e. port time) at a harbor is agreed upon as five days whereas the actual time spent anchored at a port is seven days, the shipowner submits a claim for two days' demurrage to the charterer. By the same token, if the vessel spends only 3 days in port, the charterer will submit a claim for 2 days' despatch to the owner. The rates for

demurrage and despatch are stated in dollars per day by the charter-parties. Last but not least, the Capital costs, such as Capital and Brokerage as well as Operating Costs, namely wages, repairs and insurance, Port costs and Bunkers are all remunerated by the owner.

The second type is the Contract of Affreightment (COA). This is the type where the shipowner agrees to transport a series of cargo units for a fixed price per ton. The COA is commonly applied in the dry bulk category of iron ore and coal for example. This contract, albeit being regarded as slightly more complicated, provides the shipowner with several useful choices concerning the most efficient way to transport the cargo. Again in respect to the costs, both in COAs and VCs, the shipowner assumes the burden.

Moving on to the third type we find the Time Charter (TC). A Time Charter contract allows the charterer to acquire the operational control of the vessel which will transport his cargo while leaving the management of it to the shipowner. A Time Charter contract is divided into two types, according to the time the voyage will last. On one hand there is the contract restricted to one voyage, which the analysts call Trip Charter while its counterpart, the so called Period Charter, regards a period of time (namely months or even years). In the case of Time Charter both shipowner and cargo owner can calculate precisely the amount of money that will have to be spent on costs. In this contractual practice, Capital Costs and Operating Costs are compensated by the shipowner however; Port Costs and Bunkers are paid by the charterer. Last but not least, the Bare Boat Charter. In this transaction the shipowner concedes free operational use of the vessel to the charterer for a specific period, usually as extensive as 10 to 20 years (Martin Stopford, 2009). This kind of contract is particularly suitable for cargo owners who are in need of a vessel for a lengthy period of time although at the moment they do not plan on purchasing one or are financially unable to do so. The charterer therefore assumes full and exclusive responsibility of paying all the costs, such as Operating, Bunkers and Port Costs, whereas the shipowner remunerates eventual Capital Costs.

The fourth sub-market of the shipping industry is the Demolition or Recycling Market as mentioned in 2.1.2. The vessel cannot be used any longer by its owner to continue trading with the charterers; therefore he usually turns to a broker, who will handle a deal to sell the vessel to a scrap yard. This is the final stage of a vessel's life, since after this it will be converted into scrap. The scrap yards buy according to a price to be determined after negotiations between the owner and intermediaries depending on the scrap yards' availability to accept vessels for scrap and also the current demand for metal. Moreover, the price is set mostly by the broker or the broking company the reason being, that a well informed broker is aware of all recent sales, since he is 'on the market' so to say, he is knowledgeable on who is buying at a specific point of time (Martin Stopford, 2009). The most well known demolition yards are located in the Far East (China, Pakistan and Bangladesh). In short, the Demolition Market is responsible for 'destroying' old vessels and using their metal for themselves or selling it off.

2.2 Shipping Market Cycles

Shipping Market Cycles or Shipping Cycles are economic cycles determined by the fluctuations of the freight rates, which in case of supply or demand spinning out of control, correct the market. Therefore, whether the freight rates move up, move down or stay unchanged, it is the role of a Shipping Cycle to keep the shipowners apprised of the situation on the market. Both analysts as well as economists decided to analyze the Shipping Market Cycle in a deeper sense for which they applied a technique known as 'decomposition'. They observed that these cycles presented some variations by comparing the past with the present and venturing probable predictions for the future. Cournot, the French economist, stated that 'it is necessary to recognize the secular variations which are independent of the periodic variations' (Martin Stopford, 2009). That was the reason why the analysts decided to distinguish the Shipping Market Cycles into 3 categories, the Long-term Cycle or 'Secular Trend', Short-term Cycle or 'Business Cycle' and the third category, i.e. the Seasonal Cycles, which represent normal fluctuations occurring within a year. In short, market cycles may be considered the driving force behind shipping investment and chartering. They are in fact the very heartbeat of the shipping market, pumping cash in and out of the business. By obliged companies to compete with each other for a share of this wealth, the market lures them in the direction needed to guarantee the most efficient use of all resources. In fact these "cycles" are so deeply embodied in the culture and tradition of this industry, that it seems hardly necessary to define them.
Furthermore as afore mentioned, the first cycle is specified as the Long-term Cycle or 'Secular Trend'. This so called Long-term Cycle is a theory which was developed by Russian economist Nikolai Kondratieff. According to Kondratieff, a 'Secular Trend' is driven by regional, economic and technical changes and has an approximate average 'life' span of 50 years. After Kondratieff, a plethora of economists tried their best to interpret the Long Shipping Cycles, albeit with different amount of success or failure. After painstaking research they reached the conclusion that the length of an average cycle from peak to trough stretched over 20 to 30 years and they identified their initial upswings starting in 1790, 1844 and 1895 as the most famous of all times. For instance, one of them who tried to analyze the longer cycles in depth, was the French historian Fernand Braudel, who found that the most remarkable and outstanding peaks in the shipping industry had taken place in 1315, 1650, 1817 and in 1973.

The second component is the Short-term Cycle or 'Business Cycle' as referred to in shipping. It is obvious that the length of this particular cycle is inferior to the Long Cycle and according to Stopford the cycles fluctuate up and down, with an integrated cycle being estimated to last from 3 to 12 years from peak to peak. It constitutes the most common cycle and depends mostly on current demand and supply but also on the freight rates. In the modern shipping theory the Short Cycles undergo four different stages. The initial stage is the Trough. The Trough is the lowest point of the short cycle and it shows three characteristics. First of all, the operating cost of a vessel exceeds the freight rate which will inevitably result in numerous vessels being immobilized. Secondly, in cases when there is low demand of a certain product versus the high operating cost of a vessel needed for its transport, one might be faced with a surplus shipping fleet which will unavoidably remain unused, thus forcing many shipowners to deal with the dilemma to either sell their vessels in order to pay off

their debts and meet the operating costs of their remaining working vessels or face the specter of bankruptcy. And the third characteristic is that the value of a vessel has sunk below 10% of its initial value.

The second stage of the shipping cycle is what is referred to as the Recovery. After an extremely disadvantageous period for the shipping industry such as the Trough, when supply and demand are finally on their way towards some sort of balance, that is when the analysts talk about the Recovery. Moreover, at this stage freight rates slightly exceed operating costs, leading to more vessels entering the market which will eventually result in a balance in general. Because this stage represents what might be called a middle stage, half way between the bottom and the top, no one can responsibly predict how many years it will last. There have been cases when the completion of a cycle had been estimated in 7 years, while the market however needed 4-5 years from Trough to Peak.

The third and most anticipated stage is the Peak or Plateau. On this stage the demand by far exceeds the supply and all available vessels operate at full speed. When the market finally reaches the Peak, all ships which had been laid up so far, are offered for outrageously excessive payment by the brokers. Extreme speed must be applied during the negotiations because obviously no one can predict and estimate how long the current Peak will last. It could be restricted to a few days, months or span over several years. The freight rates reach heights which occasionally exceed the operating costs by 3 to 4 times or even more. The shipowners are in immediate need of vessels and this explains the reason why a second hand 10 year old vessel may be more expensive than a newly one. In addition, the market generates high earnings for every party involved; therefore the banks are more open to extend higher credit to the shipowners who in turn proceed to ordering an increased number of newbuilding vessels. Moreover, the majority of the shipping fleet is in operation, with only the most inefficient ships left to idle in trading ports. In times like this cash flow for the shipping companies is obviously quite high.

The fourth and last stage of the shipping cycle is the Collapse. After the Peak, the market switches back to its regular trend due to the increase in orders for new vessels in the previous stage, the afore mentioned Peak, with the supply of the capacity now by far overtaking demand. Nevertheless, liquidity continues to remain at increased levels, while sale and purchase of ships are steadily reducing which in turn leads to a significant fall in freight rates. Moreover, the vessels are no longer used at full speed, but kept going steadily in order to avoid excess fuel consumption while the older vessels which have outgrown most of their usefulness are left at ports waiting for cargo. In a complete shipping cycle of approximately 7 years, the analysts believe that the Collapse period may last for as long as 1.5 to 2 years.

The third and last component of these cycles which often occur in shipping, usually in the form of fluctuations in a calendar year and normally during specific seasons, as the consequence of seasonality and 'behavior' of demand is the so called Seasonal Cycle. If we take, the transport of agricultural products as an example, we have to highlight seasonality as a prerequisite since crop is harvested in a particular season. By the same token when it comes to oil storage seasonality must be equally observed

since winter will be the period highest demand. From the above, we conclude that there is no fixed rule for predicting and tracking a cycle, for each cycle shows its own characteristics and does not resemble any other. What cannot be stressed enough is that maritime cycles are directly linked to maritime risk and it stands to reason that their economic role in the maritime sector is paramount. For example, investing in a ship that ultimately fails to bring in the expected profits for the shipowner, who thus is unable to meet his/her obligations and various other requirements, constitutes a maritime risk. We must keep in mind that ultimately the risk takers are the shipowners and cargo owners who wish to move their cargoes from one place to another, and each of them will go to any lengths to protect their personal financial interest which at times might be in conflict with that of the other party involved. Be that as it may, any decision taken by either party will not change the size of the maritime risk, which will simply be redistributed accordingly.

The next chapter concerning some Greece's most prominent shipping companies will try to outline how they have achieved success and a place on top of the shipping world and how financial ratios can be applied for each of them.

3. Financial Ratios and Greek Shipping Companies

The third chapter will examine twelve (12) Greek shipping companies and delve deeply into the five years' average of each company's financial ratios, obviously taking into account that each company has its own size, kind, fleet while applying its own diversified strategy. That is what makes every company unique. However, the survival of an enterprise depends mainly on the financial ratios we have already referred to. In this chapter the discussion will focus on the average financial ratios limited to a five year period in regards to the afore mentioned twelve Hellenic shipping companies. To be more specific the analysis will include the trends of every company and how it influences the company as a unit, as well as the investors, the whole industry and last but not least the people who work for or with it. Moreover, the combination of the financial ratios' average of each company will allow the readers to understand each firm's individual modus operandi and the reason why the company needs those indicators and ratios to ensure a smooth business activity. Apart for the identity of each company and the way it operates, it is imperative to explain the impact of the financial ratios, because according to the theory mentioned in the first chapter, there is a balance point for every ratio, which some companies manage to be on the positive side of, while others struggle with, being in the negative.

For instance, for a company to be considered a financial healthy unit in regards to the Solvency Ratio, it needs the sub ratio Debt Ratio to be less than 1.0, the Debt to Equity Ratio to be less than 1.5 and the Interest Coverage Ratio to surpass 1.5. It should also be pointed out here that, when a company manages to present the above sub ratio prices, it is not only deemed financially viable, but also that it is capable of meeting its long-term obligations.

One more ratio which indicates the financial health of a company and shows its ability of confronting any short-term liabilities is the Liquidity Ratio. The Liquidity Ratio is divided into three categories, the Current Ratio, the Quick Ratio and last but not least

the Cash Ratio. A shipping company is considered safe and sound, as well as able to pay off its current obligations, when the Current Ratio price is above 1.5, the price of the Quick Ratio exceeds 1.0 and the price of the Cash Ratio surpasses 1.0.

