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“China: How the financial uncertainty variable changes/influence the Trading Policy and/or the Economic Strategy of Shipping Companies in the Containers sector (liner Shipping)” / «Κίνα: Πώς ο δείκτης οικονομικής αβεβαιότητας επηρεάζει την πολιτική των ναυλώσεων και την οικονομική στρατηγική των ναυτιλιακών εταιρειών στα πλοία εμπορευματοκιβωτίων»

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Abstract

China: How the (financial) uncertainty variable changes/influence the trading policy and/or economic strategy of shipping companies in the container sector (liner shipping). A view on the density of trading routes in Shanghai through the time series of the key variables of freight rates and order books.

Keywords: Maritime, Variable of Financial Uncertainty, Chartering, China, Company Strategy.

Περίληψη

Κίνα: Πώς ο δείκτης (οικονομικής) αβεβαιότητας αλλάζει/επηρεάζει την πολιτική διαχείρισης και την οικονομική στρατηγική των ναυτιλιακών εταιρειών στα πλοία Containers. Μια κριτική ανάλυση/σκοπιά της ροής/πυκνότητας των εμπορικών οδών της Σανγκάης μέσα από τη χρονική σειρά των μεταβλητών/παραμέτρων κλειδιά, τα ναύλα, τις νέες παραγγελίες πλοίων και τις αναφορές των άρθρων.

Λέξεις κλειδιά: Ναυτιλία, Δείκτης Οικονομικής Αβεβαιότητας, Ναυλώσεις, Κίνα, Στρατηγική Εταιριών

Introduction

In this particular thesis the main target is to review the financial environment of the maritime industry. Then have an overview analysis of the financial uncertainty variable in general and then try to amplify it into the shipping sector. The view of this analysis is to try and show us how the shipping companies and the shipowners react when the market has disturbances and can be identified as unstable. The reaction that we will try to review is mostly on the companies' strategic actions and how they proceed in order to overcome the market volatility. The thesis methodology is qualitative and quantitative.

After a deep analysis of the shipping industry, the understanding of shipping cycles, the management methods of shipping companies and the financial environment overall a data presentation will commence for the better understanding of our original research. With an excel file regarding China market of the volume of all the articles and papers mentions of the financial uncertainty variable and how the shipping companies react regarding the order book of the container vessels and the freight rates of the same market section. This section of our study will be the quantitate examination of the EPU (Economic Policy Uncertainty) and how the shipping container freight rates are interacting. This method analysis will give us a numeric measure of financial volatility volume and how this volume can impact the shipping freight freights. The freight rates are one of the most important factors in shipping.

When the freight rates are good and with an upwards trend is a good outcome for the shipowner and when the trend is downwards the shipowners are in a difficult situation. The positive and negative outcome of the freight rates has different results in the actions and management decisions from the shipping companies' perspective. This is something that will also affect the orderbook numbers and volume for the newbuilding vessels orders. If the freight rates are up for the container sector then the shipowners fill optimistic and might go to the newbuilding market to place an order for a new vessel in order to make full use and derive benefit from the peaking market by supplying some new tonnage to the shipping industry to 'feed' the demand. The results of those decisions are translated into the orderbook volume for each shipping sector, as for example in the container vessels orderbook. As a more qualitative approach, interviews, and articles of shipowners regarding their companies' strategy will be presented.

Moreover, in our last chapter the qualitative research will be enriched with an analysis of the shipping companies' decision-making strategies in the financial management sector as well as in the cooperation moves that some companies might take in order to get advantage from the circumstances and the alliances with other shipping companies or other sectors of the business. With the review and examination of all the available data and the visual presentation of them through graphic figures we will come to some conclusions on how aggressive or modest are the actions of the shipowners that also are interacting and trading into the China region and the various shipping trading routes.

Chapter 1: Shipping Cycles Overview

The Maritime Industry is a complex sector that depends throughout many variables in time. As years pass and many aspects are evolving, the shipping companies have to adjust and thrive, or fail to see the change and 'die'. The technology and the environmental changes play a critical role in shipping. The IMO (International Maritime Organization) is constantly seeking new ways of "green" transports in the shipping industry. Even though, the shipping industry has changed a lot over the years new environmental regulations are always investigated and try to be implemented for the vessels that are transiting the globe. The last environmental policy¹ is the zero CO2 emissions until the year of 2030. Another one is the new EEXI (Energy Efficiency Existing Ship Index) overview with the Greenhouse Gas Strategy towards the year 2050. All the environmental policies and regulations are also affecting the shipping companies that will have to calculate and implement accordingly to their vessels as deemed necessary. In the long-term scale this will also return profits to the shipowners with their vessels operating in a more efficient and cost-effective manner. In the short-term the calculation and afterwards implementation of those calculations are costly to the shipowner as the vessels will have to go to dry dock and make all the relevant changes.

The shipping cycles, if reviewed, are mirroring the circumstances around the shipping trade and their trends. It can provide answers on how the freight rates fluctuate. The freight rates dominate the shipowners' decisions such as the weather can dominate the Master's decision upon his vessel (Stopford, Chapter 3.1). Those cycles are described

¹ <https://maritimes.gr/en/interviews>

as waves that will come and go and shipowners must evaluate each wave and decide how they are going to 'surf it'. Any misread of the analysts can be proved catastrophic. The forecasting of future fluctuations is a science that is quite challenging and can never be one hundred percent certain of the outcome. The industry and all stakeholders involved, such as investors, shipowners, brokers, banks, etc. should learn from the history and the past cycle waves analysis in order to be more prepared and can recognize the next that will follow and that will affect their business. A poor investment in a good upcoming period of shipping freight rates that was not predicted and evaluated right can cost a vast amount of earnings that could be earned and could be of an alliance when that good period will end, and circumstances get harder. Then the need of previous profits to overcome that difficult period could be proven the best safety net. Regardless of the volatility that appeared in the last century in the maritime industry the shipping costs faced an incredible reduction.

As far as the shipowners are concerned the cycles are like a poker game, as well described by Martin Stopford in his introduction chapter of the shipping cycles. The model of this 'poker game' for investors and shipowners is depending on their skill to read and play well the shipping waves. The risk can be defined as greater than other industries but when someone is 'playing big' has the risk of 'losing big' or go home with earnings larger than any other game. The volatility of the shipping industry is vast because is a capital-intensive market. So, the shipping cycles can provide data to the shipping companies that could assist them into entering the waves more prepared and with the right tools. If a shipowner has the right management tools and the right amount of liquidity he can overcome almost any wave that will hit the shipping industry.

The extreme volatility will come also from the international character that this particular industry has. The geopolitical changes and any tensions through nations can change the map of trading and cost to the shipping companies. A vivid example could be the recent closure of the Suez Canal on March 2021 for six days. The Suez Canal being one of the most important trading routes if we consider that almost twelve percent (12%) of total global trade is transiting the canal every day. After the grounding of the 'Ever Given', a 20,000 TEU (twenty-foot equivalent unit) container vessel there was a vast number of vessels querying to pass though the canal and this could be translated to approximately ten billion dollars' worth of cargo traded. The maritime and logistics chain were interrupted by this closure and every loading and discharging operation was

delayed day by day. In addition, if a relevant passage close due to war risk restrictions same or equal consequences will occur to the global trade. A more recent example that will be translated into a wave of a shipping cycle is the recent tension between the Russia and the Ukraine. The ports of Ukraine may close, the passage of Black Sea and the Azov Sea could be stop and all those moves will be translated into financial uncertainty due to the rise of the international gas prices.

Another variable that will be affected is the deviations that the vessels that were schedule to pass through the Black Sea will have to commence and of course the challenges of the shipping companies that have onboard Ukrainian or Russian crew members. Some of the seafarers may have difficulties with their bank accounts and not be able to get their monthly wages and another scale of those hostilities will be the immediate crew changes of some seafarers that might need to travel back to their countries during those difficult times for their families. So, the previous couple of examples results to the safe conclusion of maritime industry being global and volatile through any circumstance that might occur at the one side of the ocean that affect the other side of the ocean. The economic fluctuations could be translated into freight rates changes that could be conclude to the shape of the waves and the shipping cycle in general.

Chapter 1.1: Shipping Cycles and Management

The analysis of the shipping cycles can assist to comprehend the financial variables and the uncertainty that each stakeholder of this industry has to face. The volatility that comes with the waves of supply and demand and eventually the freight rates must find the right way of management for each shipowner in order to survive in all circumstances. Volatility has a financial uncertainty spectrum, and it depends on many variables such as political, economic, war zones, geography, regional change and technical. The cycles are not unique in the shipping industry, but they occur in many industries. As Sir William Petty observed into 1660s, a 7-year cycle in the corn industry (Stopford, Chapter 3.2). Many economists analyzed those cycles and their different components through statistical analysis. As an example, a French economist, Cournot, emphasizes on the necessity to recognize and distinguish the ‘secular variations’ from the ‘periodic trends’ (Stopford, 2009). the importance of a long-term cycle is if it is changing upwards or downwards for the business. The short-term cycle or ‘business

cycle', is what people understand as shipping cycle. Their fluctuation to a complete cycle can be from three up to twelve years if we measure it from a peak to peak. The 'seasonal cycles' exist as well and can be described as normal fluctuation into a year.

As an example, in the shipping industry the dry bulk market can often be weak through the summer season due to little amounts of grain that they are shipped. The reason for these cycles into the year called 'seasonal' is that they are independent through the seasons' variables of goods and therefore the demand can change. In a typical shipping cycle, we have four stages (Stopford, 2009, Box 3.1, p. 98). Those stages are the 'through', 'recovery', 'peak/plateau' and 'collapse'. The first stage, 'the trough' has three main characteristics.

At first there are notions of surplus of shipping capacity. That means that ships are waiting in loading points to save fuels. The second characteristic is the freight rates being at a vessel's operating cost. This could lead to the decision for some shipowners to lay-up their ships in order to avoid losing money. If a ship operates with freight rates at an operating cost this can be translated as 'no earnings' for the shipowner. The management decision that each shipowner should make consists of the operating model he has from his company and of course of the fleet that he operates. If a vessel is a newbuilding vessel, then its operating costs and the maintenance costs are low, but the capital costs (for example bank loans) are high. If a vessel is twenty-years old, it may have minimum to zero capital costs but high maintenance and operating costs.

Therefore, a decision for lay-up lies within the shipowner's management and economic strategy of his company. A third characteristic of the first stage of a shipping cycle is the financial pressure that can be built up from the low freight rates and the negative cashflow. The prices of the vessel change and the selling point for a shipowner can be a distress act. A newbuilding ship can be sold at a very low price and older ship can be sold to the second-hand market at a scrap price. The second stage is 'the recovery' stage. In this stage of a shipping cycle the dynamic of supply and demand can change upwards with the result of the freight rates being a little above the operating cost of a shipowner's vessel. The market remains fragile and uncertain but a more confident move can be made. If a recovery stage is really happening, then the liquidity of shipping companies improves, and the second-hand ships prices increase. This shows an upward trend for the market. The third stage is called 'the peak/plateau' stage. This

stage shows the absorb of the surplus and the dynamic of supply and demand changes. The freight rates are rising, and the fleets are fully operating. The freight rates can increase two or three times up the operating costs or on some rare occasions even at ten times over. The longer this stage lasts the longer the shipowner's gain. This could last a few weeks or a few years.

The balance between the supply and the demand of the goods plays a crucial role in the lasting period. The high freight rates are for the benefit of the shipowner and as the high earnings are coming the more the liquidity increases. Other stakeholders of this industry such as the banks, are more willing to invest into strong asset values and finance the shipowners to buy their vessels from the second-hand market or the newbuilding market. The press reports show a promising new era for the shipping industry and some shipowners as a company strategy move on to the stock market for more funds to be raised. The shipowners are eager to invest into their fleets and even expand them in order not to 'miss out' the peak stage of this shipping cycles. They may move fast so they would gain as much earnings as possible trying to exploit the favorable freight rates. This leads to an increase on the asset prices. The prices of a second-hand vessels, in this stage, moves upwards and modern ships that are younger and more technologically evolved are sold sometimes more than a newbuilding vessel. Some older vessels can be bought without any inspection from the buyer due to the rush of this period. Everybody is trying to move fast and buy vessels that can operate a voyage and exploit that freight rates that are increased.