The last ratio of interest this dissertation examines is the Profitability Ratio which demonstrates a company's profits. The ROE, the ROA, the ROS and the Gross Margin constitute the sub categories of the main ratio which is mentioned above. If a shipping company desires to be considered a profitable unit all of these 4 must exceed zero and to be more precise 0.1.

However, it is worth mentioning here that the financial ratios and the way their prices impact and influence each company will be analyzed not only in this chapter but in following subchapters as well.

3.1. Danaos Corporation

The Athens and Limassol based Danaos Corporation is among the most substantial Greek companies with one of the largest independent owners of modern, large-size containerships at its head. The founder of the company is Dimitris Coustas. Mr. Coustas bought his first ship, a 3,600 dwt single-deck freighter, in 1963 and created the Danaos Shipping in 1973, which was later changed to "Danaos Corporation" a name assumed in 2005 with the incorporation into the Republic of Marshall Islands in 2005. The company entered the New York Stock Exchange (NYSE) under the distinctive name "DAC".Today the company has 71 containerships with a total capacity of 436,589 TEUs with an average age of approximately 12.3 years in its possession (DAC, annual report, 2020). The Danaos Corporation charters its vessels to many of the world's largest liner companies and its fleet is considered one of the most contemporary including some of the biggest vessels in the world, 5 of 13,100 TEU. (Kaltsa, 2018) Moreover, the Danaos Corporation, through its immediate managing partner Danaos Shipping, employed approximately 1.296 seafarers on board of its vessels and 153 people who provided service to them on shore by the 31th of December, 2020 (Danaos, Annual Report, 2020). After the entrance to a Stock Exchange, every company is obligated to publish its annual report. The Danaos Corporation has published every element a future investor will need to compare it either with other companies in the same industry or to contrast different years of the same company.

Financial Ratios of Danaos Corporation

		2016	2017	2018	2019	2020		Average
SOLVENCY RATIOS								
a) Debt Ratio		0,84	0,81	0,74	0,67	0,61		**0,734**
b) Debt to Equity Ratio		5,4	4,44	2,8	2,04	1,62		**3,260**
c) Interest Coverage Ratio (ICR)		1,92	2,05	2,23	2,68	3,57		**2,490**
LIQUIDITY RATIO								
a) Current Ratio		0,05	0,05	0,54	0,85	0,49		**0,396**
b) Quick Ratio		0,05	0,05	0,5	0,82	0,45		**0,374**
c) Cash Ratio		0,03	0,03	0,35	0,62	0,27		**0,260**
PROFITABILITY RATIO								
a) ROE		-0,75	0,15	-0,04	0,14	0,14		**-0,072**
b) ROA		-0,11	0,03	-0,01	0,05	0,05		**0,002**
c) ROS		0,4	0,41	0,43	0,44	0,43		**0,422**
d) Gross Margin		0,48	0,46	0,49	0,50	0,48		**0,482**

Figure 1: Financial Ratios 2016-2020 according to WSJ market

The Danaos Corporation constitutes a shipping firm, with more than 70 containerships in its possession with a total capacity of approximately 435,000 TEUs. It is safe to infer therefore that it represents an enticing company for future investors since its stock price is increasing constantly, having extended as high up as $95. The investors insist on assessing the situation of the company from the past up to date on a financial, economic and liquidity level. The Danaos Corporation has managed to keep up its predominant status from 2016 until 2020 in the shipping industry. First of all, the Danaos Corporation has improved its Solvency Ratios, since its Debt Ratio and the Interest Coverage Ratio (ICR) have risen from 0.84 and 1.92 in 2017 to 0.61 and 3.57 in 2020, respectively. Although, in order to be considered safe as a company the Debt to Equity Ratio should be below 1, which here obviously is not the case, the company took calculated risks and eventually managed to diminish this ratio from 5.4 in 2017 to 1.62 in 2020, meaning that for each dollar of equity the debt amounts to $1.62. This development which occurred within these 5 years definitely allows for optimism both in the eyes of future investors and the owners of the company. The Debt Ratio shows an average "price" of 0.734, a positive factor in general since it is below 1.0 and bears witness to the fact, that the company finds itself in good financial shape and has the ability to meet its long-term liabilities without risk. Last but not least it is worth mentioning here, that the company's ICR is well above 1.5, namely at an average of 2.490, which gives cause for even more optimism since the higher the ratio the better for a company's capacity to meet its current interest payments with the current income.

In respect to the Liquidity Ratio, the Danaos Corporation obviously does not have this ratio on high standards, although it shows that the company can meet the short term liabilities. The Liquidity Ratio consists of three types, the Current Ratio with an average of 0.396, the Quick Ratio with 0.374 and last but not least the Cash Ratio with an average of 0.260. According to the data, the Liquidity Ratio is less than the desired result which means, that the company will hardly be paying its current liabilities. However, this is not too worrying for future investors since the company has organized its priorities in a way, that will enable it to pay its future liabilities. In addition, there is the Profitability Ratio of the company. The average of ROE is -0.072, ROA is 0.002, ROS is 0.422 and Gross Margin is 0.482. According to the theory and the average of Profitability Ratios, ROE shows how efficiently the company has been using its capital to create profit and the number which occurs is negative, meaning that the company has made mistakes in using its funds. The trend of ROA while remaining on low levels is however not negative. In comparison to ROE, ROS and Gross Margin have kept steady fluctuations with the average being 0.422 and 0.482 respectively. Investors and analysts primarily use these last two ratios as indicators for the viability of the company and as it seems both of them represent positive outcome.

3.2. Costamare Inc.

The Costamare Inc. constitutes one of the world's leading companies, which provide containers for charter. This particular company looks back at over 45 years of history and was established by Captain Vasileios Konstantakopoulos with the purchase of his first vessel, a 2.000 ton general cargo ship. The Costamare Inc., today owns a fleet of 79 containerships with a total capacity of more than 585.000 TEU and 44 dry bulk vessels with a total capacity of approximately 2.379.000 DWT. This mega firm nowadays employs its vessels under long time charters in cooperation with leading liner enterprises. The company was first admitted into the New York Stock Exchange in November of 2010 under the distinctive name 'CMRE'. Costamare Inc. has managed to be considered one of the most reliable companies and services companies such as liner shipping which demand security and liability worldwide. Moreover, its ultimate aim apparently is to remain on top which is why it continuously buys and sells vessels. Furthermore, in an attempt of alternative funding it created a joint venture with York Capital Management for the acquisition of containerships from ownership entities and its personal capital amounts to 49%. In 2020 Costamare Inc. replaced 5 vessels with an average age of 21.6 years and an average capacity of 3.998 TEUs with 5 newer vessels with an average age of 13.5 years and an average capacity of approximately 5.000 TEUs. The average age of the company's containerships is currently 10 years. Costamare Inc. is characterized as a company with a diversified fleet since it owns 2 different types of vessels, containers and dry bulks, and it does business within the two markets alike.

Financial Ratios of Costamare Inc.

		2016	2017	2018	2019	2020		Average
SOLVENCY RATIOS								
a) Debt Ratio		0,58	0,51	0,55	0,53	0,55		**0,544**
b) Debt to Equity Ratio		1,38	1,04	1,24	1,13	1,23		**1,204**
c) Interest coverage Ratio (ICR)		4,17	2,89	3,75	2,22	2,60		**3,126**
LIQUIDITY RATIO								
a) Current Ratio		0,75	0,82	0,76	0,74	0,93		**0,800**
b) Quick Ratio		0,71	0,78	0,71	0,7	0,88		**0,756**
c) Cash Ratio		0,61	0,67	0,53	0,58	0,72		**0,622**
PROFITABILITY RATIO								
a) ROE		0,07	0,05	0,05	0,07	0,006		**0,049**
b) ROA		0,03	0,03	0,02	0,03	0,002		**0,022**
c) ROS		0,44	0,39	0,6	0,41	0,38		**0,444**
d) Gross Margin		0,53	0,48	0,65	0,47	0,45		**0,516**

Figure 2: Financial Ratios 2016-2020 according to WSJ market

Costamare Inc. is a company with a diversified fleet, having in its possession 79 containerships and 44 dry bulk vessels and its stock price is $15.92 on NYSE. First of all, the Solvency Ratios of the company are in remarkable shape, since the average of its Debt Ratio is below 1.0 with a price of 0.544, the Debt to Equity Ratio is below 1.5 with a price of 1.204 and last but not least the ICR, which used to have a higher price in 2017 (4.17) but fell with time landing at 2.60 in 2020. Furthermore, the average of the ICR still maintains a high level, i.e. 3.126. That means that the company has the capacity of meeting its long-term liabilities and its financial health is definitely positive. Secondly, we need to examine the Liquidity Ratio in order to assess whether Costamare Inc. can face its current liabilities. The average of the Current Ratio, Quick Ratio and Cash Ratio are 0.800, 0.756 and 0.622 respectively, meaning that according to the theory of the first chapter, Costamare Inc. cannot meet its short-term obligations in full, even though it will pay a substantial part. Thirdly, the Profitability Ratio, which is divided into 4 types, ROE, ROA, ROS and Gross Margin. The average of ROE and ROA remain on low levels but with positive signs, with a price of 0.049 and 0.022 respectively. ROS and Gross Margin are in a better shape with an average of 0.444 and 0.516.

3.3. Top Ships

In comparison to the two companies mentioned above, Top Ships is considerably newer. Evangelos Pistiolis, the owner, found it in 2000 when he purchased his first tanker vessel. Nowadays the company has established a green strategy, acquiring either newbuilding or secondhand vessels solely with ECO design. Furthermore, the 12 'ECO' tankers that the company has in its possession, mainly transport petroleum products (both clean and dirty) and bulk liquid chemicals. Top Ships commands one of the youngest fleets in the world with an average age of 1.5 years, suffice it to say that the 'oldest' was built in 2019. The company has entered NASDAQ in 2004 under the distinctive name "TOPS" and was incorporated in the Republic of the Marshall Islands. Top Ships is one of the few commendable companies which use only ECO-friendly tankers while at the same time being so successful to boast a total gross revenue backlog of approximately 200 million dollars in 2018 for the fixed period of the time charters of their fleet. In addition, the company has tried to adopt a low-cost structure, reducing the management fees to $550 per vessel per day since January 2019 as well as the operating expenses which are below average in comparison to similar companies in the industry.