Although an uninspected vessel can create problems into the shipowner's future, some are trying a more aggressive strategy as they believe if you wait and think the favorable time of freight rates can be over and the vast earnings can be lost over to another shipowner who already has the fleet to operate and close more voyages with his vessels. In the middle of this stage, which is now clear that the shipping industry is currently on a peak, and it is not a false and periodic upside, the orders for newbuilding vessels are increasing. At first in a more slowly pace, and then rapidly. This leads to an overbooked orderbook with a long waiting list of three even four years. This waiting list can lead a shipowner to order his newbuilding vessel in a not so promising and credible shipyard. This way his investment risk increases. As it can happen with every stage, when at the higher point the fall will follow. A great shipowner may recognize when it is the time to change his strategy and try to lead this so called 'poker game'. As the supply maybe

now higher than the demand the balance is disrupted. This leads to the fourth and final stage of a shipping cycle which is 'the collapse' stage. At this stage the freight rates are getting a downturn rapidly. The vessels available, mostly in the spot market are more than the cargo than needs to be transferred. So now the freight rates are down as the competition increases and are favorable for the traders. The downturn of the business cycle maybe reinforced by an economic shock of this industry.

This can be made of many factors, such as the mass delivery of all the newbuilding vessels' orders, the strategy of a shipowners that faces a freight rate fall maybe to reduce the ship's speed in order to gain from the voyage expenses. The liquidity is still high due to the good previous stage, 'the peak' stage, so a shipowner may fail to recognize 'the collapse' stage and refuse to accept it. This may lead to a poor management decision not to sell his vessel at the price market, hoping that 'the peak' stage will continue, and he could sell higher or maybe at the price he bought the vessel. The financial and management style of the shipowner will be shown into his moves into the highest point of the peak stage. If he can recognize the time and the moves of other shipowners, he may change his strategy game and maybe sell a vessel at the highest price and not at the begging of the collapse stage.

He may also change his chartering policy and leave the spot market with the freight rates at their highest point and close a deal with a long-term time charter. This maybe save him from the losses of the freight rates that will drop and gain the confidence of a secure and stable charter for his vessels. A stronger and wealthier shipowner may be able to afford to make an average of the good and bad years of earnings and survive a certain shipping cycle. Another shipowner that does not have the liquidity or the fleet that is needed at this period, to be proven unable to handle the collapse stage and not survive those years of a downturn to the industry. If the earnings are not enough to support his management decisions, he may not have the luxury to idle his fleet and wait for more prosperous years and higher freight rates.

This industry as it evolves it becomes more challenging, demanding, and competitive. This could force the weaker and smaller shipowners to leave the game and the shipping industry leaving only the strong to survive. The management move of a shipowner to operate in the tramp/spot market is due to the flexibility of this kind of chartering and the easy way of the newcomers of this industry to establish themselves. With the profits

being high in the peak periods the wide fluctuations of demand can make a shipowner gain vast profits in the lost legitimate way possible. Although the business handling before and after the high paying freights can make the difference between the winner and the loser of this particular wave and of this shipping cycle. The fleet that each shipowner operates can also make a difference into their management decision.

The spot market can be for example fruitful for ship types such as the bulk carriers, but it can be difficult to maneuver for the containership. A shipowner that has a fleet solely of container vessels it is difficult to operate in the spot market and gain the profits of high paid voyage trips. If we can analyze the shipping cycles and their trends, we can also see that they consist of three events such as a trade boom, a short shipping boom in which we have an overbuilt of vessels and at the end we have a lengthy collapse. This means that a tonnage shortage becomes the reason for the increase in the freight rates. Those high freight rates can stimulate an over-ordering of the vessels, the assets of the shipowner, and that will eventually lead to shortage of goods, in other words the shortage of supply. This will certainly lead to the final stage of collapse and recession.

Many analysts tried to evaluate the shipping cycles by learning from the past. The forecasting of each period is uncertain and cannot be predicted with one hundred percent certainty. As previously analyzed, there is a vast number of variables that can operate at the same time as a domino effect and open the market to an upward trend and then into this high trend another spectrum of events can operate for the fall of the market to follow. One major reason for the shipping cycles to be so unpredictable is that the investors can influence the core of events. The changes in the freight rates and the vessel's prices can be around investment decisions.

So, the human factor is once again in the core of events and can play a major role in the sequence and the frequency of those periods. When the freight rates are at a low point and the shipowners struggle with their decision between layup and the demolition market, the events to follow are of what the motion and the greed will allow. If many ships go for scrap into the demolition market in order for the shipowner to increase liquidity and try to survive tough times, then the balance of tonnage and demand will once again return. If we try to understand the volatility of this particular industry through the analysis of the shipping cycles, then we can comprehend that the profits

and losses are a gambling game which needs to be played well and put a large amount of risk into it.

The shipping cycles have different components, and they can be categorized into long cycles, short cycles, and seasonal cycles. The short cycle can be derived through the supply and demand dynamic changes and has the four stages of a market trough, the recovery stage, the peak of the market and the collapse of the market. The standard faces of each stage cannot exist because it is driven by many components and the financial variables of the business are led by stakeholders who would like to come across as winners. When investors are realizing a boom period and provide funds to the shipowners to order vessels to operate into the trading market then the tonnage overcomes the demand of the other side of the business which are the traders.

On the other hand, for the cargo owners, the oversupply can be proven as a great opportunity to explore their many options and choose the more profitable one. It may not even be the younger and more technologically advanced vessel but an older one that it can carry his cargo efficiently. Efficiently for a cargo owner means cheap and in time. This is the power game between the markets and how strategy and acknowledgment of the surroundings can be proven priceless in the business.

As a conclusion of the shipping cycles analysis and their volatility is that the financial management of a shipping company according to their fleet and by 'reading' as much accurate as humanly possible the trends of the market through the strategic moves of the other player in the game maybe the key for each economic analyst. The more the emotions can be controlled then the judgement of a certain situation at a certain point in time can be the greatest investment in the shipping business. It maybe the risk greater but if the game will be well played the profits can be greater than any other industry. The shipowner needs to understand when to walk away from a peak stage and observe how the other 'players', the shipowners, the banks, the investors and cargo owners will move. If he tries to keep operating into the peak period and the high freight rates by ignoring the signs of the market only out of greed he will fail to come above the others and exploit the greed of others. The sure component is that nothing is ever assured in the shipping industry and the financial uncertainty, and good management comes with great risk and open vision for what's to come next.

Chapter 1.2: Management of Shipping Companies

To fully understand the management moves that the shipowners are willing to take for every different circumstance we need to analyze the concept of a shipping company to its core. Then, analyze the external environment that may contribute to the results of the market. The external environment is as much powerful as the internal environment of a company. In the shipping industry those environments are intersecting and cooperate due to the nature of the industry being global.

A shipowner's operation can be affected by a financial change across the world because his company maybe in one city, but his business is worldwide through the carriage of the goods by his fleet. A company is a total system that of different parts and has dynamic functions in a constant changing environment. A shipowner seeks profitable opportunities through the right actions for his business. He needs to combine the products and the services to be able to respond into the conflict and various expectations of his clients. To achieve efficient and competitive services a shipowner needs to interlink the different functions inside his company and communicate best practice with the external environment. The changes of the external environment may be opportunities or maybe threats for his business.

So, a good understanding of the surroundings plays a major role in the right decision making. There are various categories of shipping companies such as bulk shipping, liner shipping, passenger shipping, specialized shipping and diversified shipping companies which combines several types of vessels into their fleets. As far as the liner shipping goes the vessels carry general or containerized cargoes. In this type of shipping vessel can transport many different types of cargoes at the same time into smaller quantities (Theotokas, Chapter 1). The need of smaller quantities being ship together lies with the characteristics of the cargo that cannot being shipping into bulk quantities. Inside those general cargoes maybe goods of a great value or sensitivity which needs the attention of a special service carrier. In that case the owner of this cargo prefers to pay a predetermined freight rate rather that a freight rate fluctuated on the spot market.

The difference between bulk shipping and liner shipping is the nature of the cargo. In the bulk shipping the cargo owner is interesting in paying with the reduction of the unit costs and the freight rates are set by the market and the supply and demand dynamic, for the liner shipping the owner is interested in the speed of the delivery, for the quality

of the service for his sensitive cargo and for the reliability of the shipping company to deliver in time and at the condition received his cargo. The strategy and policies change due to the nature of the needs for each client. A liner operator can be responsible for the cost of the transportation of the goods, and he also is the holder of the bill of lading. Into a bill of lading the terms and conditions of the carriage of the goods are predetermined. A bill of lading maybe the most important document and in shipping it is used as a receipt of goods and evidence of contract of carriage (Th. Pagonis & N. Pentheroudakis, Chapter 14).

The vessels that are transporting general cargoes are using predetermined routes, lines, at charter rates that are known in advance. Those characteristics makes liner shipping differ from bulk shipping. Bulk shipping has more flexibility into port schedules and timelines, and it is dependent on supply and demand. Thus, the liner shipping is link into a supply chain service and delivery. Categorizing the types of general cargoes as follows: loose cargo, palletized cargo, containerized cargo, liquid cargo, pre-slung cargo, heavy and awkward cargo, and refrigerated cargo (Theotokas, Chapter 1).

A shipping company is a business and financial unit working with different factors to produce a service. Each shipping company needs to choose the sector that will operate in. When a shipowner enters into a certain marketplace to operate his fleet then his decision making can be formulated. The capital that he will raise and how he will finance his ships plays a major role to his sustainability. Also, the management of his operation needs to set in order to define which direction his company, hie employees and his vessels will go. Every shipping company is consisting of two main parts. The one part is the productive units, the vessels. And the second part is the land infrastructure and the administration (Theotokas, Chapter 1).

Every shipping company needs to determine the nature of its business and coordinate these two parts for a successful management result. The way a shipowner chooses to finance his vessels and the way he will charter his vessels are of major parts for his management decision through the years. The chartering process is how a shipowner chooses to operate his vessels and under what terms he will choose to transport goods. The types of charter are the voyage charter, the time charter, and the bare boat charter. The type of vessel a shipowner has may determine the type of charter his vessels will go under. For companies with a diversified fleets many times the shipowners' choses

to charter some of his vessel into the spot market and some into time charter. If the freight rates for the bulk carriers are high, he may charter them with fruitful voyage charter in order to gain the profits of a boom period for this type of vessels and leave the rest into the safety of a long-term time charter for having a stability in the liquidity terms of his business and be able to meet his contractual finance obligations. Every management decision comes with the consideration of the internal and external environment of a company at a certain stage in time.

The financial and chartering decisions that a shipowner is making are those of various management paths. The way a vessel will be financed is bound with how it will be chartered and vice versa. Many shipowners gain financial support from a bank by presenting a solid long term time charter for the vessel they want to buy in the sale and purchase market or in the newbuilding market. Sometimes a time charter is a management move to present to a financial operator for a stable income liquidity. A move like that could show the company's future cash flow and its ability to cover its capital obligations. A chartering decision alone could never stand as a management action play to a shipowner's playbook, in the same way a bank or an investment company could not base its investment only on one strategic deal move that a shipping company made.

Many aspects and variables come together and are being evaluated in order to understand a company's performance. The management process of a company and the structure of its organization are defined and shows how a company can through a framework can create a product or a service. After creating the service, the company needs to create the demand for this particular service or product. This part comes side by side with the understanding of the customers' needs and the external environment. After creating the need for the product and the client requests this kind of service the company must fulfill this particular order (Theotokas, Chapter 3). A specified service and the demand for this particular service comes to the final function of product delivery.

The organizational structure of a company can be flexible and be adjusted according to internal needs and external changes, such as safety and environmental regulations. A shipowner that needs to manage his company in a right path and be profitable and survive all geopolitical and economic circumstances has to make various of decisions. In a peak stage (as described into the previous chapter of shipping cycles), a shipowner

may take the decision of expanding his fleet and order newbuilding vessels. A newbuilding vessel may need a new and challenging financial plan but will have cutting edge technology to its operations. This for a shipowner in a peaking freight rate market means to stay competitive and close the deal with clients that need transportation for their cargo. But if he misses the window for a new order and fail to recognize the peak stage early, his newbuilding vessel may be delivered in a time that the freight rates are moving down.

The main key to strategies in the shipping sector is the good knowledge of the market. For a shipowner to set a long-term strategy and base his management decision upon this strategy needs to have all the information needed of the market day by day but also to know the historical data of all the previous events. If you know well your history, you can recognize similar events and be more prepared on how you should proceed to the next phase of your business. The two most accurate words to describe the shipping industry is volatility and risk.

To evaluate the risk before to can reach an agreement and before you can set up your short-term and long-term strategies is one of the most important factors for all contracting parties (Th. Pagonis & N. Pentheroudakis, chapter 21). Financial risk is very important for all parties involved. If entering a contract or a charter-party with terms and conditions that are unclear this could eventually lead to various claims and of course eventually into financial losses. A shipowner in this case must also consider that not only a huge financial loss can hurt him, but also the time and the human resources he will spend. Expect from the terms and conditions of a contract another dangerous management move will be to cooperate and sign a contract with an unknown party, company and/or individual, with a limit access to their reputation and how they operate their business.

A newcomer into the shipping industry could also prove catastrophic for the business and the profitability of all the parties involved. The risk assessment in the maritime sector is one of the most important functions of a management strategy. One general rule is that the higher the risk the higher the remuneration. A time charter agreement is considered as a safe and less risky agreement for the shipping industry. Of course, the financial risk could end up being the same as having the vessel operating in the spot market if the charterer the shipowner's signs with is an unreliable one. On way to

eliminate that risk to a bare minimum is the freight or the hire that both parties agreed on by signing the charter party contract. As a result of charting decision management strategy both the charterer and the shipowner face risk and try to set up an agreement that can be beneficiary for both of them. The decision-making process comes with many ship-management strategies for the shipowner.

One of the basic decisions a shipowner has to make is if he is going to charter his vessels with a voyage charter or a time charter. If a time-charter occurs the charterer undertakes more risks than the shipowner. Some of those risks are the delays of the cargo delivery due to the weather conditions or perils of the sea. A time charter can be described as a safe and solid management move by a shipowner while a voyage charter can be seen as more aggressive strategic move. The charter party agreements are shown how a shipping company is operating during various periods of times. Another management style of a shipowner can be his decision on the purchase of his assets.

If a shipowner decides to expand his fleet or to upgrade his fleet or sometimes even both. The decision he needs to make if he wants to expand his fleet is if he will buy a newbuilding vessel or a second-hand one. Another strategy move will be the decision of the size and type of the particular vessel he will purchase. Some sophisticated business plans involve, as previously presented, a fleet renewal, sell old vessels or send them for scrap. The shipowner, as a decision maker, needs to elect if he wants to be aggressive or modest in order to gain balance between the financial risk and the profits he might acquire. A modest and more safe policy would be for example a liner company that will purchase a vessel or vessels that are second-hand and have the requirements they need to close a long-term time charter agreement.

With the specifications in place and the agreement standing by they may prefer to acquire the vessels they need to transport the cargo rather than place an order that will be delivered at least two years from the order date. If a shipowner speculates a good market for a certain type of vessels, he may try acquiring some newbuilding vessels that will be competitive to the specific market in two years' time. This strategy is more aggressive and optimistic and of course comes with a greater risk. But as previously pointed out, the greater the risk the greater the gain, or the loss. With this aggressive politics a shipowner might want to spread the risk by acquiring different types of vessels. In this way his strategy will pay him up by having control in all markets. When

one market is down another will be up, and this would help him have the funds to operate and meet his financial obligations.

If the tanker market is on it downwards then he can break even if he has container vessels to operate and give him more profits. The conclusion on the management moves and strategic plans in the shipping industry is that it is a complex and volatile business that consists of many factors, variables, and contributors. The laws of supply and demand as we know them do not apply on the maritime sector. The quantity of the cargo is totally irrelevant to the freight rates. The freight rates are depending on the quantities that are about to be transported versus the tonnage that it is available to those cargoes.

The one sure and stable strategy is that there are no sure and safe management moves or secret recipes of success. A long-term plan, a vast vision, a solid acknowledgment of current market conditions and the history events and financial trends may be some of the main ingredients that a shipowner must have in order to have good chance of winning the financial and management poker game of shipping.

Chapter 2: Financial Uncertainty Environment

In the maritime sector, as previously discussed, the state of volatility is a certain bet. Financial volatility can bring uncertainty shocks. That could be emerge from a physical change in the risk environment. Huge financial crisis can be associated with risk aversion shocks and the Covid-19 recession coexist with large uncertainty shocks (Brendan Berhhold, 2021).

The financial volatility can be depended on the physical risk in the economy sector and the reimbursement of the potential investors that is required to bear that kind of risk. In the macroeconomic science the risk variable can be defined as the uncertainty variable. As a general concept, the financial volatility can have some effects on the economy and business. The original source of such fluctuations can be unclear in many cases. The maritime industry is a complex business that relies on many sectors and variables. It is not a solely business that could be analyzed and be understood through one case study or one paper.

So, the financial volatility and as a result a business uncertainty cannot be fully comprehended. This is one reason why the forecasting analysts can never be sure that what they 'read' over an external environment at a certain time would come true. Only

the good knowledge of history in the maritime changes and the guessing of what others would think and ultimately what they would do can bring them close to make the right assumptions and propose to the shipowners the next actions. The human factor is a huge element in all aspects of a business, let alone in this industry where big risks can at the end provide great profits. A shipowner deciding for his company is not just a financial investor always doing what is measured by the markets or the banks. A shipowner can act on his personal goals and hopes for where the market will eventually go for him to gain all that he has invested.

So, sometimes many shipowners thinking the same way about a period that their businesses are in and all act in the same manner, for example order newbuilding vessels to support an upwards market for their vessels can push the tonnage system and eventually in the delivery dates a supply overwhelm can bring the market down and lose their advantage of thinking what no one else would think. The financial uncertainty can be approached in many ways. Sometimes a company, in order to delay a collapse can, invest or close a hiring deal or sell in order to increase liquidity. Those are different actions that would have different or same outcomes according to what others will do and eventually how the market would react in the perspective of supply and demand.

The balance between actions and outcomes may take years, and that is one reason why some make an action that turns to be the false one because they could not read the outcome. The contribution to business cycles fluctuations can be an interesting way of analyzing the center of microeconomic sources through the financial shocks. The financial shocks can add to the quantified sector of a business cycle. One major variable to the financial uncertainty can also be the deeper look into a wave that has passed. The little fluctuations that eventually describe and design each wavelength. The financial shocks can be provided through investors of a certain market or shipping companies providing tonnage and/or liquidity, of banking systems supporting the shipowners through an asset investment that will be ‘thrown’ into the maritime industry and contribute to the changes. Asset play can be a key role into the maritime business sector and volatility.

The risk aversion shocks can contribute to asset pricing in a dynamic way (Brendan Berhold, Chapter 8.1, 2021). The fluctuations into the price of assets (vessels) in the second-hand market, newbuilding market and finally the demolition market can be

linked to the financial uncertainty and eventually in the decisions of the shipowners. How low or how high the price of a vessel can be formed it can have an impact on the supply and demand value chain and eventually in the market financial environment. The role of the shipowner's action on how much and in what market he will engage at a certain point in time could lead to the results of a shipping cycle. The financial injections if not enter smoothly into the market can create instability and risk aversion. This will eventually lead to financial uncertainty until all actions and financial decisions 'rest' into the market through a long period of time and then set the actual environment. The short-term and long-term 'readings' of the market can differ because the results need time to show where the balance stands. The maritime business market is a market that will always deal with the financial uncertainty, and how all stakeholders will come together through their multiple decisions can be long way. As previously presented, volatility is the number one characteristic of the shipping industry.

All marketing and financial strategies from all players involved can create a high demanding market, with the forecasting science being one of the most difficult sections for this industry. Although shipping cycles exist and can be researched, as seen in the chapter one of this particular thesis, the financial shocks and the financial uncertainty will always be a challenging variable for the shipping industry which tries to thrive with high pricing 'floating' assets that are operating in very demanding and tiring circumstances.

Chapter 2.1: Financial Environment Analysis, Volatility Aspect and Funding

Shipping and ports are always operating in a volatile environment which is characterized by various risk factors and uncertainty that are imposed on them by the external environment and also by the participants in the shipping industry. Many observers and analysts point out a growing intensity that can be caused by all the recent developments in global economy and also a fast changing in the landscape of transport and the logistics in the chain (Theo Notteboom & Jasmine Siu Lee Lam, 2014).

The occurrence of trend breaks becomes more often through the constant changes in the political, environmental, and financial environments. The volatility presented in the shipping and in ports markets can bring adjustments in behavioral aspects. The shipping companies are trying to face the volatility and minimize the risk for their financial profits. The high demanding sector of the maritime industry and the challenging

financial landscape can bring the shipowner to use a great range of management tools and strategies. They will use many ways in order to adapt to the circumstances that they face and to many events that will occur during a period of time. The financial environment is constantly changing and the monitoring of every aspect that influences it can be very difficult. Many shipping companies will face the need of the market that they operate in to prove their flexibility and resilience.

Also, another factor is the reliability of a shipping company which is a key indicator especially in the liner shipping. The reliability and resilience of a shipping company along with its measurable performance will be the main aspects to be evaluated by investors and banks through all economic stages. Even if the financial environment of the shipping market is in a peak stage, no bank is willing to invest a vast amount of their capital without deep economic and performance company evaluation. The financial environment being volatile for the shipping sector and the global view can be difficult to build a solid forecasting model. Any model needs to have variables that are constant and some that are solid in order for a model to work in a good percentage in order to be useful to its users.

With the financial environment having constant fluctuations and the variables of shipping to be getting more intense a forecasting model is difficult to be built and also produce trustworthy evidence and results. The financial ups and downs and the uncertainty of the pandemic Covid-19 made things even more difficult to be dealt with. The shipping market has many economic drivers due to various segments and types that it obtains. There are numerous types of economic stakeholders and participants with various functions each, for the value chain in the maritime sector. The financial environment of this industry can be driven by the shipowners, the ship managers, the financing facilities, the brokers, the cargo owners, the suppliers, the customers, the freight forwarders, and many other bodies that also contribute to the external environment and are mirroring the financial environment. To understand and identify the financial environment and the volatility of the shipping market we should understand the main asset, the vessel.

In order to understand the financing asset, we should understand the nature of the shipowner which can be a company, an investment institute/fund and/or an individual. So, the shipowner acquires this asset from the newbuilding market or the secondhand

market in order to hire it to a charter, under voyage or time charter. The difference between the financial costs by inquiring a vessel and the charter hire rates are the earning of the shipowner. The capital invested, the maintenance of the vessel, the crewing costs, the insurance liabilities, the stores and supplies, the lubricants, and all management and operating expenses are the CAPEX (capital expenses) and OPEX (operating expenses) for the shipowner. If a shipowner fails to pay interest rates and capital, then he will not be able to operate its vessel. The same applies if he fails to pay his OPEX in order to maintain and repair his vessel, send it for drydocking etc. on the side of the income of the shipowner in a volatile financial environment the owners risk lies with the freight rates of the market, the employment he chose for his vessel to operate in and the life of his vessel. From the charterer's business point of view, he searches for a vessel to hire and from the shipowner and then to sell his transport services to the cargo owner. The earnings of the charterer also depend on the freight rates in an adverse way of the shipowner.

Those two different stakeholders in the maritime sector are engaging into the same 'pool' market but their profits and losses (P&L) are in crossed paths. This can show that players of the same game have different interests and gains and when the market is friendly to one of them it is not friendly for the other and have to bear the conditions of this market, until the roles turn. We can see that the dynamics can be intense to the external financial environment in the shipping market due to high funds and risk invested from many economical sides. The volatility can be clear if we understand step by step how many participants into how many complicated events, such as social, environmental, and political should be combined in order for the external environment to be formatted for all sides involved. The global economy depends in high density to the shipping industry as it carries the 90% of global trade (Fotis Giannakoulis, Chapter 3.1). the volume of ships and the number of seafarers is large (around 50.00 vessels and 1.2 million seafarers).

The liner shipping alone contributes to the market approximately USD430 billion to world GTP, according to the ISH Global insight, and around 14 million job positions. As we can understand the shipping market deals with high intensity in capital and there are large amounts to be invested every year. The shipping industry alone can affect the financial environment as it can be affected by it as well. There are factors that contribute to the volatility of this market. If this many amounts of capital are invested the risk is

high. This leads to the conclusion that any change or different direction a shipowner can make will eventually affect the marketplace. The earnings and the vessel prices are also extremely volatile which can be characterized and understood by the sudden moves of the shipowners during shipping cycles.