Financial Ratios of Top Ships

	2016	**2017**	**2018**	**2019**	**2020**	**Average**
SOLVENCY RATIOS						
a) Debt Ratio	0,67	0,51	0,59	0,76	0,54	**0,614**
b) Debt to Equity Ratio	2,03	1,06	1,47	3,2	1,18	**1,788**
c) Interest coverage Ratio (ICR)	0,55	0,04	-0,4	0,89	0,73	**0,362**
LIQUIDITY RATIO						
a) Current Ratio	0,23	1,12	0,14	0,67	1,77	**0,786**
b) Quick Ratio	0,19	1,1	0,13	0,66	1,75	**0,766**
c) Cash Ratio	0,07	0,99	0,04	0,07	0,76	**0,386**
PROFITABILITY RATIO						
a) ROE	0,02	-0,12	-0,1	-0,13	-0,17	**-0,100**
b) ROA	0,007	0,06	-0,04	-0,03	-0,07	**-0,015**
c) ROS	0,06	0,01	-0,09	0,24	0,25	**0,094**
d) Gross Margin	0,22	0,07	0,25	0,41	0,39	**0,268**

Figure 3: Financial Ratios 2016-2020 according to WSJ market

Top Ships is an ECO-friendly shipping company with 12 tanker vessels, whose stock price reaches $1.0. As a smaller company, compared to the afore mentioned ones, it applies a different approach in regards to its financial ratios. First of all, the Solvency Ratios and the average of the Debt Ratio, Debt to Equity Ratio and ICR being 0.614, 1.788 and 0.362 respectively shows that the company can meet its long-term liabilities, even though according to ICR it will be a challenge to handle its interest payments with the current income. As for the Liquidity Ratio and the short term liabilities, Top Ships is unlikely to meet them judging by the Current Ratio with an average of 0.786, the Quick Ratio with 0.766 and the Cash Ratio with 0.386. In spite of the low average of the Liquidity Ratio it must be emphasized here, that all three ratios showed an important increase since in 2016, when the Current Ratio was 0.23, the Quick Ratio was 0.19 and the Cash Ratio was 0.07, whereas in 2020 it rose to 1.77, 1.75 and 0.76 respectively. The Profitability Ratio of this company is divided into 4 categories, with the average of the first two being negative while the rest is positive. The subcategories, Return on Equity (ROE) and Return on Asset (ROA) have a negative sign, with an average of -0.1 and -0.015 respectively, showing that the company during those 5 years did not have an efficient return, neither on equity nor on assets. On the other hand, the Return on Sales (ROS) as well as Gross Margin present positive signs even though marginally. The company's averages for these 5 years are 0.094 for the ROS and 0.268 for the Gross Margin, which proves that the company increased its sales in the last two years, namely in 2019 to 0.24 and in 2020 to 0.25 from 0.06 in 2015 and -0.09 in 2018. In regards to the Gross Margin, the positive sign attracts future investors and reassures existing ones.

3.4. Tsakos Energy Navigation Ltd. (TEN)

Tsakos Energy Navigation Ltd. (TEN) was established as a company in 1993 and has been growing ever since. Furthermore, it commands one of the largest and independent diversified fleet of modern crude and product tankers with powerful ice-class capabilities, shuttle tankers and liquefied natural gas (LNG) vessels. TEN's average fleet age is 7.5 years against the average age of the world's tankers fleet which amounts to 10 years. TEN is incorporated in Bermuda, but retains its main offices in Athens, is listed in the Bermuda Stock Exchange (BSX) under the symbol "TEN" and in the New York Stock Exchange (NYSE) since 2002 under the symbol "TNP". This particular company has managed to hold a leading position as an international trade transporter of energy for the last two decades. Moreover, the majority of its vessels have been employed on long- or medium-term employment with fixed rates. Since 2015 its overall average fleet utilization rate has been 97%. TEN Ltd. and its technical manager, Tsakos Columbia Shipmanagement S.A. (TCM)

have made it a priority to ensure consistent protection of the environment since they follow all the protocols of IMO implementing and maintaining Health, Safety and Quality guidelines, as well as Environmental and Energy management systems, which are certified in accordance to the ISM Code. Apart from the environmental awareness, TEN continues to demonstrate the highest regard for their personnel by recruiting and hiring the most professional crews available, providing them with the most sophisticated and efficient training and education imaginable to ensure not only the safety of the vessels but above all the safety and well being of the human factor, that will be operating the vessels.

Financial Ratios of Tsakos Energy Navigation Ltd.

		2016	**2017**	**2018**	**2019**	**2020**		**Average**
SOLVENCY RATIOS								
a) Debt Ratio		0,56	0,55	0,52	0,53	0,55		**0,542**
b) Debt to Equity Ratio		1,31	1,23	1,12	1,14	1,25		**1,210**
c) Interest coverage Ratio (ICR)		2,28	1,09	0,5	1,53	2,47		**1,574**
LIQUIDITY RATIO								
a) Current Ratio		0,91	0,9	1,25	1,12	0,84		**1,004**
b) Quick Ratio		0,86	0,85	1,17	1,08	0,78		**0,948**
c) Cash Ratio		0,51	0,61	0,87	0,56	0,45		**0,600**
PROFITABILITY RATIO								
a) ROE		0,03	0,005	-0,06	0,01	0,01		**-0,001**
b) ROA		0,01	0	-0,03	0,004	0,007		**-0,002**
c) ROS		0,18	0,13	0,07	0,18	0,2		**0,152**
d) Gross Margin		0,23	0,19	0,12	0,23	0,25		**0,204**

Figure 4: Financial Ratios 2016-2020 according to WSJ market

Tsakos Energy Navigation Ltd. (TEN) is a company with a diversified fleet of 64 vessels and its current stock price has reached $8.46. TEN has managed to be a well-known and established company worldwide, a rank achieved principally by using its assets and its equity wisely. For instance, as demonstrated by its Solvency Ratios, Tsakos Energy Navigation Ltd., can successfully face its long-term liabilities. Its Debt Ratio has almost steady fluctuations and an average of 0.542. The debt of the company represents approximately one half of its assets. The second ratio, Debt to Equity, has an average of 1.210 and the third one, Interest Coverage Ratio (ICR), has an average of 1.574. The average of the Debt to Equity Ratio is found below 1.5 whereas the ICR is above 1.5, the so-called balance stage. That means that the company has shown its capacity to meet all future obligations with great success.

Moreover, according to the theory and the average of the Liquidity Ratio, TEN like the previously mentioned shipping companies, though being able to meet its short-term liabilities to the better part, failed to do so in full. The three subcategories, Current Ratio, Quick Ratio and Cash Ratio have an average of 1.004, 0.948 and 0.600, respectively. Since the company can meet its long-term liabilities and a substantial part of its short-term liabilities, the shareholders and the future investors are satisfied. In the matter of the Profitability Ratio, ROE and ROA are the two ratios which though showing a negative sign, are remarkably close to 0, since their average is -0.001 and -0.002 respectively. Despite, the negative average, of both ROE and ROA in those years the price remained positive except for 2018. On the other hand, ROS and Gross Margin maintain positive signs with an average of 0.152 and 0.204 respectively, and yet again the declining prices of 2018 resulted in a diminished average.

3.5. Diana Shipping Inc.

The Diana Shipping Inc. is a company which constitutes a global provider of shipping transportation services. Its fleet consists exclusively of dry bulk vessels; capable of transporting commodities such as iron ore, coal grain etc. and up to now it counts 34 vessels including, 4 Newcastlemax, 11 Capesize, 5 Post-Panamax, 6 Kamsarmax and 8 Panamax, with a deadweight capacity of approximately 4.4 million and as far as the average age of its fleet is concerned, it must be regarded as relatively new, since it is about 10.5 years. The above fleet is managed by the subsidiary of Diana Shipping, Diana Shipping Services S.A. and Diana Wilhelmsen Management Limited, a 50/50 joint venture with Wilhelmsen Ship Management. Their expressed main purpose is to maintain a high quality fleet of vessels, while at the same time strategically expanding its size and creating a strong balance sheet, with highly efficient operations in order to keep the costs at low levels. The Diana Shipping Inc. has been listed at the New York Stock Exchange (NYSE) under the name of “DSX” since 2005 and is incorporated in the Marshall Islands while is principal executive offices remain in Athens.

Financial Ratios of Diana Shipping Inc.

		2016	2017	2018	2019	2020		Average
SOLVENCY RATIOS								
a) Debt Ratio		0,36	0,49	0,47	0,46	0,5		**0,456**
b) Debt to Equity Ratio		0,57	0,99	0,89	0,87	1,03		**0,870**
c) Interest coverage Ratio (ICR)		-4,28	-1,96	1,28	1,25	-0,33		**-0,808**
LIQUIDITY RATIO								
a) Current Ratio		1,47	1,73	1,13	2,09	1,7		**1,624**
b) Quick Ratio		1,4	1,65	1,09	2,01	1,62		**1,554**
c) Cash Ratio		1,25	0,5	1,01	1,64	1,02		**1,084**
PROFITABILITY RATIO								
a) ROE		-0,15	-0,81	0,02	-0,02	-0,31		**-0,254**
b) ROA		-0,01	-0,41	0,01	-0,01	-0,15		**-0,145**
c) ROS		-0,82	-0,32	0,17	0,16	-0,04		**-0,170**
d) Gross Margin		-0,6	-0,16	0,3	0,3	0,16		**0,000**

Figure 5 Financial Ratios 2016-2020 according to WSJ market

The Diana Shipping, established in 1999 has managed to achieve a current stock price of $4.68. Obviously, as corporation on the stock market, it has received vital help from investors and its shareholders. According to the above table, similar to the previously mentioned companies, Diana Shipping apparently manages to pay its long term liabilities from the Solvency Ratios but has a hard time handling its current interest payments with its present income. In particular, its Debt Ratio and Debt to Equity Ratio have an average of 0.456 and 0.870 respectively while its ICR shows a negative sign, with an average of -0.808. In spite of the negative ICR, according to its Liquidity Ratio, Diana Shipping is the first company so far, which can meet both its long term as well as its short term liabilities. The average of the 5 years in terms of its Current Ratio is 1.624, the Quick Ratio is 1.554 and the Cash Ratio is 1.084. Diana Shipping has managed to keep its Solvency Ratio and Liquidity Ratio under control thus succeeding in holding on to its shareholders not to mention attracting new investors. However, the Profitability Ratio of the company is not up to the status of the other two ratios. Three of the four sub ratios, namely ROE, ROA and ROS, present negative signs, putting the profits of the company under question. The average of them is, -0.254 for ROE, -0.145 for ROA and -0.170 for ROS. Only the Gross Margin resulted in 0 for the period of those particular years.

3.5 The Star Bulk Carriers Corporation

The Star Bulk Carriers Corporation is a shipping company with global fame which provides seaborne transportation in the dry bulk sector. Like the Diana Shipping Inc., the Star Bulk Carriers transports major bulk, including iron ore, grain and minerals but also minor bulks which include bauxite, fertilizers and steel products. The company boasts 128 vessels ranging from 52.000 to 210.000 DWT, with an average capacity of approximately 14 million DWT, consisting of 17 Newcastlemax, 24 Capesize, 7 Post Panamax, 41 Kamsarmax, 2 Panamax, 20 Ultramax, and 17 Supramax with an average age of approximately 9.6 years. The Star Bulk Carriers has expressedly pronounced its focus and purpose to be the efficient transportation of cargoes while at the same time protecting human lives as well as the environment not to mention exceeding the standards of its customers. Moreover, it applies a strategy aimed at building and maintaining strong and viable relationships with all the counter-parties, from charterers and brokers to shipyards and financial institutions. The Star Bulk was incorporated in the Marshall Islands in 2006 and maintains its executive offices in Athens. Its common stock trades on the NASDAQ Global Select Market operate under the ticker symbol "SBLK".