Measurements of the Clarksea Index shown an average 37% volatility in the earnings between all four shipping sectors in the last twenty years. The containers and gas carriers present a more stable environment in contrast with the dry bulk vessels and tanker vessels. The market data over the last decade showed that the volatility increased for all the shipping segments because of the Chinese market growth and dominance. For such an intense market environment we would easily assume that the financing of the industry's assets would primarily be the equity funding, but as the ships are considered the most liquid asset with a great value the debt financing has been the first and main source of the funding capital requirements. The way the financial environment is structured it can attribute to the shipping industry and give funding boosts to the shipowners when needed. This will keep the market going and efficiently operating. The ways of financial funding for each shipping company can differ. Many variables must be in place and be evaluated in order for the shipowner and the financial investor to decide which way of funding the company should go. The financial management goes hand by hand with the fleet details and the chartering plan a shipping company has.

Also, the financial management of a shipping company always studies the external environment and the forecasting of the economic market variables. A financial plan can be depended on how the shipowner expects the market to go, upwards or downwards. It can also be depended on how he has decided to charter his vessel. As previously presented in the previous chapter, an investment fund is also considering the chartering deals that a shipowner has for the vessel he is about to acquire. A solid strategic freight hire can show stability into the capital and interest obligations of the shipowner. This can be translated as long-term charter party is a standard payment to the shipowner operating his vessel and this means a secure way of profits that will ensure that the shipowner will stay true to his capital obligations. It is clear that the financial performance and the investment strategy of a shipping company can drive a successful outcome. According to Martin Stopford in the 'Maritime Economics' in the chapter six, there are three key variables with which the shipowners have to work with. Those are

the revenues that they receive from chartering/hiring/operating a vessel, the costs of running that particular vessel and of course the method they will choose of financing their business. The running costs of a vessel can be influenced by the choice of the shipowner in which ship he will purchase.

The day-to-day expenses can derive from the age and type of the vessel. But running a successful shipping operation is not just a matter of cost. It is also a matter of decision during volatile financial environments and how a shipowner can adjust. The flexibility of a shipping company during the times of recessions is a key variable to global trading and global economics. A financial environment can be structured during those periods and those decisions. The whole financial landscape is formed into the years with the minor or major fluctuations or seasonal trends by the actions of the shipping companies. If some shipowners believe they can boost the economy by keeping their vessels running with low operating costs for a short period of time before selling them for scrap, then the tonnage volume will stay the same and maybe show signs of increase when the newbuilding vessels ordered two to three years ago finally be delivered. Then they will have to face a surplus and see the market going downwards. If sell some old vessels to the scrap market, then their liquidity will increase, and the operating costs of this particular vessel will cease to exist.

The financial and management strategy of each shipowner could bring economic shocks to the market and keep it upwards for a little longer than anticipated but it can also lead to the market collapsing. And in this volatile financial environment the fact of raising finance to keep operating their vessels is the ultimate matter of persuasion (Martin Stopford, Chapter 7). There are many investments opportunities in many market segments but an investor or a bank must be persuaded that the return they will eventually have justifies the risk. After a shipowner shows evaluation performance of his company and a solid asset play during times of an uncertain financial external environment it should also consider and analyze the risk that he will require from others to take.

An important difference for the persuasion game of raising funds for their business is the clear understanding that investors will take a risk with the hope of high returns and making a profit but if there is a lender (individual or bank) they do not care about the profits because they do not share them. A lender only cares about being repaid with

interest and on time. The shipping market faces a lot of cyclical revenues and fluctuations and combines risks in many sectors such as operating risk, environmental risk, strong or weak financial structure of a company, management risk, counterparty risk etc. For a shipowner to raise finance and successfully operate his vessels into a volatile financial scenery is a constant struggle.

Chapter 2.2: Handling of Financial Fluctuations in the Maritime Sector

It is well known that the globalization has affected the world economy along with all the technological advances and the extreme competition in every business sector. The freight transportation markets affected the financing environment in the maritime sector. This led many shipping companies to rely on capital markets to be able to finance their investment opportunities (Panayiotis C. Andreou, Christodoulos Louca, Photis M. Panayides, 2014). Problems on this model may occur from the differentiation of owners and managers in a shipping company.

A controlling shareholder can create problems on decision making to a non-controlling shareholder. Another management pattern that some shipowners tend to use in the last decade as a financial strategy is the “vessel leasing”. This practice could be read as a new controlling mechanism of volatile financial environments. Moreover, the lessor (legal owner) will provide to the lessee (the operator/ shipping company), with agreed amounts of lease/hire as a payment, the operational control, and the full possession of the full for an agreed period of time. The most common leasing structures are the finance lease and the operating lease. An operating lease can be for a short-term of a mid-term charter of the particular vessel and at the end of the contact the vessel returns back to the lessor. This type of lease it is generally used to not appear into the balance sheet of the lessee. On the other hand, the type of a financial lease is used for long-term agreements.

This model of chartering/leasing a vessel gives the owner (lessor) the opportunity to “rent” his vessel in an agreed amount and be released from the obligations of operating this particular vessel. But the lessee even though he enjoys the benefit of the release of all capital costs, after the financial lease agreement ends, he will have the possession and the operational control of the vessel. Another fact of this type of lease is that the lessee cannot break the agreement before the agreed date, or he will have to reimburse the lessor. This type of structure does not appear to the operational lease, where the

lessee can 'break' prior to the agreed date without any penalties. The reason why this model is starting to grow into the shipping market the last ten years may be that is an alternative way to raise capital in such uncertainty financial environment. A financial strategic move of a shipowner to handle rather volatile financial landscape would be to 'Sale and Leaseback' his vessel. With this particular move he will have the opportunity to operate his vessel and gain the earnings from her hire without having any huge debt on his financial statements, monthly, quarterly, and annually. The shipowner with the 'Sale and Leaseback' financial management will only have the burden of the vessel's operating costs, crewing and maintenance.

For a newbuilding vessel the more costly sector is the capital costs because a new vessel with new technologies has less maintenance needs and the voyage costs are also lower than a ten-year or twenty-year old vessel which has the exact opposite variables regarding the cost areas. If a shipowner wants to 'hit' the market with a newbuilding vessel and be more aggressive in a fragile financial period, this would be the way he will choose to raise finance. Another highlight for this financial management maneuver is that the liquidity from the actual sale of the ship can be invested from the shipowner in another area or function of the shipping company. It is well known that shipowners need that kind of liquidity in their cash flow in order for the finance department to be able to invest in other sectors and gain more capital for the shipping company. An interesting factor of this practice is that its increasing volume and growth in the last few years it can also be affected by the Chinese leasing transactions which today appear to be as primary source of finance for over 10% of global ship finance.

The volatility of the global financial landscape through the financial crisis and the intense last three years of Covid-19 pandemic led shipping companies to adopt as much flexible and effective financial controls as possible. The intensity of Covid-19 will remain for many years to come, and instead of a seasonal uncertainty will become an actual wave into a shipping cycle with the aftermath of this period to be a long-term outcome. The pandemic affected the macro-scale economy and the micro-scale commercial companies. The uncertainty of the consumption changes extremely affected the supply chain and the balance of supply and demand. The shipping market satisfies very important tasks of global economy. The responsibility of shipping transport concerns the pre-production stage and the post-production one with the delivery of raw materials and the final products respectively. FAs previously

mentioned, each product differs from another so there are different types of transport to match the product needs. Each transport market, dry bulk, containerized and other have different index freight rates and different market fluctuations. Also, it should be clearly mentioned that each shipping company delivers different marketing and financial structures and strategies. In this view, we need to understand that every financial move is not generally accepted and adopted from all shipping companies. The handling of financial fluctuations differs from market sector to market sector. For example, when the dry bulk sector may explore high freight rates for a period of time the container sector may observe descending. The handling of the financial environment for each shipowner will definitely be different.

A third option of management and financial handling would be a shipowner with diversified fleet. This shipowner has the ability to swim in more than one market pools and his decisions will need to adjust to the alternative circumstances. The financial statement of a shipping company is one crucial stress test that may present if a company can survive very low market points. The handling of the external environment through management decisions mostly concentrates on raising capital, acquiring assets (vessels) and operating them as efficiently as periodically possible (due to seasonality variations). The most important source of capital for the shipping industry today is the bank debt financing. But the capital markets embracing the shipping industry for the last ten years has unlocked the means to many different sources of raising capital beyond the bank debt financing.

Moreover, other complex financial structures and opportunities, besides the 'leasing model' described above in this section, are the mezzanine financing, other forms of equity-linked debt, master limited partnerships (MLPs), mortgage-backed loans with high yield bonds, unsecured corporate loans with IPOs, funding through the formation of public listed companies and special purpose acquisition companies (SPACs). The ability of the shipping companies to affect and navigate the market flows is mainly depended on the timing of the decision and the investments. The financial injections into a market can drive the financial variables of intensity and volatility together with the current market conditions. All variables must be taken into consideration because the market conditions can dictate the 'financial road' a shipping company should and can afford to take. Not all alternative financial alternatives are suitable for a shipping company at all times in all market conditions. Regarding the conditions of the market

and the functions of a specific shipping company each financial solution can be more profitable if well studied and evaluated. This runs both ways, and it is also concerning the financial institutions as well, because they will evaluate as well if their investment risk assessment procedure can be lean to profitable year end. No investor or financial institution that cooperates into a global financial environment will not evaluate the market conditions and the returns that it might possibly gain after an intense and serious investment.

The shipping industry is an intensive capital industry and high investments can lead to high returns or alternatively great losses. But as well-presented earlier shipping is responsible for the 90% of global transportation and the assets involved are the vessels transiting the world, their pricing and liquidity is as volatile and capital intense as their necessity to transport the commodities from one place of the earth to another.

Chapter 3: Data Presentation and Analysis

The existing and available data, if analyzed and combined, could provide us with enough answers and results in order to start understanding the physical role of the maritime sector. The combination of historical data on freight rates on containerhips and orderbook of the newbuilding container vessels in similar timeframe of the volume of article mentions about general variable of ‘financial uncertainty’ in the China region could provide us a domino effect of academical conclusions and could be research starting point of shipowner’s maritime sector in unstable external financial environment. In this way we could begin to enroll the ‘financial uncertainty’ variable into shipping industry instead only on general financial sectors and global markets.

The chapter three will present in one section the volume of articles mentioning the ‘uncertainty’ in a yearly and monthly basis where find compulsory to do so for data analysis more constructive conclusions. In another section we will observe the freight rates development over similar timescale and especially during Covid-19 pandemic period as well as an orderbook volume for the container sector. Those two sections combined together will provide a more data oriented and quantitative results of the container market for the shipowners. Those data along with our qualitative approach on chapter four, analyzing the shipowner’s view on strategy and marketing may provide some solid facts and lead to the conclusions of how the shipping companies operate in a strategical and financial management upon the ‘financial uncertainty’ variable. In

depth research and understanding of how the EPU (Economic Policy Uncertainty) and the shipping freight rates interact with each other along with the geopolitical risk (GPR) the research “The effects of geopolitical risk and economic policy uncertainty on dry bulk shipping freight rates” of Wolfgang Drobetz, Konstantinos Gavriilidis, Styliani-Iris Krokida and Dimitris Tsouknidis, in 2020 was used. In this paper we understand the dynamics of the parameters also used in this particular thesis which are the EPU (Economic Policy Uncertainty), the freight rates and the geopolitical risk (GPR).

In this paper it is explained and demonstrated that a positive shock to the global geopolitical risk can have an instant positive effect which will progressively be weakened for the shipping freight rates. Moreover, this effect is rather global than country centered. On the other hand, in this paper it is concluded that the positive shocks to the EPU (Economic Policy Uncertainty) factor that insides for China region as well, have a negative effect on shipping freight rates that will finally built up over several months. An important understanding of this particular paper is that the historical increasing effects for geopolitical risk and for EPU (Economic Policy Uncertainty) shocks on the shipping freight rates can be great and with different signs over the different timeframes or subperiods. This study for the methodology factor used a VAR model to examine the effects of EPU (Economic Policy Uncertainty) and geopolitical risk. This VAR model was estimated through Bayesian techniques (BVAR). The model used that was used for the data analysis that produced the results that we will present in this section is illustrated below in Picture A:

$$Y_t = c + \sum_{i=1}^p A_i y_{t-i} + u_t$$

Picture A Source: “The effects of geopolitical risk and economic policy uncertainty on dry bulk shipping freight rates”, page 5.