Financial Ratios of Star Bulk Carriers Corporation

		2016	**2017**	**2018**	**2019**	**2020**		**Average**
SOLVENCY RATIO								
a) Debt Ratio		0,48	0,49	0,49	0,52	0,51		**0,498**
b) Debt to Equity Ratio		0,93	0,97	0,99	1,1	1,06		**1,010**
c) Interest coverage Ratio (ICR)		-1,47	0,71	2,04	0,86	0,95		**0,618**
LIQUIDITY RATIO								
a) Current Ratio		8,12	1,43	1,34	0,86	1,15		**2,580**
b) Quick Ratio		7,61	1,34	1,22	0,69	0,98		**2,368**
c) Cash Ratio		6,65	1,21	0,95	0,4	0,72		**1,986**
PROFITABILITY RATIO								
a) ROE		-0,14	-0,01	0,04	-0,01	0,01		**-0,022**
b) ROA		-0,08	0,00	0,02	-0,01	0,00		**-0,014**
c) ROS		-0,30	0,10	0,23	0,09	0,10		**0,044**
d) Gross Margin		-0.18	0.20	0.28	0.16	0.17		**0,126**

Figure 6: Financial Ratios 2016-2020 according to WSJ market

The Star Bulk Carriers Corporation being a gigantic company, according to its fleet of 128 vessels, holds a strong position in the Greek shipping industry as well as on the stock market exchange with a stock price of $28.60. As a financially potent company, it has managed to remain on top and earn the trust of investors, meeting with great success its short and long- term liabilities successfully. For instance, with the three parts constituting the Solvency Ratio exceeding the base, namely the average of the Debt Ratio at 0.498, that of the Debt to Equity Ratio at 1.010 and that of the Interest Coverage Ratio (ICR) at 0.618. According to the theory outlined in chapter 1, the Star Bulk Carriers Corporation faces no problem paying its future obligations. Exactly like the previously mentioned companies, it is unable to handle its present interest payments with the current income. On the other hand, in terms of Liquidity Ratio, the three ratios Current Ratio, Quick Ratio and Cash Ratio have an average of 2.580, 2.368 and 1.986 respectively; thus showing that it pays its short-term liabilities. The Profitability Ratio with the 4 categories of ratio, ROE, ROA, ROS and Gross Margin, which have an average of -0.022, -0.014, 0.044 and 0.126 respectively. ROE and ROA present a negative average, but this does apparently not cause any concern for the company and its investors. Last but not least, Sales Growth, EBITDA Growth and Net Income Growth with an average of 38.895%, 184.868% and 164.642% respectively are in a very good condition, providing the company with additional financial safety.

3.7 The Gaslog Partners LP.

GasLog Ltd. is a shipping company which entered the LNG sector in 2001 through Ceres Hellenic, the long-established and well-respected shipping arm of the Livanos family. Apart from the main company, GasLog Ltd., the Livanos family overtime has created several subsidiaries, such as GasLog Partners LP. with the main purpose of enhancing the business range of GasLog. The sub company started with an initial fleet of 3 vessels which were contributed to them by GasLog Ltd. and eventually ended up having 15 LNG vessels in their possession. Its goal is to make LNG transportation safer, cleaner and more efficient which is why they have signed long-term contracts with partners. Also, the group of the GasLog's family focuses on safe and reliable operation, protecting the values of the cargo the owners entrust them with. At the beginning of 2014, GasLog Partners LP. was formed as a Marshall Islands limited partnership and in May of the same year the completed their IPO (Initial Public Offering) and began trading their common units at the NYSE under the ticker symbol "GLOP".

Financial Ratios of GasLog Partners LP.

		2016	2017	2018	2019	2020		Average
SOLVENCY RATIOS								
a) Debt Ratio		0,61	0,57	0,53	0,6	0,59		**0,580**
b) Debt to Equity Ratio		1,62	1,37	1,15	1,48	1,44		**1,412**
c) Interest coverage Ratio (ICR)		-	-	-	2,58	2,87		**2,725**
LIQUIDITY RATIO								
a) Current Ratio		0,57	0,86	0,35	0,59	0,68		**0,610**
b) Quick Ratio		0,55	0,85	0,35	0,57	0,66		**0,596**
c) Cash Ratio		0,51	0,82	0,28	0,52	0,56		**0,538**
PROFITABILITY RATIO								
a) ROE		0,1	0,09	0,08	-0,04	0,06		**0,058**
b) ROA		0,04	0,04	0,04	0,02	0,02		**0,032**
c) ROS		-	-	-	0,49	0,44		**0,465**
d) Gross Margin		0,57	0,58	0,56	0,54	0,5		**0,550**

Figure 7: Financial Ratios 2016-2020 according to WSJ market

GasLog Partners LP. is an LNG company with a history dating back to 2001 and its stock price fluctuating from $4.42 to $4.90. The company's average of Debt Ratio, Debt to Equity Ratio and ICR is 0.580, 1.412 and 2.725 respectively, although there is no evidence before 2019 about the ICR. According to these data, Gaslog Partners LP. can balance its long term liabilities effortlessly. However, it seems difficult for the company to meet its short-term liabilities, since its Liquidity Ratio and in particular its Current Ratio, Quick Ratio and Cash Ratio have an average of 0.610, 0.596 and 0.536 respectively. The Profitability Ratio of the company is sound and all its sub ratios demonstrate positive sign averages, specifically ROE, ROA, ROS and Gross Margin have 0.058, 0.032, 0.465 and 0.550 respectively. Though only marginally above 0, it is still positive.

3.8 StealthGas Inc.

StealthGas Inc. is an international shipping transportation company which was founded by the Vafias' family and specializes in the transportation of various petroleum and petrochemical gas products in liquefied form, such as propane, butane and propylene, which are byproducts of natural gas and crude oil. The company has in its possession and operates the world's largest independently owned small LPG

carrier fleet which is between 3.000 to 8.000 cubic meter range. Moreover, their LPG fleet consists of 44 vessels, including two chartered-in LPG carriers- with an average age of 9.9 years. Furthermore, they have a management agreement with Stealth Maritime, pursuant to which Stealth Maritime provides them amongst others with technical, administrative and commercial services. Stealth Maritime is a leading ship management company based in Greece, established in 1999 with the purpose of providing shipping companies with a range of services. And last but not least their managing company's safety management system is ISM certified in compliance with IMO's regulations by the Lloyd's Register. StealthGas Inc. was incorporated in 2004 in the Republic of the Marshall Islands and in less than a year they completed a public offering of their common stock in the United States and began trading it on the NASDAQ National Market and now trade it on the NASDAQ Global Select Market under the name "GASS".

Financial Ratios of StealthGas Inc.

		2016	**2017**	**2018**	**2019**	**2020**		**Average**
SOLVENCY RATIOS								
a) Debt Ratio		0,43	0,42	0,46	0,41	0,40		**0,424**
b) Debt to Equity Ratio		0,75	0,74	0,85	0,71	0,67		**0,744**
c) Interest coverage Ratio (ICR)		0,80	1,32	0,94	1,11	2,00		**1,234**
LIQUIDITY RATIO								
a) Current Ratio		0,94	0,80	1,34	1,16	0,76		**1,000**
b) Quick Ratio		0,91	0,76	1,32	1,12	0,70		**0,962**
c) Cash Ratio		0,84	0,70	0,65	1,04	0,63		**0,772**
PROFITABILITY RATIO								
a) ROE		-0,01	0,00	-0,02	0,00	0,02		**-0,002**
b) ROA		0	0	-0,01	0	0,01		**0,000**
c) ROS		0,09	0,15	0,13	0,16	0,2		**0,146**
d) Gross Margin		0,11	0,17	0,15	0,23	0,25		**0,182**

Figure 8: Financial Ratios 2016-2020 according to WSJ market

StealthGas Inc. was established in 2004 in the Greek shipping industry and has managed to achieve maintaining its present stock price at $2.32. According to the above table, like the majority of the previously mentioned companies, it pays up its long term liabilities, which is apparent from the Solvency Ratios but it has difficulties

handling its current interest payments with its present income. In particular, its Debt Ratio and Debt to Equity Ratio have an average of 0.424 and 0.744 respectively, while its ICR shows an average of 1.234. According to its Liquidity Ratio, StealthGas Inc. has a Current Ratio of 1.00, a Quick Ratio of 0.962 and a Cash Ratio of 0.772. The company quite obviously is in no position to meet its short term liabilities, although it is affluent enough to keep its obligations under control. The Profitability Ratio of the company, meaning ROE, ROA and ROS, have an average of -0.002, 0.00, 0.146 and 0.182 respectively. Only the ROA resulted in 0 for those particular years.

3.9 Capital Product Partners L.P. (CPLP)

Capital Product Partners L.P. is an international shipping company engaged in the seaborne transportation of natural gas, containerized goods and dry cargo. They are an international owner of ocean-going vessels. Their fleet consists of 21 vessels 14 of which are container carrier vessels (with 1.5 million DWT and a total TEU capacity of 114,640), one Capesize bulk carrier (0.2 million dwt) as well as 6 LNG carriers with an average fleet age of approximately 8 years. All of their container vessels are currently chartered under medium- to long-term charter contracts. As a publicly traded master limited partnership, CPLP has elected to be treated as a C-Corp. for tax purposes which is most beneficial to U.S. investors. Moreover, they were organized as Capital Product Partners L.P. under the laws of the Marshall Islands in 2007 and in the same year they completed their initial public offering on the NASDAQ under the name “CPLP”. This particular company follows a business strategy with the main objective being to increase cash flows for the investors and to maintain their strong financial position unaltered by pursuing medium to long-term fixed charters, and also trying to expand their fleet through accretive acquisitions, something which becomes obvious when taking into consideration the average age of their vessels and last but not least by striving to meet the company’s obligations towards investors and business partners alike while at the same time maintaining the ability to uphold the industry and the safety standards.

Financial Ratios of Capital Product Partners L.P.

		2016	2017	2018	2019	2020		Average
SOLVENCY RATIOS								
a) Debt Ratio		0,42	0,36	0,36	0,42	0,49		**0,410**
b) Debt to Equity Ratio		0,73	0,58	0,58	0,75	0,97		**0,722**
c) Interest coverage Ratio (ICR)		3,11	2,54	-	2,35	2,82		**2,705**
LIQUIDITY RATIO								
a) Current Ratio		1,28	0,86	0,56	1,02	0,94		**0,932**
b) Quick Ratio		1,23	0,81	0,55	1	0,88		**0,894**
c) Cash Ratio		1,16	0,51	0,18	0,9	0,77		**0,704**
PROFITABILITY RATIO								
a) ROE		0,02	0,04	0	0,06	0,07		**0,038**
b) ROA		0,03	0,02	0	0,03	0,03		**0,022**
c) ROS		0,29	0,25	-	0,32	0,33		**0,298**
d) Gross Margin		0,33	0,28	0,34	0,37	0,38		**0,340**

Figure 9: Financial Ratios 2016-2020 according to WSJ market

Capital Product Partners L.P. is a company with a diversified fleet of 21 vessels and today its shares are traded at a price as high as $15.18. CPLP has managed to establish itself as a well-known and highly respected company, an achievement deriving principally from using its assets and its equity properly and wisely. For instance, as can be documented by its Solvency Ratios, CPLP is capable of meeting its long-term liabilities unfailingly and successfully. Its Debt Ratio is steady showing almost no fluctuation at all with an average of 0.410. The debt of the company sums up to less than one half of its assets. The second ratio, namely Debt to Equity Ratio, has an average of 0.722 while the third, Interest Coverage Ratio (ICR), has an average of 2.705. The average of the Debt to Equity Ratio is below 1.5 and the ICR is above 1.5 which is the balance stage. That demonstrates that the company has successfully met its future obligations for the period of time in question. Moreover, according to the theory mentioned in chapter 1 and the average of the Liquidity Ratio, CPLP although unable to meet its short-term liabilities in full is still affluent enough to cover the better part of them. The three subcategories, Current Ratio, Quick Ratio and Cash Ratio have an average of 0.932, 0.894 and 0.704, respectively. Since the company can meet its long-term liabilities and a substantial part of its short-term obligations, the shareholders and the future investors have every reason to put their trust in it. As far as the Profitability Ratio is concerned, all of these ratios have a positive average and in particular the ROE has an average of 0.038, the ROA 0.022, the ROS 0.298 and last but not least the Gross Margin 0.340.

3.10 Castor Maritime Inc.

Castor Maritime Inc. is a growth-oriented global shipping company that was incorporated in the Republic of the Marshall Islands in September 2017 for the purpose of acquiring, owning, chartering and operating ocean-going cargo vessels. They are a well known provider of worldwide seaborne transportation services for dry bulk cargo as well as crude oil and refined petroleum products. In 2021 the fleet Castor Maritime Inc. consisted of 9 dry bulk carriers and 2 tankers with an aggregate cargo carrying capacity of 1.0 million DWT and an average vessel age of 14.3 years. Their commercial strategy primarily focuses on deploying their fleet under a mix of period time charters and trip time charters according to their assessment of current market conditions, adjusting the mix of these charters to take the highest advantage possible of the relatively stable cash flows and high utilization rates associated with period time charters or to profit from attractive trip charter rates during periods of strong charter market conditions. Castor uses Pavimar as their technical manager for the provision of a wide range of shipping services such as crew management, technical management, operational employment management, insurance arrangements, provisioning, bunkering, accounting and audit support services. Moreover, the vessels are commercially managed by Castor Ships which provides Castor Maritime Inc. with commercial, chartering and administrative services. The company has been listed on the NASDAQ Capital Market since 2019 under the ticker "CASTOR".

Financial Ratios of Castor Maritime Inc.

		2016	**2017**	**2018**	**2019**	**2020**		**Average**
SOLVENCY RATIOS								
a) Debt Ratio		-	0,02	0,04	0,56	0,3		**0,230**
b) Debt to Equity Ratio		-	0,02	0,04	1,3	0,41		**0,443**
c) Interest coverage Ratio (ICR)		-	820,00	917,00	6,36	0,2		**435,890**
LIQUIDITY RATIO		-						
a) Current Ratio		-	6,02	6,58	2,03	1,24		**3,968**
b) Quick Ratio		-	5,82	6,45	1,98	1,18		**3,858**
c) Cash Ratio		-	3,73	4,36	1,53	0,82		**2,610**
PROFITABILITY RATIO		-						
a) ROE		-	0,1	0,11	0,09	-0,03		**0,068**
b) ROA		-	0,1	0,11	0,04	-0,02		**0,058**
c) ROS		-	0,2	0,39	0,24	0,04		**0,218**
d) Gross Margin		-	0,28	0,43	0,33	0,2		**0,310**

Figure 10: Financial Ratios 2016-2020 according to WSJ market

Castor Maritime Inc. is a shipping company which was established in 2016 with a diversified fleet of 11 dry bulk and tanker vessels and a current stock price of $1.70. First of all, the Solvency Ratios, and the average of the Debt Ratio, the Debt to Equity Ratio and the ICR being 0.230, 0.443 and 435.890 respectively proves that the company has the means to meet its long-term liabilities and according to the ICR theory, the company can handle its interest payments with the current income. As for the Liquidity Ratio and the short term liabilities, Castor Maritime Inc. can also meet them as demonstrated by the Current Ratio with an average of 3.968, the Quick Ratio with 3.858 and the Cash Ratio with 2.610. Despite being a relatively small company in comparison with others which own more than 100 vessels, this particular company can meet both its current and future obligations effortlessly. The subcategories of the Profitability Ratio, the Return on Equity (ROE) and the Return on Asset (ROA), the Return on Sales (ROS) as well as the Gross Margin, have positive signs (however marginally) and an average of 0.068, 0.058, 0.218 and 0.310 respectively.

3.11 Pyxis Tankers Inc.

Pyxis Tankers Inc. is a growth-orientated, pure play owner of a modern fleet of product tankers engaged in the seaborne transportation of refined petroleum products such as naphtha, gasoline, jet fuel, kerosene, diesel and fuel oil and as well as liquid bulk items like vegetable oils and organic chemicals. Pyxis Tankers was founded in 2015 and it has maintained its main offices in Greece ever since. As a company they focus mostly on medium range product tankers, which provide operational flexibility and enhanced earnings potential due to their eco features or modifications. Pyxis Tankers Inc. was listed on the NASDAQ Capital Markets in the fall of 2015 under the trading symbol “PXS” and thus, both the preferred and common stock can be found on NASDAQ under the ticker symbols “PXSAB” and “PXSAW”, respectively. The fleet of the company consists of five vessels which have a weighted average age of approximately 8.6 years, aggregated 249,705 carrying capacity (DWT).

Financial Ratios of Pyxis Tankers Inc.

		2016	2017	2018	2019	2020	Average
SOLVENCY RATIOS							
a) Debt Ratio		0,62	0,61	0,65	0,7	0,68	**0,652**
b) Debt to Equity Ratio		1,68	1,59	1,91	2,39	2,15	**1,944**
c) Interest coverage Ratio (ICR)		0,35	-	-1,27	0,04	-0,39	**-0,318**
LIQUIDITY RATIO							
a) Current Ratio		0,33	0,31	0,32	0,76	0,65	**0,474**
b) Quick Ratio		0,23	0,23	0,26	0,74	0,57	**0,406**
c) Cash Ratio		0,07	0,15	0,06	0,09	0,2	**0,114**
PROFITABILITY RATIO							
a) ROE		-0,12	-0,11	-0,2	-0,07	-0,23	**-0,146**
b) ROA		-1,39	-1,35	-1,9	-0,48	-1,29	**-1,282**
c) ROS		0,03	-	-0,2	0	-0,09	**-0,065**
d) Gross Margin		0,11	0,09	-0,06	0,15	0,09	**0,076**

Figure 11: Financial Ratios 2016-2020 according to WSJ market

Pyxis Tankers Inc. is the smallest of all 12 companies in this thesis as well as the youngest. It owns a fleet of only five vessels, was established in 2015 and its current stock price is $0.65. The company's average of Debt Ratio, Debt to Equity Ratio and ICR is 0.652, 1.944 and -0.318 respectively, which is proof that the company has no difficulties in meeting its long term liabilities with the assets in its possession, although not with its equity while the ICR also shows, that with the present income it cannot face its current commitments in regards to interest payments. By the same token, it appears rather difficult for the company to meet its short-term liabilities, too since its Liquidity Ratio and in particular its Current Ratio, Quick Ratio and Cash Ratio have an average of 0.474, 0.406 and 0.114 respectively. Furthermore, the Profitability Ratio of the company is not in a good shape namely ROE, ROA, ROS and Gross Margin find themselves at -0.146, -1.282, -0.065 and 0.076 respectively. This justifies the assumption that the company does not rank high in regards to the investors' trust which in turn explains why its stock is currently traded at so low a price.

3.12 Navios Maritime Partners L.P.

The Navios Maritime Partners L.P. (Navios Partners) is an international owner and operator of dry cargo and tanker vessels. The Navios Partners' fleet consists of 142 vessels – a mix of Ultra-Handymax, Panamax, Capesize vessels, Containerships and Crude, Product and Chemical Tankers. Moreover, the fleet has a total carrying capacity of 14.6 million DWT, including 215.222 TEU and an average vessel age of 9.6 years. The Company was formed in August 2007 under the laws of the Republic of the Marshall Islands and in the same year Navios Maritime Partners L.P. was publicly listed on the New York Stock Exchange (NYSE) under the symbol "NMM". The purpose of the company is to generate revenues by charging its customers for the use of its vessels to transport their dry cargo commodities, containers, crude oil, refined petroleum products and bulk liquid chemicals. In general, the vessels of the company's fleet are chartered-out under time charters, which range in length from one to twelve years at inception. From time to time, they operate vessels in the spot market until the vessels have been chartered out under short-term, medium and long-term charters.

Financial Ratios of Navios Maritime Partners L.P.

		2016	**2017**	**2018**	**2019**	**2020**		**Average**
SOLVENCY RATIOS								
a) Debt Ratio		0,46	0,4	0,4	0,42	0,46		**0,428**
b) Debt to Equity Ratio		0,86	0,67	0,66	0,72	0,84		**0,750**
c) Interest coverage Ratio (ICR)		0,46	1,09	1,62	1,27	1,31		**1,150**
LIQUIDITY RATIO								
a) Current Ratio		0,57	1,11	2,12	0,95	0,24		**0,998**
b) Quick Ratio		0,57	1,11	2,1	0,87	0,22		**0,974**
c) Cash Ratio		0,25	0,55	1,17	0,38	0,12		**0,494**
PROFITABILITY RATIO								
a) ROE		-0,07	-0,02	-0,02	-0,08	-0,1		**-0,058**
b) ROA		-0,04	-0,01	-0,01	-0,05	-0,06		**-0,034**
c) ROS		0,08	0,2	0,3	0,26	0,14		**0,196**
d) Gross Margin		0,14	0,28	0,38	0,67	0,66		**0,426**

Figure 12: Financial Ratios 2016-2020 according to WSJ market

The Navios Maritime Partners L.P is a gigantic company with a diversified fleet, having in its possession 142 tankers and 44 dry bulk vessels with a current stock price of $32.78 on NYSE. First of all, the Solvency Ratios of the company are definitely commendable, since the average of the Debt Ratio is below 1.0 with a price of 0.428, the Debt to Equity Ratio is below 1.5, i.e. 0.750 although the ICR, which is below 1.5 with an average of 1.150 unfortunately constitutes a negative factor. It stands to reason therefore, that the company is sound enough to meet its long-term liabilities and its financial status is doubtlessly positive but exactly like the majority of the other shipping companies in this thesis, it cannot face its running interest payments with the current income. Secondly, the Liquidity Ratio which demonstrates whether the company can balance its current liabilities. The averages of the Current Ratio, the Quick Ratio and the Cash Ratio are 0.998, 0.974 and 0.494 respectively and according to the theory explained in the first chapter, Navios Maritime Partners L.P. finds itself at a loss to settle its short-term obligations in full, although managing to pay the better part of them. Thirdly, the Profitability Ratio, which is divided into 4 types. The average of ROE and ROA remain at low levels, with a negative sign, presenting a price of -0.058 and -0.034 respectively. ROS and Gross Margin are in a better shape with an average of 0.196 and 0.426.

4. Comparison of the Financial Ratios' Averages

The last chapter in this dissertation is dedicated to the comparison of the financial ratios' averages for the twelve (12) Greek shipping companies which are mentioned in the previous chapter (Ch. 3). As has already been explained, financial ratios constitute powerful tools which help summarize financial statements and assess the economic status of a shipping company. The reason which led to the decision of comparing the averages of the financial ratios is that according to the theory outlined in the first chapter, analysts, shareholders as well as future investors do not only use these financial ratios to evaluate the financial health of a company or its ability to meet any monetary obligations, but more so to compare the status of various companies in the same industry, before making a decision on which one appears more worthy of their investment. It is common in the shipping industry for companies which are specialized in the same sector, i.e. dry bulk, to be compared on the ground of their financial ratio prices as well as their position in the shipping world and last but not least the success they can show for themselves through the years.