Furthermore, this study with this VAR model produced the results of the dynamic relations between the geopolitical risk (GPR) and the Economic Policy Uncertainty EPU with the freight rates that ‘moves’ the shipping industry. The results revealed that the effects of the positive shocks on Economic Policy of Uncertainty and on the geopolitical risks on the shipping freight rates can vary on a strongly basis. A positive shock on the EPU (Economic Policy of Uncertainty) for China triggered a more

constant negative consequence on the shipping freight rates which builds up gradually. In the contrary, for the geopolitical risk (GPR) the results showed that a relevant positive shock can create an immediate positive consequence on shipping freight rates that were gradually decreasing. These results are important for the financial and management actions of the shipping companies and of course for the charterers. Both stakeholders have an important role and impact into the shipping business with their decision making and their strategical moves.

In more details, it is safe to come to the conclusion that the changes are not regional or national but global for the shipping industry. One market can affect in a strong way the outcome of the earnings and losses for the shipowner and the rest of the stakeholders in this industry. This can be confirmed by the variable that it is used in this thesis and analyzed in the next subchapter 3.1 which actually consists of the volume of news articles that are discussing the subject of economic policy uncertainty in an overall financial uncertainty global environment. This volume of uncertainty variable can change through the political, economic, and regulatory changes in the region of China.

The volume of mentions for a financial uncertainty model is proven to be challenging with the monthly fluctuations and the impact on weekly freight rates for all shipping sectors (bulk index, container index, tanker index). The Economic Policy Uncertainty (EPU) has a deep impact on a diversity of macroeconomic variables such as business cycles, investments, and earnings. The empirical evidence of the effects on the dynamic relations between the EPU (Economic Policy Uncertainty) and the freight rates on the study of Wolfgang Drobetz, Konstantinos Gavriilidis, Styliani-Iris Krokida and Dimitris Tsouknidis, in 2020 fill the gap into the literature review for the interrelationship between those economic forces that drives the shipping industry in a quantitative way needed. The shipping freight rates are associated in a strong bond with the global financial activity and the globally demand of commodities transportation.

This can prove that the freight rates for one sector, for example tanker index or dry bulk index can have a diverse effect on containership index and vice versa. The decision of the shipowner during strong economic fluctuations can differ from sector to sector or in some cases can be aligned. The one thing that is certain is that the economic crisis and historical events proven to be strongly linked between the freight rates, the orderbooks for new buildings, the second-hand vessels purchase and the chartering

decisions for a shipping company. The shipping industry is a global economic force that all geopolitical and trading changes can affect the supply and demand that will affect positively or negatively the shipping freight rates. This effect of the shipping freight rates are the ones that are creating the shipping cycles and the seasonal waves that was thoroughly analyzed also in chapter one of this thesis. All the practical data and the results driven out of those dynamic relations that detailed analyzed above are the ones that form the mind of the shipowner into the decision-making process regarding the management paths that will follow during every wave and each cycle that he is in, if of course each cycle is well recognized and not misread.

Chapter 3.1: Economic Policy Uncertainty in China since 1949 (Appendix 1, Excel file)

The data presented in this chapter is mirroring the volume of mentions of the financial uncertainty into the papers from China region. This file sourced on [Economic Policy Uncertainty Index](#) – EPU variable (also available into appendixes²) obtains data that is coordinated in monthly level for each year since the 1949. We are going to examine in depth the last decade and after presenting in the next section on this thesis the relevant data of freight rates and orderbook for the containerships we are going to try and combine the findings and try to comprehend and critically analyze their results. The data will be viewed monthly to check serious events that occurred to global economy and of course annually in order to have a general view of each year in the last ten years and its fluctuations. The monthly view provides seasonal fluctuations and can be combined with the yearly changes.

Also, for our deep research in our data excel file, in order to analyze the last ten years of financial uncertainty in China region we can notice the years 2008 and 2009 in order to understand more clearly the changes in the year 2010 and afterwards. A peak upwards in the numbers of the previous decade from the one we are analyzing can show us the trend of the period 2010-2021. The total volume of ‘financial uncertainty variable’ in the EPU (Economic Policy Uncertainty) factor that we are using by the view from Mainland Newspapers from the year 2008 the total summary (ts) is 1254,7 and the average (avg) is 104,6 and for the year 2009 the total summary (ts) is 1466 and the average (avg) is 122,2. Those two years the financial uncertainty has been doubled

² [Economic Policy Uncertainty Index](#)

from the previous years of the decade of 2000-2009 and this is great explanation of the high volume since 2008 in comparison with the decade starting back on 2000. The year 2008 the Global Financial crisis begun and as it seems normal, the volume of uncertainty mentions also increased. The global financial crisis raised in double volume the EPU factor in China region from the view of Mainland Newspaper. In contrast with the numbers in early 2000 that were significantly lower where there were no high-risk global events as viewed also in Picture B below in this subchapter.

And more specifically from the year 2007 with total summary (ts) being 605,3 and the average (avg) being 50,4. Therefore, if we observe the number of the year 2007 which as presented in above has total summary (ts) 605,3 and the average (avg) is 50,4, for the next year of 2008 the total summary (ts) is at 1254,7 and the average (avg) is 104,6. As we can see the volume is almost doubled from 2007 to 2008. So, when entering the year 2010 with total summary (ts) being 1331,3 and the average (avg) being 110,9 we can observe an intense decade if compared with the previous one. Both decades statistics are displayed in a visual graphic below for better understanding of the differences and the actual fluctuations of the EPU (Economic Policy Uncertainty) in regard of China region.

We may also present historic data from previous decades in order to have a full picture of the history, because as declared into previous chapters of this thesis, knowing your history in the maritime sector is one strong power to have in order to understand current circumstances and can view the future in more confidence. That will certainly lead to more sophisticated decisions. Comprehending and learning from the past is a key variable to the shipping industry. The circumstances, the environmental, the financial and technological variables may change over the years but the flow of facts and how they affect the maritime sector can be 'a teacher' to future actions and forces. The financial crisis is clearly driven the statistics and the spike upwards on the financial uncertainty.

As we continue with our statistics, from the year of 2016 where the volume value of EPU (Economic Policy Uncertainty) was smoother in an upwards trend for the decade of 2010 until the 2021 (first quarter) we can witness an intense increase in the EPU value from the year 2017. In 2017 overall, we have a total summary (ts) for the entire year concluding at 2479,7 and an average value (avg) at 206,6. Since the average (avg)

for 2016 was at 129,3 it is safe to characterize this increase as an intense one for the decade we are presenting. The events of 'Brexit' and the election of Trump in the years 2017 and 2018 were a variable in the increase of EPU as follows. More specifically, for the first month of the year 2017 we have a total summary (ts) of 306,0 which is already showing the vast gap from the last month of 2016.

Continuing with the month of February 2017 we have a total summary of 176,4. This value is lower than the January of 2017 but still greater than all of the months in the previous year. For the month of March, we have yet another great increase with total summary reaching at 349,1. Moving on to the month April 2017 we have a total summary of 174,2 and for the month of May 2017 we have a total summary (ts) of 130,8. For the months of June, July, and August we have total summary at 227,7 and 228,2 and 164,7 respectively. Continuing without monthly breakdown for the year 2017, we have a total summary (ts) for the month of September being at 206,4 and for the month of October a total summary at 142,5. Concluding this year of 2017 we can observe the month of November having a total summary at 206,0 value price and for the last month of the year the value of total summary for the volume of EPU (Economic Policy Uncertainty) is finalized at 167,7. The increases were greater than the decreases in the volume value of EPU and show this year was the start of an intense upwards trend until the first quarter of 2021.

Continue with the year of 2018 and moving closer to the Covid-19 pandemic which explains all the uncertainty in economy globally. Furthermore, for 2018 we have a total summary of the year being at 3333,8 and the total average (avg) value reaching the 277,8. More specifically, for the month of January 2018 we have a total value of 265,1 and for the month of February we have a total summary of 149,6. The decrease of the month of February is coming into balance regarding the upwards trend for this decade with the month of March reaching a total summary of 254,1 and continuing into April with a total summary value being at 241,7. The high values in volume are continuing into the next month, May of 2018, with total summary of 210,8. Moving forward to the summer season we have for June 2018 a total summary being at 203,1 and with July spiking up in 396,7 total summary. In August of 2018 we have a total summary of 269,5 and we are moving on to the next season of fall with September 2018 having a total summary (ts) at 314,1. For the month of October in the year 2018 we have a total summary (ts) at 343,4. Concluding this year (2018), we have a total summary for

November at 438,2 which is the higher month in value of volume EPU (Economic Policy Uncertainty) for this year, and for the month of December we have a total summary value of 248,5.

Coming into the year where the Covid-19 pandemic started, from China region we can observe the volume data being at a total summary for the year at 4360,3 and with an average value reaching at 363,4. Along with the Covid-19 that started in 2019 also the US and China tension in trade policies was also on going and this are some various events in order to form the following EPU volume numbers. the For the month of January 2019 we have 288,1 total summary value, which is higher than the last month of the previous year (2018). Moving on to February we see a total summary of 240,0 and then a high increase for the month of March with a total summary (ts) being at 411,2. For April the total summary (ts) is at 319,4 and for the month May 2019 the total summary is closing at 365,1. The increase is doubled in the next month compared to May 2019, with June having a total summary of volume EPU (Economic Policy Uncertainty) at 649,1. Furthermore, for July 2019 we have total summary at 375,9 and for august we have a total summary of 396,0. Continuing to the fall season, for the month of September we have total summary being at 347,4 and for October 2019 we have total summary (ts) formatting at 234,1. For the last two months of the year 2019 we have a total summary for November and December being at 396,2 and 337,9 respectively. The complete year of 2019 had small fluctuations that kept a balance year to a highly upwards pattern for this particular decade.

Moving to the next year of 2020 that was intense for China region and globally due to the pandemic being in everyday life and operations we have a total summary (ts) being at 4684,7 and an average (avg) value reaching at 390,4. Moving to the monthly breakdown in order to comprehend how the volume of EPU (Economic Policy Uncertainty) is building up through this year we have a total summary for January 2020 being at 250,3 and for February 2020 we have a total summary (ts) at 195,7. Steadily increasing the volume of EPU (Economic Policy Uncertainty) we can observe for the month of March 2020 we have a total summary (ts) of 219,4 and for April we have total summary being at 328,8. In the month of May for the 2020 we have a total summary (ts) at 501,3. This value of month of May also presented into the next sub-chapter 3.2 with the freight rate index for the container vessels. Continuing with the month of June 2020 we have a total summary (ts) being concluded at 421,6 and for July 2020 we have

a total summary being at 324,7. For August of the same year, 2020, we have a total summary (ts) being at 251,4 which is very close to the value for the month of May 2020. Same value number with a minor increase we have also for the month of September 2020 with total summary being at 493,5. In October we have a total volume of EPU (Economic Policy Uncertainty) closing at 396,8 and for November we have a significant increase being at 661,8 which is the highest value for the whole year of 2020 and very close to the value of the month of May 2020. This high values in the volume of EPU (Economic Policy Uncertainty) can be explained with the pandemic trying to be controlled then some strict restrictions were lifted during the summertime.

After the people feeling more secure and after being exhausted with the measures against the Covid-19 for so long they were interacting more into their summer holidays the numbers of the pandemic for the closing year of 2020 come as another big wave for the pandemic statistics. This leads us to the last two months of the year 2020 for November having a total summary (ts) at 661,8 and for December the total summary was finalized at 439,1.

Moving to the first quarter for the year 2021 the discussions and the waiting of the first vaccinations being released to the public is keeping the upwards trend high with the month of January 2021 having a total summary of 378,4 and for February the same value reaching the 237,4 closing the first quarter of the year with the month of March having a total summary of 302,3. For the first quarter of 2021 the volume of EPU (Economic Policy Uncertainty) reached the total summary (ts) of 918,1 and an average (avg) of 306. If the first quarter will be projected to the rest quarter of the year 2021, we can observe another high-density year of EPU (Economic Policy Uncertainty). The table below presents the EPU (Economic Policy Uncertainty) in a yearly basis in order to understand visually how we entered the decade since 2010 and how we are coming out of it and entering the new decade and still dealing with the Covid-19 challenges.

Yearly Financial Uncertainty Variable 2010-Q1/2021

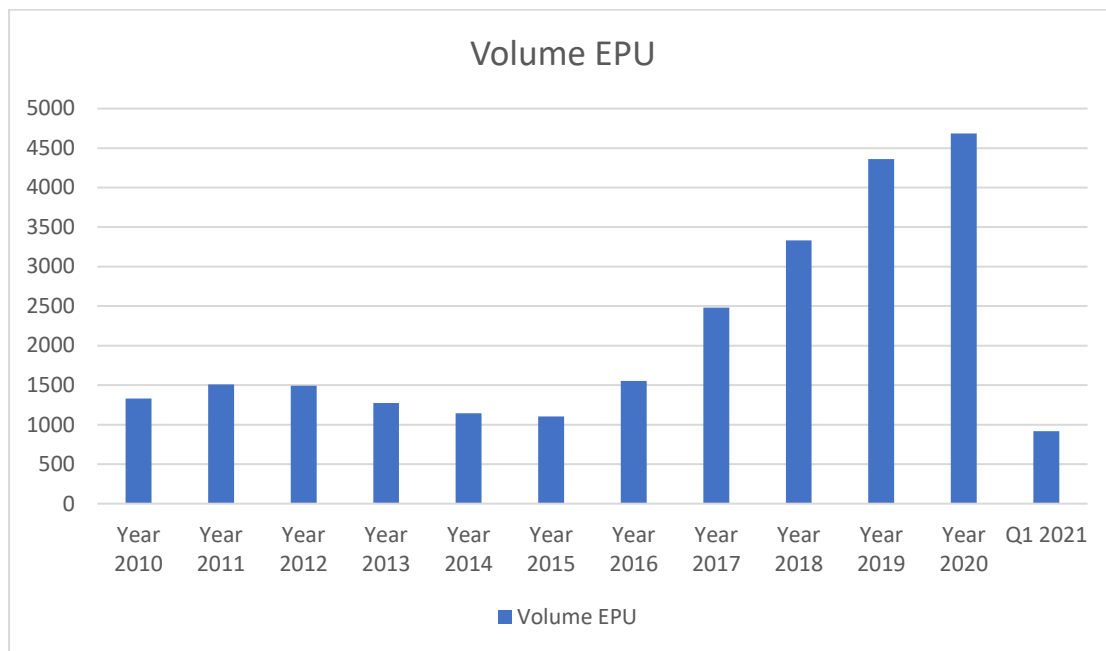


Figure 1 Source: Excel Appendices

A review on previous decade in order to understand and compare the changes and fluctuations for the years 2010-2021. How intense are for the last decade the fluctuations are presented after the two last years before we close the 2000-2009 period. It seems a more smoothly increase in the Economic Policy Uncertainty for China region from the 2000 until 2007. After that the years 2008 and 2009 shows double mentions on the financial uncertainty variable and as it seems it is just the beginning of a highly increasing variable for the period 2010-2021. As it shown to the next statistic graphic below showing a visual of a yearly volume presentation for the previous decade in order to understand the difference in the decade previously presented and analyzed above in the same sub-section 3.1. A short mention in a yearly basis is following in order to understand the intensity in the increase between the two decades of 2000-2009 and from 2010 onwards (2021).

Moreover, for the year 2000 the total summary was at 426,8 and the average value was at 35,6. For the year 2001 the total summary (ts) was at 524,3 and the (avg) was at 43,7. For the next year, 2002, the total summary (ts) was closed at 642,1 and the average value was at 53,5. Moving forward to the decade 2000-2009 analysis we have the year 2003 with total summary (ts) at 721,1 and an (avg) at 60,1. For the year 2004 we had a total summary decreasing slightly from the previous year, with total summary of 618,5

and an average being at 51,5 which is similar to the year 2002. For the year 2005 we have total summary (ts) being at 622,7 and an average value of 51,9 which is almost the same of the previous year of 2004. For the year 2006 we observe a total summary concluding at 694,6 and an (avg) at 57,9 which is also close to the previous values. For the year of 2007 we have a total summary (ts) at 605,3 and an average at 50,4.

Then the number of values, as mentioned above are doubled introducing us to a more intense decade of EPU (Economic Policy Uncertainty) in China region. Therefore, for the year of 2008 we have a total summary of 1254,7 and an average of 104,6 and for the year 2009 we have (ts) at 1466 and an average at 122,2. If we randomly compare one year from the bigging of this decade with another from the begging and the ending of the next decade the vast increase is clear. For example, in the year 2001 we had the (ts) of 524,3 and for the years of 2012 and 2020 the (ts) was 1492 and 4684,7 respectively. By this small presentation of the year 2000-2009 we can observe with a small glance of the numbers that there was a smoother transition from year to year in the early 2000 and then after 2008 the doubled values kept going upwards creating a high increased trend value for the volume of EPU (Economic Policy Uncertainty) as presented in the below table in Figure 2:

Yearly Financial Uncertainty Variable 2000-2009

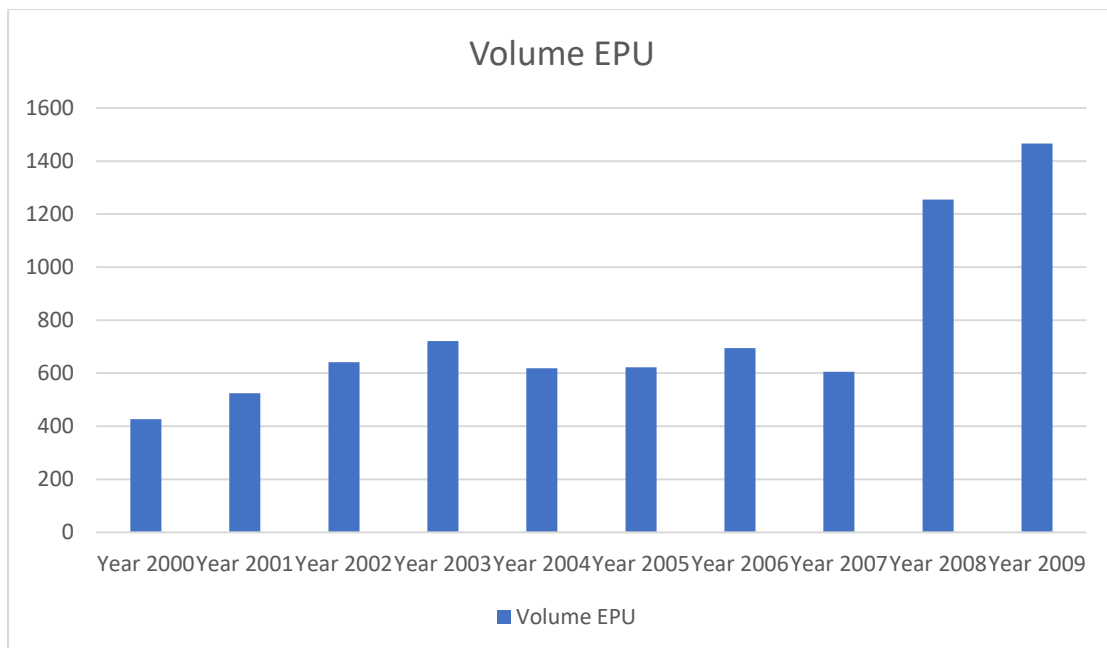
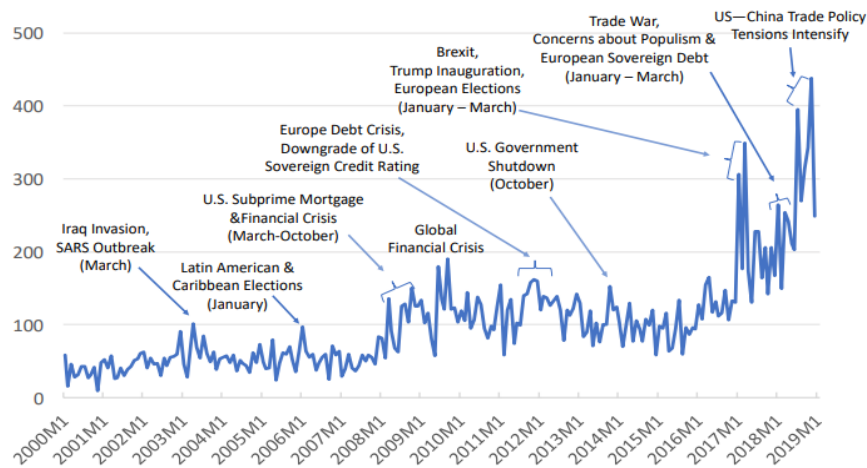


Figure 2 Source: Excel Appendices

Following a historic events trend analysis on Picture B:

Picture B

Economic Policy Uncertainty in China: Globalization Era, 2000 to December 2018



Note: Index reflects scaled monthly counts of articles containing at least one keyword in each of three categories: (i) Economic (ii) Policy and (iii) Uncertainty. The series is normalized to mean 100 from January 2000 to December 2018 and based on queries run on January 4, 2019 for the *Renmin Daily* and *Guangming Daily*.

Source: “Economic Policy Uncertainty in China Since 1949: The View from Mainland Newspapers” by Steven J. Davis, Dingqian Liu and Xuguang S. Sheng, working paper, 2019.

Chapter 3.2: Freights and Orderbook data review

In a more academic view, the shipping markets are market pools in which many related units come to complete many market activities such as investments to different sectors, commodity trades and maritime transportation in general. The freight rates market is one of the most crucial sectors of the shipping industry. It has been studied due to its extreme volatility and cyclicity. It is the sector that defines the shipping cycles and forces the critical decisions of the shipowners all over the world. The observation of past freight rates and current ones can explain the geopolitical tense, the financial uncertainty, the environmental challenges of every period. The volume of tonnage and the demand balance in a market will affect the freight rates upwards and downwards. The below graph presents the orderbook for the container sector shipping market of newbuilding vessels for the year 2021 and the schedule of delivery until the year 2025.

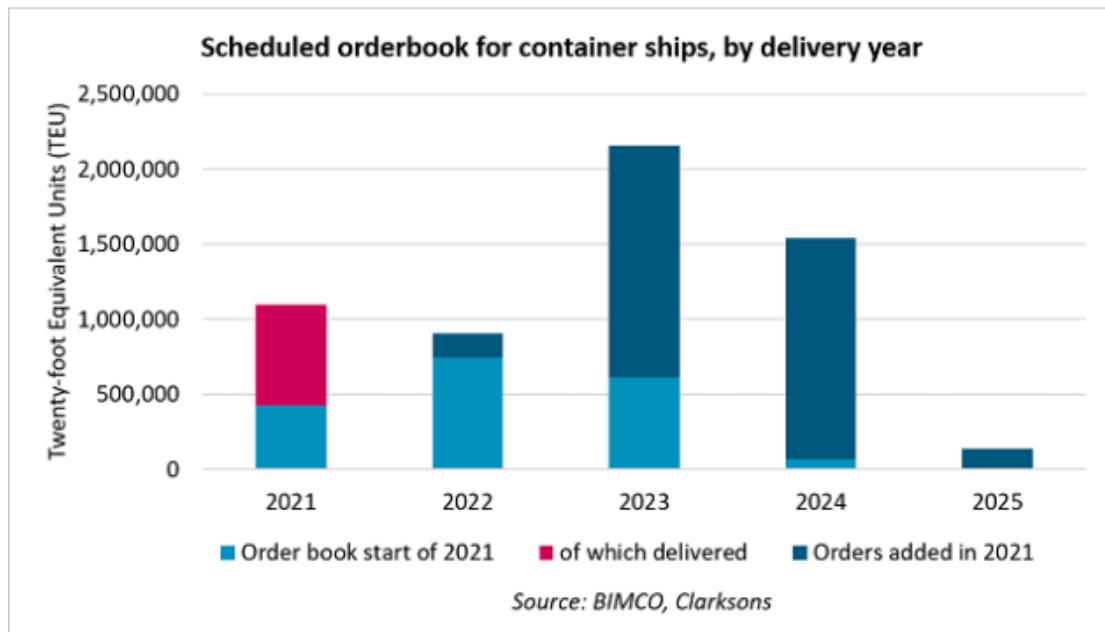


Figure 3 Source: [Container ship order book doubled up in 2021 | Hellenic Shipping News Worldwide](#)

The orderbook can illustrate an optimistic forecast and strategy move for the shipping companies. After reviewing past tensed periods into financial uncertainty, that may still be going, the shipowner believes in the good upward trend of the shipping market and decides to go to the newbuilding market and order new vessels in order to keep trading and take advantage of the freight rates of the market.

If the freight rates are stable, he might believe in an increase for the following years and place an order that will be delivered in the next two to three years. Another scenario is that the market is already in a high trend and the shipowner trusts that the upwards trend will continue for the next years. The below chart presents the freight rates in monthly basis concerning the years 2019-2022.