4.1 The Averages of the Debt Ratio

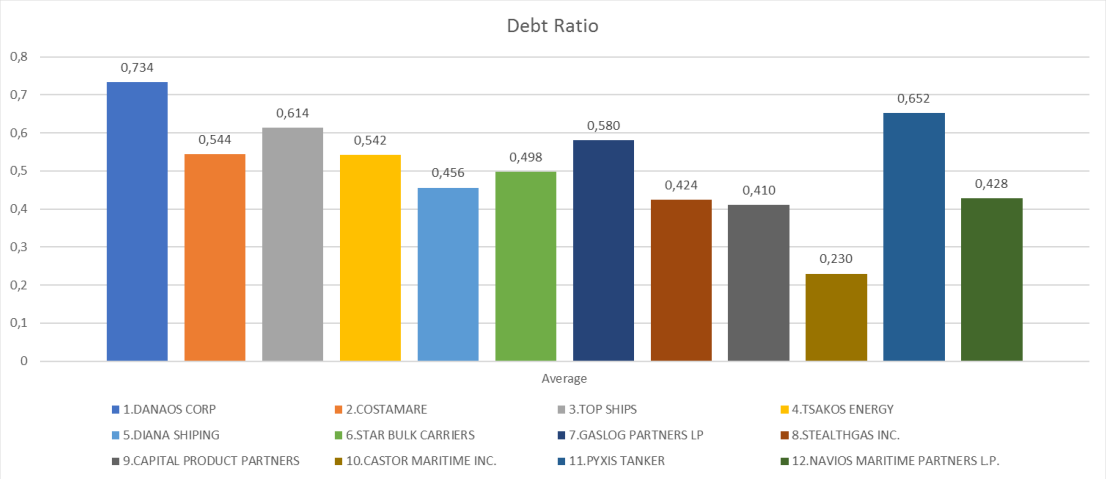

Chart 1: The averages of the Debt Ratio, Excel Appendices

According to the theory outlined in the first chapter, the Debt Ratio must be lower than 1.0 for a company to be considered safe, trustworthy and healthy, thus attractive to prospective investors. Moreover, the Debt Ratio indicates whether a company can face its debts effectively solely based on the assets of the company. The above diagram shows the average of the twelve (12) companies concerning the Debt Ratio. All of the studied shipping companies show an average price of below 1.0, which leads to the conclusion that all the companies possess the ability to pay off their long term obligations on the basis of their assets. The company whose average is closest to the balance point is the Danaos Corporation which demonstrates that this particular company manages to cover its debts with its assets, although in comparison to others it has to struggle more to do so. However this specific company is nevertheless considered a gigantic one since it heads a total fleet of more than 70 containerships and boasts a current stock price of $95. Due to its size, the Danaos Corporation can count on its multitude of shareholders and investors as well as its assets (i.e. the impressive number of vessels) to help cope with its debts if need be. On the other hand, the company with the lowest average price is Castor Maritime Inc., a small company with a diversified fleet of 11 vessels and a current stock price of $1.70. The important factor worth mentioning here is that, both of these companies successfully meet their obligations, although their main differences remain the size and the way they operate (e.g. the charter of the vessels and the market domain they are active in). The majority of the other companies' debts are approximately at one half of their assets which does not raise cause for concern in regards to their viability.

4.2 The averages of the Debt to Equity Ratio

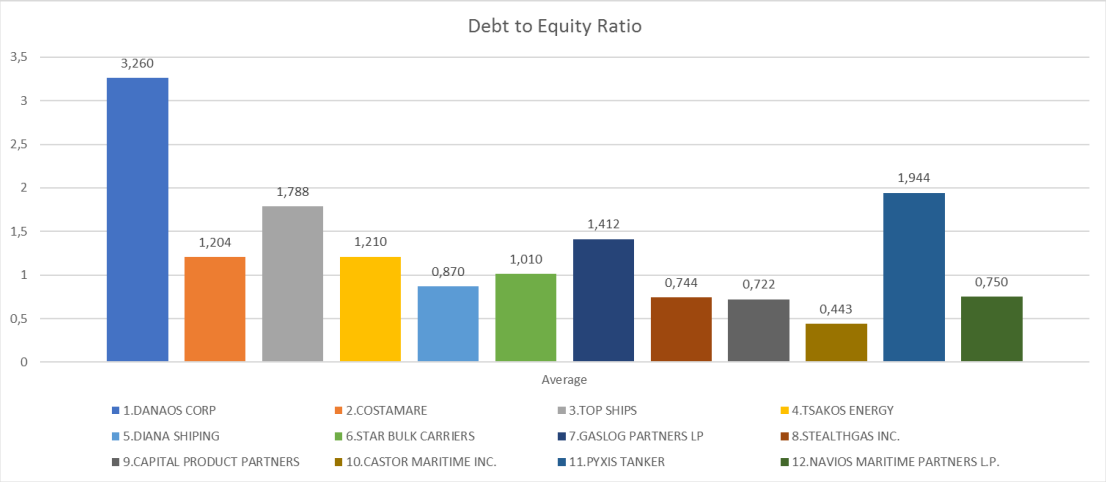

Chart 2: The averages of the Debt to Equity Ratio, Excel Appendices

The Debt to Equity Ratio is an indicator which assesses the debt of the company and how it interacts with its equity. A company may be considered safe and sound when this indicator shows a price of below 1.5. The majority of the companies in question, namely nine out of twelve, have an average of below 1.5. However, three of them, (Danaos Corporation, Top Ships and Pyxis Tankers) have an average of 3.260, 1.788 and 1.944 respectively. The higher ratio could indicate that a company is forced to or in any case decides to resort to borrowing amounts of money for its financial activities which could eventually result in an increase of potential risks. To make a specific example, if we consider that the Danaos Corporation has the highest price, i.e. 3.260, the necessary interpretation must be that this company's debt is over three times higher than its equity. However, this high average notwithstanding, in 2016 the Danaos Corporation had a price of 5.4 while in 2020 it had fallen to 1.62, which stands to show that every year the company manage to achieve a diminishment of its debt. In regards to Top Ships, its debt average does not exceed the balance by far and it is worth mentioning here the increase in the average debt was caused by two specific years, namely to 2.03 in 2016 and to 3.2 in 2019. Last but not least Pyxis Tankers Inc. owes a debt of approximately twice its equity, which due to its relatively small size and comparably low stock price however, clearly means that this debt average, unlike in the case of Danaos Corporation constitutes a much more serious problem.

4.3 The averages of the Interest Coverage Ratio (ICR)

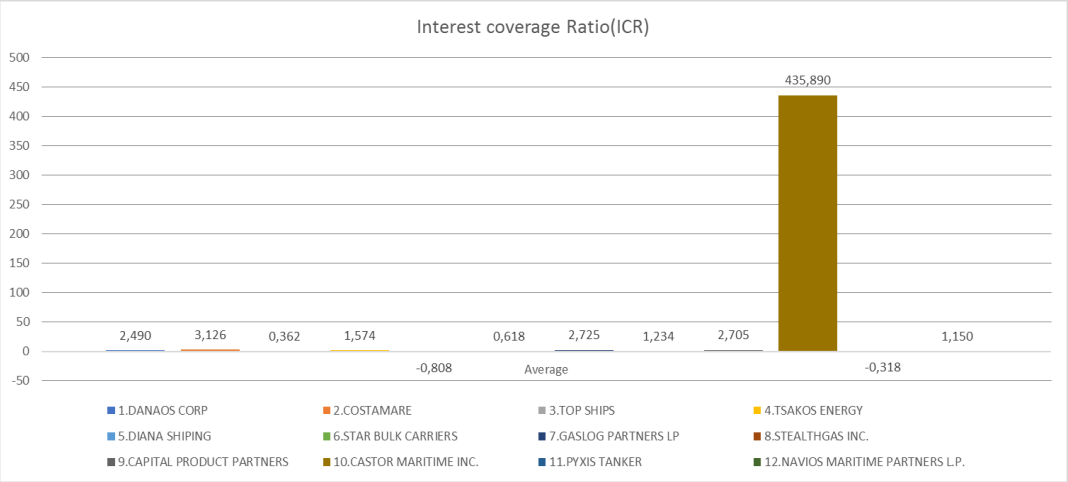

Chart 3: The averages of the Interest Coverage Ratio (ICR) , Excel Appendices

The last ratio of the Solvency Ratio is the Interest Coverage Ratio (ICR), which is an indicator to assess whether a firm can handle its current payments with its present income, taking into account that for an enterprise to be considered financially safe, the price must exceed 1.5. 50% of the companies chosen for this thesis have lower average prices and some of them even present negative results. For instance, Diana Shipping and Pyxis Tankers are not only unable to keep up with their current payments solely on their income, but their averages result in minus, specifically -0.808 and -0.318 respectively. The other four companies which have a low ICR though marginally positive are, Top Ships, Star Bulk Carriers Corporation, StealhGas Inc. and last but not least Navios Maritime Partners L.P.. In regards to the companies which have the capability of meeting their current liabilities, the most remarkable is the Castor Maritime Inc. with a total average of 435.890. Under regular circumstances, this would appear to be wrong; however it must be taken into consideration that Castor Maritime Inc. was established the year before 2016 which represents the first year of this study. Therefore there is no data available for 2016, while in 2017 and in 2018 the ICR of the company amounted to 820.00 and 917.00 respectively. The averages of the other companies fluctuate from 1.574 to 3.126, which constitutes prove that they are able to meet their current payments.

4.4 The averages of the Current Ratio

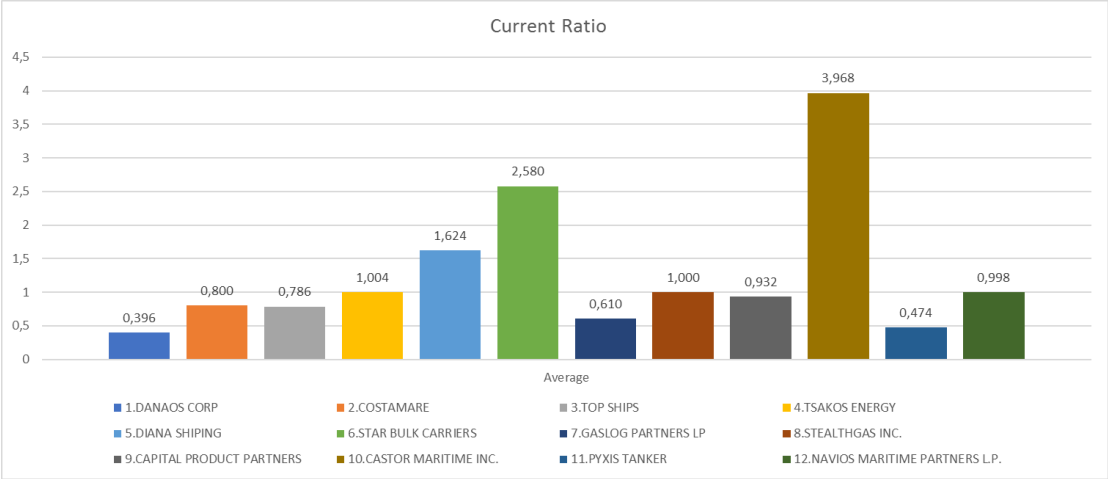

Chart 4: The averages of the Current Ratio, Excel Appendices

In regards to the Liquidity Ratio, the first ratio we studied was the Current Ratio. The Current Ratio represents an indicator for calculating the ability of a company to meet its short-term liabilities with its most liquid assets. A shipping company is considered as healthy and capable to face its current liabilities when this particular ratio has a price exceeding 1.5. Primarily, the companies usually deem their capability to meet future obligations as more important than current ones and the above diagram proves this assumption further. Only three companies out of the twelve in question can actually face their short term liabilities with one of them only marginally. The average of these companies, Diana Shipping, Star Bulk Carriers Corporation and Castor Maritime Inc., is at 1.624, at 2.580 and at 3.968 respectively. The majority of the companies which are at a loss to meet their current liabilities primarily have an average of lower than 1.0. For instance, three of the largest and renowned enterprises, i.e. the Danaos Corporation, the Costamare Inc, and the Navios Maritime Partners L.P., have an average of 0.396, 0.800 and 0.998 respectively. The companies constantly try to produce profits and invest them in new projects this being the underlying reason why they do not concern themselves too much about their current obligations.

4.5 The averages of the Quick Ratio

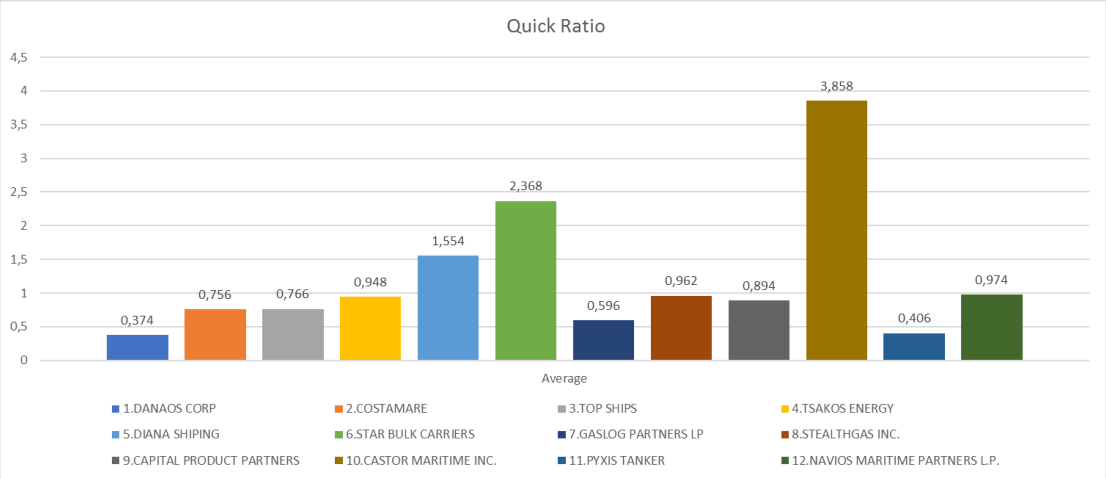

Chart 5: The averages of the Quick Ratio, Excel Appendices

The second indicator of the Liquidity Ratio is the Quick Ratio. Comparing the averages of the Quick Ratio on the above chart, the companies which can still meet their current obligations are Diana Shipping, Star Bulk Carriers Corporation and Castor Maritime Inc. with a total average of 1.554, 2.368 and 3.858 respectively. In this ratio the balance point is 1.0. Moreover, companies like the Danaos Corporation with an average of 0.374 and GasLog Partners LP. with an average of 0.596, either face difficulty affording to pay their liabilities or are confident that they will pay them off in the future. On the other hand, Castor Maritime Inc. with so high an average of its Quick Ratio, seems to have no trouble paying its current liabilities, which allows the presumption that they either do not make the most efficient use of its income (i.e. investments) or being a newly founded company, they concentrate their efforts more on making a profit first and thus of course a good name for themselves before starting to invest. Exactly like the previous ratio, the Current Ratio, the Quick Ratio demonstrates that the majority of the companies do not pay their current obligations at least not in full. However, according to the analysts, if the Quick Ratio shows that a firm is not liquid, even if the corporation is financially healthy, it will be at a loss to pay both their employees as well as their suppliers which might eventually force them to start selling vessels and assets and in the worst case scenario lead to the company's bankruptcy.

4.6 The averages of the Cash Ratio

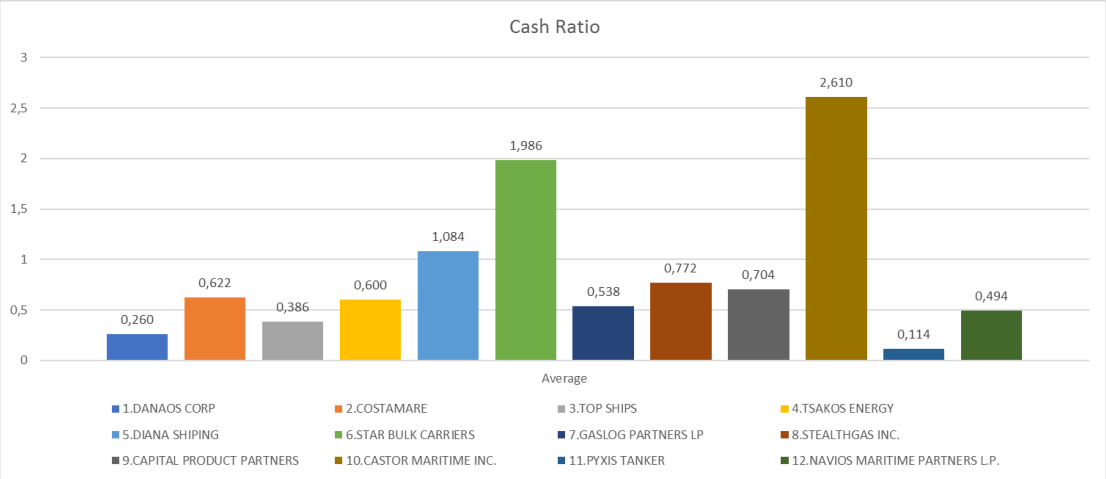

Chart 6: The average of the Cash Ratio, Excel Appendices

The last indicator of the Liquidity Ratio is the Cash Ratio and for a company to be regarded as financially safe and therefore attractive to aspiring investors, it must be able to present a price above 1.0. This particular ratio is most efficient when analysts apply it in an attempt to properly assess and contrast a firm's average as compared with the industry's or that of a competitor. However, we must keep in mind that the companies in the shipping industry tend to operate with higher current liabilities and lower cash reserves, which makes it absolutely unrealistic for a company to maintain excessive levels of cash and near-cash assets in order to be able to cover current liabilities .The above diagram shows the three companies which meet their current obligations being none other than Diana Shipping with an average of 1.084, Star Bulk Carriers Corporation with an average of 1.986 and last but not least Castor Maritime Inc. with an average of 2.610. On the other hand, a Cash Ratio which is lower than 1.0, might sometimes very well be an indicator that a company is heading towards financial difficulties. The companies which are faced with this kind of troubles are first and foremost the Danaos Corporation with an average of 0.260 followed by Pyxis Tankers Inc. with an average of 0.114. It must be mentioned here however, that solely on the grounds of such an extremely low cash liquidity no definite presumption concerning the financial status of the afore mentioned enterprises can be ventured, since they may be applying a specific strategy, aiming at using their available funds for purposes of expansion or purchase of assets and vessels.

4.7 The averages of the Return on Equity (ROE)

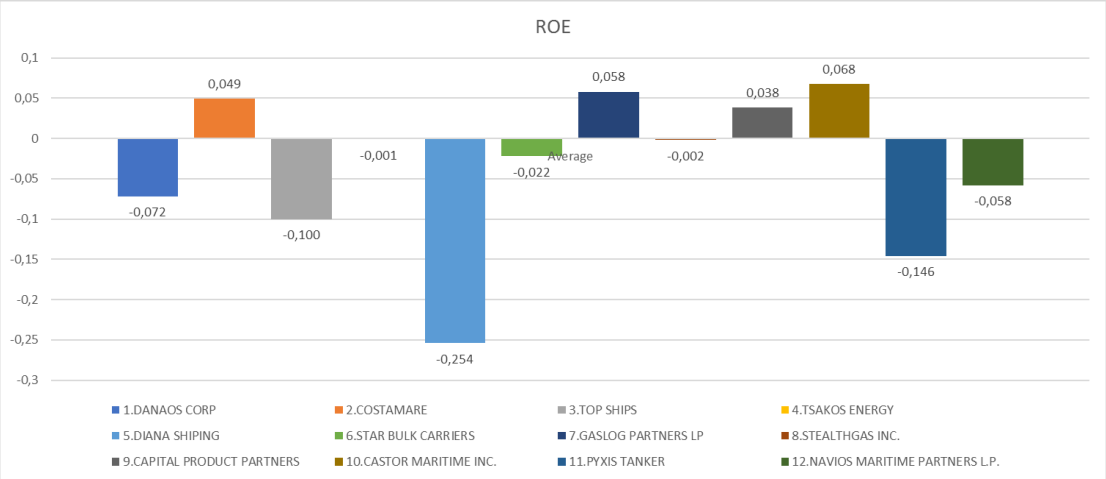

Chart 7: The averages of the Return on Equity (ROE), Excel Appendices

Return on Equity (ROE) is a ratio which is included in the Profitability Ratio. The above diagram shows that no more than four of the companies in question have, during the whole five-year-period, i.e. 2016 until 2020, returned an income to their shareholders namely Costamare Inc. with an average of 0.049 or 4.9%, GasLog Partner LP. with an average of 0.058 or 5.8%, Capital Product Partners L.P. with an average of 0.038 or 3.8% and last but certainly not least Castor Maritime Inc. with an average of 0.068 or 6.8%. ROE is a ratio which in regards to the shipping industry is all but impossible to calculate correctly and appropriately, since a so-called "good" ROE depends on the interaction and the impact between the company, its competitors and the industry in general. On the other hand it is worth mentioning that the majority of the companies in this diagram present a negative average where this ratio is concerned. However, a negative and a positive ROE cannot be compared and contrasted properly because e.g. if a company has been resorting to borrowing money, this will inevitably result in an increase of its ROE. Moreover, we must keep in mind that in case a company presents a negative income while at the same time the shareholders' equity is below zero, then the result of ROE will as a matter of course turn out positive which stands to show that the ROE by itself is inconclusive as an indicator.