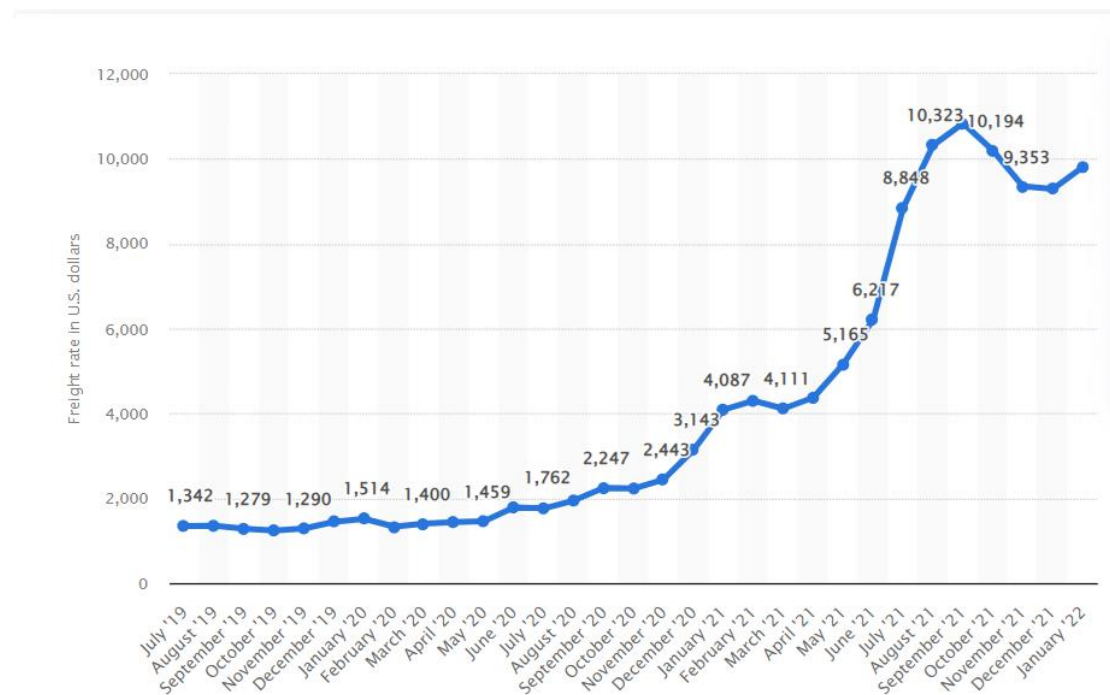


Figure 4 Source: [Global container freight index | Statista](#)

Comparing the above two tables referring to the container vessels orderbook and the freight rates of containers for the period 2019 until January 2022 we can observe that there is an intense upwards trend for the freight rates in the containers sector.

In more detail, in the month July of 2019 the freight rates were 1,342 and for the September of 2021 the freight rates reached the 10,323. The freight rates begun back into the 2019 with low prices. The year of 2019 was crucial for the financial uncertainty variable due to Covid-19 pandemic. As seen in the above chapter of this particular thesis (chapter 3.1) where the EPU (Economic Policy Uncertainty) was presented and deeply analyzed on a yearly and monthly basis, we observed that the tensivity of the volume of articles that were mentioning the financial uncertainty variable started to increase extremely during the period of the Covid-10 pandemic.

This means that for the year 2019 since today in the year of 2022 we had a high intense volume of EPU (Economic Policy Uncertainty). Of course, a higher mentions' volume was begun in this decade 2010-2021 when compared it with the previous decade 2000-2009 (inclusive). With those facts presented we also examine the correlation and the dynamic relation between the freight rates and the variable of EPU (Economic Policy Uncertainty). Those results showed a steadily negative impact on freight rates in regard to the volume of mentions in China region over the financial uncertainty. This is also

illustrated to the figure 4 in page 41 that shows the low freight rates from the beginning of 2019 since the September of 2021. This period demonstrates a more stable handling of the corona virus globally after the huge volume of vaccinations and protective measures for all the countries.

Another finding from our analysis and data from chapter three on this thesis is that the negative impact of EPU Economic Policy Uncertainty on the shipping freight rates has approximately twenty months building period (Wolfgang Drobetz, Konstantinos Gavriilidis, Styliani-Iris Krokida and Dimitris Tsouknidis, 2020). The September of 2021 is the peak of the freight rates price for this particular chart, but we can clearly observe a minor upwards trend for all the year of 2021 where the orderbook for the newbuilding container vessels was 619 container ships for future delivery and 381 to be delivered within 2021. A volume orders consists of 5.3m TEU that being ordered in such a short timeframe but as a record for the orderbook is still the year 2008 and more specifically the end of month July were the volume of orders for the container vessels were 6.8m TEU. The capacity of 5.3m TEU will be added into the fleet and actually tonnage volume from the year 2023 and onwards. The actual consequences of this large order book will show until the year 2025 onwards when those new delivered vessels will be operating into the shipping market and affecting the balance of supply and demand by the year of 2025. Except the volume of tonnage that the shipping routes will have the aftermath of Covid-19 will also be a variable that will play a significant role to the freight rates of the container sector at the time. The Covid-19 is still affecting the maritime operations with all the strict regulations and challenges in the crew reliefs and changes.

Those strict regulations are more various into the China region even today in the early 2022. Other countries may have loosened their quarantine days or other country regulations by China is still very strict with the quarantine days being up to twenty-one (21). All those restrictions driven the Chinese nationals (crew members) to increase their salaries and make it even more costly and difficult for the shipowners to operate their vessels with full Chinese crew and actually retain them for future hire. The Chinese crew market is a very competitive and large marketplace and the Covid-19 regulations made it even more difficult for the shipowner to retain the high-ranking crew members that he might have over the years of his shipping operations. The pandemic started on 2019 and continues to influence the crew circulation. Due to the

shortage of crew resources, crew wages, together with expenses for crew members travelling and medical expenses such as quarantine and maybe the medical care needed if they found positive to Covid-19 or for vaccination purposes. All those extra expenses since the pandemic are increasing and impacting the OPEX performance of the shipping companies, especially for those trading and operating their vessels in China sea roads. The balance sheets and the budgets of the shipping companies using full Chinese nationals onboard their vessels were disturbed into high levels if compare it to the year of 2018. The new regulations, the very costly crew vaccinations, the repatriations fees as previously mentioned, the flight tickets that was increased in very high percentage and the covid periods that many of the seafarers need into hotel rooms for repatriation or embarkation purposes are constant costs since the year of 2019. The planning and the timescales are also challenging and may create major problems for the shipping companies when trying to change their crew members. If a crew member checks in to a hotel awaiting to get on board a specific vessel and before embarkation is tested positive to Covid-19 all the planning and the lineup chain is interrupted. This means that more quarantine days for the seafarer that found positive, and all expenses are burden the shipping company and of course forces the company to postpone the crew change on board that will emerge another liability even with the psychology of the seafarer, with strict and thin lines of MLC codes and regulations.

All aspects are important and costly for the shipping companies especially during the Covid-19 period which is still on going and the actual results will appear until 2025 were the pandemic dust will be settled, the new vessels delivery will be arrived in the shipping companies according to the orderbook for the containers in figure 3 previously presented into this section and the volume of vessels will interact with the freight rates. Continuing in the reviewing of the previous section, the data of the EPU factor, the Economic Policy Uncertainty in China region, we can observe the changes in the freight rates. A more specific example, if we analyze the year of 2020 and check deeper into the monthly data, we can see that for the month May we have one of the higher volumes of paper mentioning the financial uncertainty in global economy. The sum volume for May 2020 is 501,3 and the total sum of 2020 is 4684,7.

The Ningbo Containerized Freight Index³ (NCFI) for the last week of May issued by Ningbo Shipping Exchange was at 720.0 when in the first week of June showed a minor falling of 2.4% since last week's rating. This presents an adverse trend on the volume of mentions for the variable of 'financial uncertainty' in China region to the freight rates for the container vessels. For the year ending the Ningbo Containerized Freight Index (NCFI) for the last week of December 2020 issued by Ningbo Shipping Exchange was at 2367,1 when the year end of 2020 was at sum volume for the variable of financial uncertainty at 4687,4.

We can see an increase in the container freight index in combination of May and June 2020 but if we review the month of the next year 2021 we can observe a slight increase by almost 2% that will gradually increase through the year 2021 because all the volume of the previous year will start to show also in some periodical and of course not all weekly and monthly freight rates indexes.

In continuation of the analysis in the container freight rates we will examine the freight rates in the years before the Covid-19 pandemic. As it seems the container freight rates remained volatile throughout 2014 but with some deviations in the trends for some individual trade lines. The market landscape seems to have no significant change despite the growth in global demand for the container shipping industry. This is observed mainly to the constant supply pressures for this sector.

The growth in global demand for the container shipping sector reached the 6% in 2014 in comparison with 2013 which was at 5%. This could be translated due to the global demand for containers that was increased by strong trade growth on the peak main legs of the Far East and Europe. The imports from Asia to the United States accomplished really good in the year 2014. The container freight rates were increased by 7% in 2014 in comparison to the year 2013. The Shanghai and United States East Coast freight rates (40-foot equivalent FEU) increased in 2014 by 13% since to 2013. And in comparison, to the Shanghai and West Coast route which was decreased by 3% in 2014 since 2013. Moreover, on the Shanghai and Singapore internal Asian sea routes the freight rates remained flat with average (avg) of 1% higher for the year 2014 in comparison of the

³[Ningbo-Containerized-Freight-Index-Weekly-Commentary-2020-5.23-5.29.pdf](http://hellenicshippingnews.com)
(hellenicshippingnews.com)

previous year of 2013. Along with the freight rates market the charter market rates also influenced in a small proportion. The charter market is the one market that will also have fluctuations when the freight rates are increasing and decreasing. The market is of course linked and interacting with each other. The decision and profit of a shipowner usually is the opposite from the charterer's side. Below on Table 1 there is data representing the container freight rates on several inter-regional sea routes from the recent years of 2018 to 2020 which was examined and analyzed into this subchapter of the third chapter of the thesis:

Contract freight rates, inter-regional, 2018–2020, \$ per 40-foot container (FEU)					
From	To	Average	2018	2019	2020
Africa	Africa	1 862	1 812	1 849	1 924
	Asia	758	748	750	775
	Europe	1 607	1 431	1 643	1 747
	Latin America	1 950	2 010	1 860	1 979
Asia	Africa	1 946	1 800	1 927	2 112
	Asia	768	737	747	821
	Europe	1 848	1 782	1 847	1 916
	Latin America	2 198	2 290	2 075	2 230
	North America	2 580	2 426	2 603	2 711
	Oceania	1 803	1 770	1 790	1 850
Europe	Africa	1 701	1 595	1 650	1 858
	Asia	947	967	870	1 004
	Europe	887	804	881	976
	Latin America	1 232	1 019	1 302	1 376
	North America	1 838	1 518	1 742	2 256
	Oceania	2 002	1 996	1 933	2 077
Latin America	Africa	1 910	1 778	1 951	2 000
	Asia	1 796	1 623	1 963	1 802
	Europe	1 751	1 313	1 977	1 961
	Latin America	1 529	1 349	1 699	1 539
	North America	1 716	1 521	1 882	1 745
North America	Africa	2 994	2 890	3 112	2 981
	Asia	1 129	1 009	1 111	1 269
	Europe	1 097	858	1 109	1 323
	Latin America	1 353	1 254	1 318	1 486
	North America	1 516	1 534	1 429	1 584
	Oceania	2 722	2 538	2 634	2 996

Source: UNCTAD, based on data provided by TIM Consult Market Intelligence https://timconsult.com/service_areas/transport/benchmarking/.

Note: The data set provides regional averages for forty-foot container dry cargo freight, as negotiated for routes where rates were available for at least 5 shippers and at least 500 TEU per year on port-pair basis.