4.8 The averages of the Return on Assets (ROA)

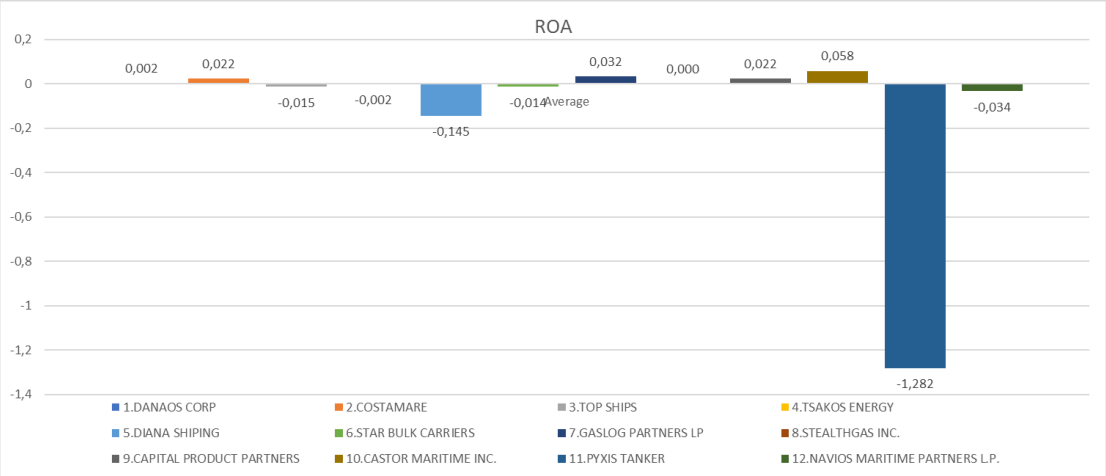

Chart 8: The averages of the Return on Assets (ROA), Excel Appendices

The second ratio of the Liquidity Ratio is Return on Assets (ROA) which shows how a company produces profits in relation to its total assets. This diagram demonstrates the ROA average of the twelve (12) Greek shipping companies in the period of 2016 to 2020 proving that even the five companies whose percentages exceed point zero are unable to reach the desirable border line of 10% and in particular, the Danaos Corporation with an average of 0.002 or 2%, Costamare Inc. with an average of 0.022 or 2.2%, GasLog Partners LP. with an average of 0.032 or 3.2%, Capital Product Partners L.P. with an average of 0.022 or 2.2% and last but not least Castor Maritime Inc. with an average of 0.058 or 5.8%. The rest of them either have a negative sign or their average is zero like for example StealthGas Inc.. Pyxis Tankers Inc. has a total average of -1.282, a total percentage of -128.2%, which means that the company is leveraged or that the debt it owes is irrationally high. Moreover, according to the theory in regards to ROA being Net Income divided by Total Asset explained in the first chapter, a negative sign is either due to a negative Net Income or a negative Total Asset.

4.9 The averages of the Return on Sales (ROS)

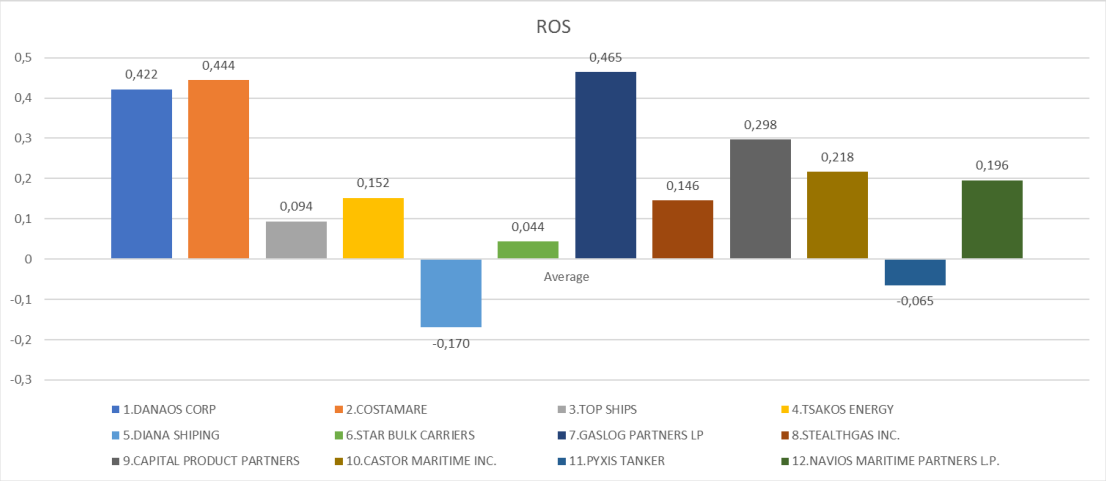

Chart 9: The averages of the Return on Sales (ROS), Excel Appendices

Return on Sales (ROS) is an indicator which examines whether a company generates efficient profits or not. The above diagram shows the average of the twelve (12) companies subject to this thesis and it can be ascertained that as compared the previous two ratios of the Profitability Ratio, the ROS is in better shape. Apart from the Diana Shipping Inc. with a total average of -0.170 or -17% and Pyxis Tankers Inc. with an average of -0.065 or 6.5%, the rest of the companies follow a positive path. The Dianna Shipping Incorporation's negative average is due to the fact that in 2016 its ROS was -0.82 or -82%. In addition, the ROS can be negative either because of the Net Sales of the company or its Operating Profit. In regards to the other companies, others fluctuate on low positive levels like Star Bulk Carriers Corporation for example with an average of 0.044 or 4.4% while others manage to maintain higher levels like GasLog Partners LP. with an average of 0.465 or 46.5%. In general lines it is safe to say that the Greek shipping companies generate profits and operate with efficiency and mastery. Furthermore, according to the theory of chapter one in conjunction with the above diagram they are trustworthy and accomplished and their management definitely leads the companies entrusted to them competently.

4.10 The averages of the Gross Margin

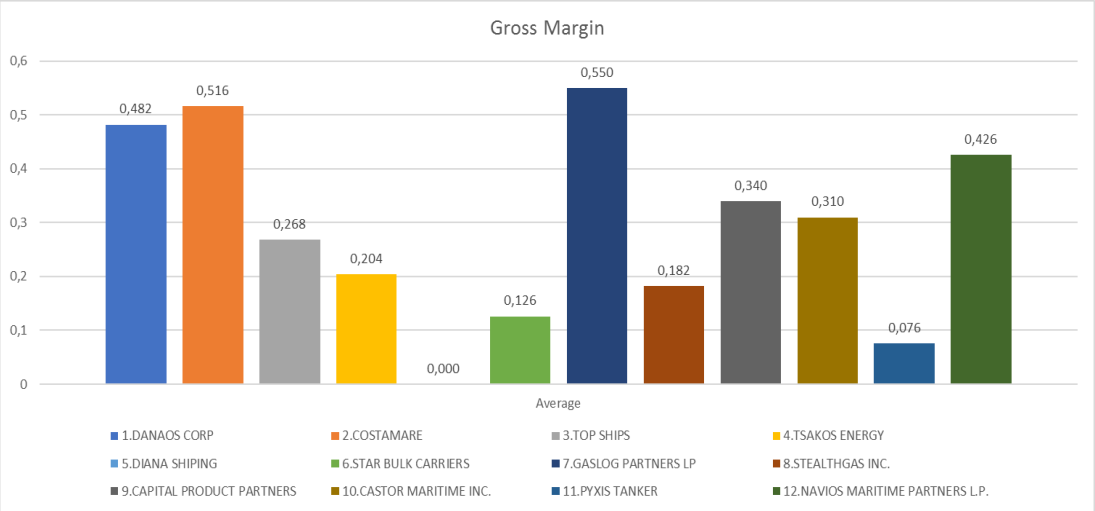

Chart 10: The averages of the Gross Margin, Excel Appendices

The last ratio of the Profitability Ratio examined for the present dissertation is the Gross Margin. When a shipping company has low amounts of Cost of Goods Sold (COGS) then they tend to have higher gross margins and gross profit margins and vice versa. Companies use Gross Margin to measure the height of their production costs in relation to their revenues. For instance the above diagram shows that all twelve (12) companies have a positive average, however the Diana Shipping Incorporation's average is 0 and Pyxis Tankers Inc. has an average of 0.076 or 7.6% which in both cases is deemed to be low. Not to mention that there are companies whose Gross Margin average exceeds 50%, such as Costamare Inc. with an average of 0.516 or 51.6% and GasLog Partners LP. with an average of 0.550 or 55.0%.

Conclusion

Concluded this present dissertation we are in a position to positively recognize the financial ratios, their importance as well as their usefulness for the assessment and study of a shipping company but not confined to this kind of enterprise. A financial ratio as witnessed in previous chapters interacts with and impacts not only the people within the company (e.g. board of directors, employees and others), as well as those surrounding it either by a direct relationship (shareholders) or an indirect one (prospective investors). Furthermore, the analysis and study of the afore mentioned ratios was rather difficult since in their annual reports the companies in question though providing data they sometimes do so inconclusively for a plethora of reasons. This not withstanding through the annual reports in conjunction with information derived from WSJ Market all data deemed necessary for the elaboration of the present thesis.

In the first chapter the analysis of the three major ratios (namely the Solvency Ratio, the Profitability Ratio and the Liquidity Ratio) as well as their sub ratios, i.e. in regards to the Solvency Ratio, the Debt Ratio, the Debt to Equity Ratio και the ICR, whereas in regards to the Liquidity Ratio, the Current Ratio, the Quick Ratio and the Cash Ratio and last but not least concerning the Profitability Ratio, the ROE, the ROA, the ROS and the Gross Margin. All three of those ratios are mainly applied by shareholders or prospective investors in an attempt to verify if and to what extend the maritime company that has caught their eye is probable to produce revenue for them. Moreover, the company itself often resort to the application of the above mentioned ratios in order to self assess their good or bad financial status, their liquidity and solvency, the amount and conditions of their assets not to mention their capability to face their short term and long term debts and commitments.

The second chapter concentrates on the registration of the Greek area, the size of the Greek shipping companies as well as their rank and role within the global maritime world. Furthermore it was deemed important to report on the enterprises,the specific market they operate in, not to mention the kind of vessels within these markets. The last part of the second chapter refers to the shipping market cycles, their kind and how deeply they can affect both market and companies, the reason for this being that the afore mentioned financial ratios mainly suffer the impact of the behavior dominant on the market at a given moment. To elaborate: if the market cycle is at its peak then, during this period of time the ships of a company will find themselves moving thus producing revenue for their owners. This in turn forcibly leads to the financial ratios being at a high point as well. On the other hand while a market suffers a trough, it stands to reason that the ratios will present negative results as well.

In regards to the third chapter an in depth analysis concerning the twelve (12) Greek companies in question is attempting, namely their size, kind and purpose as well as the status of the financial ratios in regards to each company during the period from 2016 to 2020. As made obvious through the third chapter each company is unique since each one of them might specialized on different sectors (e.g. dry bulk or tanker

sector), use their assets in a different way, or might operate under different flags than the Greek one, i.e. Marshall Islands or Malta to name but a few. However the common denominator of all twelve (12) companies in question is that were created by Greek Shipowners with the majority of them still remaining in the hands of Greek families. Furthermore, in the third chapter every company's Financial Ratios' average is mentioned separately followed by a detailed analysis.

In the fourth and last chapter of the present dissertation a concentration of all twelve (12) companies is attempted as well as a comparison of their averages for every financial ratio. The underlying reason for this being quite simple, namely a shareholder, an analyst or a future investor is normally unwilling to study each financial ratio of a company separately, his/her interest being targeted on a number of comparable companies in order to determine which one amongst all of them is outstanding. The conclusion resulting from the above mentioned comparative study will help the prospective investor determine where to invest or whether he/she has invested wisely and last but not least an independent analyst will have the tools to help form a general 5-year-synopsis (2016-2020).

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