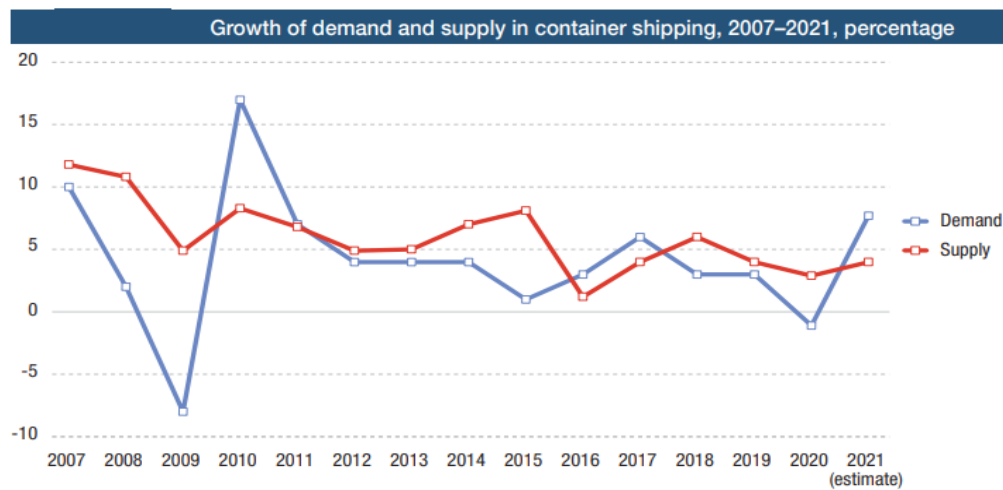
Rates are "gate-in gate-out", i.e., including terminal handling charges and all charges and surcharges of ocean transport. Not included are pre- and on-carriage as much as classical administrative services of forwarders (customs clearance, booking and invoice control fees, etc.). The average is unweighted, based on representative main ports. Trade imbalance is also impacting freight rates.

Table 1 Source: UNCTAD, 2021

A worth mentioning fact on containerized trading procedures is that the contract rates are negotiable in confidential manner between the shipper and the shipping lines. The market conditions in 2021 are showing an increase in the freight rates. Thus, the shippers in order to hedge against future increases in the market their goal is to close long-term agreements. The Table 1 is showing the freight rates of 2018-2020 on different sea routes, including also the inter-regional ones. The development of those

values is clear in this particular table, for example the freight rates in the trade of Asia to Europe were twice as high from the trading routes from Europe to Asia. But the most volatile shipping rates were the ones regarding the routes from and to Latin America.

In continuation, we can notice the changes in the supply and demand balance regarding the container freight rates. In the middle of the year 2020 the demand for the container shipping sector starting to increase. The percentage of idle vessels was fallen significantly within one month scale from June 2020 being at 9% to July 2020 which was down to 6%. The global container fleet capacity grown by approximately 3% in the year 2020 (UNCTAD, 2021). Following below Table 2 we have a visual of the supply and demand fluctuations and the interaction between the two variables for the years 2007-2021:



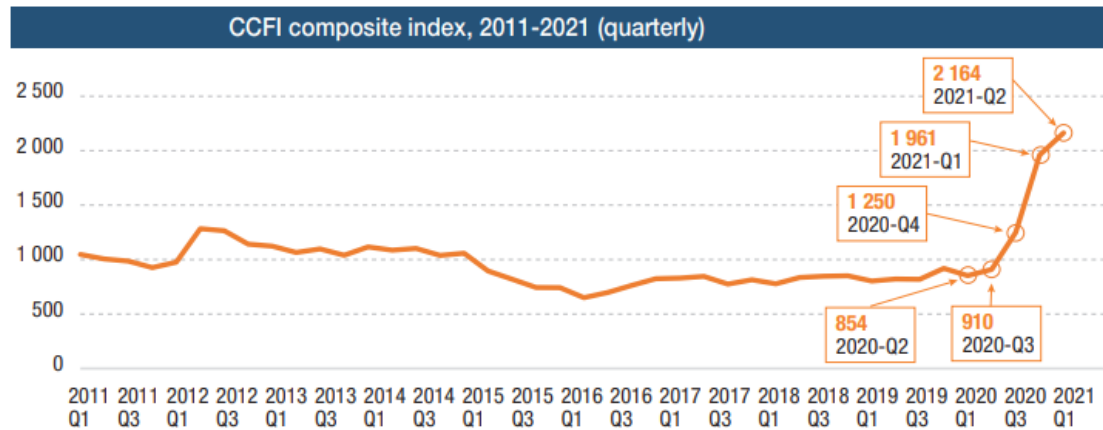
Source: UNCTAD secretariat calculations. Demand is based on data from chapter 1 – figure 1.5, and supply is based on data from Clarksons Research, *Container Intelligence Monthly*, various issues.

Notes: Supply data refer to total capacity of the container-carrying fleet, including multipurpose and other vessels with some container-carrying capacity. Demand growth is based on million TEU lifts.

Table 2, Source: UNCTAD, 2021

As we can observe from the above Table 2, the year that the demand variable was in its lowest levels on 2009, was the year that the EPU (Economic Policy Uncertainty) started to rapidly increase before entering the decade 2010-2021. The volume of mentions in the area of uncertainty for the China region was in contrast but with similar intensity with the demand in the trading sector. By the end of the crucial year of 2020 and with the covid-19 being already one year into everyday operations the shipping freight rates increased significantly. That was something that was mirroring also to the China container freight rate index (CCFI) for the short-term voyage agreements and also for the long-term time charters. Incredible increase for the CCFI was observe also for the

first quarter (Q1) of 2021 that was reaching new records with more than 2,000 points. This increase also explains the high volume in the orderbook for the containerships in the first quarter of 2021 (expecting delivery until 2025), that was mentioned in the beginning of this subchapter in Figure 3 above with visual volume number on the orders. Following Table 3 we have the mentioned freight index for China region:

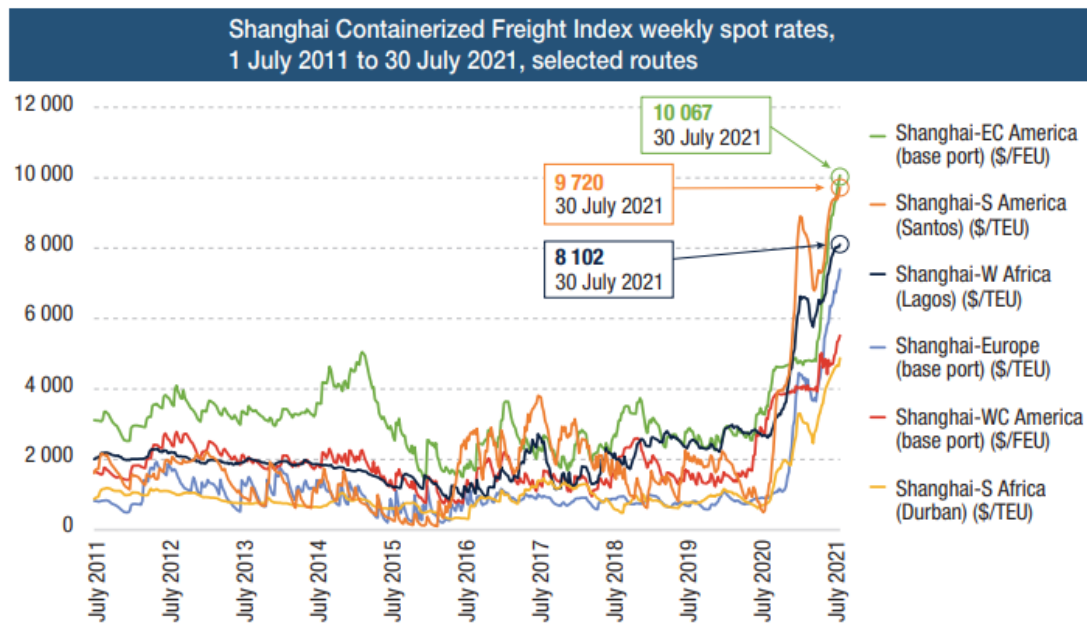


Source: Clarkson Shipping Intelligence Network Timeseries, Shanghai Shipping Exchange.

Note: The CCFI tracks spot and contractual freight rates from Chinese container ports for 12 shipping routes across the globe, based on data from 22 international carriers.

Table 3, Source: UNCTAD, 2021.

Furthermore, to our analysis during the most recent years which are still challenging due to the Covid-19 pandemic we should present that by the end of 2020 and the beginning of 2021 the freight rates were significantly increased due to container shortages and the port congestions. More specifically, these freight rates were mirroring into Shanghai Containerized Freight Index (SCFI). In the June of the year 2020 the SCFI spot rates on the Shanghai and Europe trading sea route were at 1000 dollars/TEU with the dramatic increase of 4000 dollars/TEU by the end of the same year of 2020. This increase was made on a scale of six months, and it is worth mention that the percentage of idle containerships in July 2020 was at 6% and keep falling. In the below Table 4 we have the SCFI weekly spot rates from the year 2011 until 2021 (July to July timescale comparison):



Source: UNCTAD secretariat, based on data from Clarkson Shipping Intelligence Network.

Table 4, Source: UNCTAD, 2021.

As observe by the graphic table 4, besides the Shanghai-Europe routes, the freight rates also increased in the China and United States trading sea routes. The Shanghai Containerized Freight Index reach the amount of 4.500 dollars/ FEU in the April of 2021 in comparison with the same month of the previous year which it was at 1.500 dollars / FEU. If Compare it also with this study previous subchapter (chapter 3.1) we can identify a larger intensity in the year 2020 on the EPU (Economic Policy Uncertainty) variable that the one in the first quarter of 2021. The Covid-19 period along with financial uncertainty from the previous years of Global Economic Crisis made a combination that was very challenging in shipping. Thus, each shipping market should be examined separately in order to comprehend the fluctuations in each sector (dry bulk, container, etc.). The variable of the volume in EPU along with the container freight rates and the orderbook are providing sufficient amount of data in order to examine the interactions between all those variables, analyze their high and low values as well as the results of the examination through analytical yearly, quarterly and monthly comparisons as we tried in the chapter three in this particular thesis and with the quantitative scale of our study.

Chapter 4: Shipowners' Statements on Companies Strategy

In this chapter we are going to present and examine the shipowner's view from some available interviews and their company's policy through their official company's website and other bibliographic sources that analyze the shipping companies' strategy through various financial volatility. In this way, further to our statistical data analysis we presented on chapter three of this thesis and further to the academic background analysis on the previous chapter one and chapter two of this particular study, we will obtain more qualitative research before we conclude with the in subject thesis. This section of our study is an important factor that we will have to consider before concluding to any results. The shipping companies' strategy through their management tools and moves plays a huge factor not just for this research but in any aspect of the maritime industry. As well presented earlier in this study, the Shipping industry depends a lot on the strategic moves of the shipowners in each stage of economy. The maritime sector is as global in nature as it is personal. The shipowner and his view of the surrounding in each face of economic policy uncertainty plays a key role to a domino effect consequence. The major practices are the adaptivity and flexibility of shipping companies regarding the liquidity and asset play management. From the shipowner's perspective the asset play management can provide major profits into the cashflow of the shipping company that will be proven to be life saving for the company in a downfall period for the shipping freight rates. For example, back in 2014 the assets sales and the cooperation of several shipping lines was emerged for cost saving reasons while they were trying to improve their efficiency (Smain Ghomri, 2015) in order to improve the operating margins in 2014. The Maersk Group, after launching the new plan on sustainability for 2014-2018, Maersk Line shows improvement in efficiency by approximately 8% in 2014 with fuel savings of 98 million dollars (Maersk Sustainability Report, 2014). With more cost saving measures, the Maersk Line reported profits of 2,3 billion dollars which was higher than 2013 by 831 million dollars. The shipping companies' environmental strategies are vital factors on efficiency and profits. The environmental policies globally are affecting the shipping companies that constantly trying to adapt and reduce emissions and zero decarbonization key performance indicators until the year of 2025. In the year of 2014 a reshaping of cooperation and partnerships was identified. A ten-year vessel sharing agreement between Maersk and the Mediterranean Shipping company for the Asian,

Europe and the Atlantic routes (Smain Ghomri, 2015). Another partnership was the three-ocean alliance between the China Shipping Container Lines, the CMA CGM, and the United Arab Shipping Company with the scope to save costs on various container shipping routes between Asia and Europe and of course between Asia and North America. This strategic move between those shipping companies shifted the shipping industry to use larger and more ecologically efficient vessels for Asia and Europe shipping routes. The mentality was to yield cost savings by using larger and more efficient vessels with better utilization in order to reduce CO2 emissions. As described in this chapter four, the environmental strategies and cooperation between major shipping companies regarding various shipping routes is a key factor in cost savings and better utilization tactics. The better efficiency in this type of vessels and in the container sector is what characterizes the most this market segment. The container market is known for the service delivery efficiency and the timely delivery of the commodities. The new environmental regulations of the IMO (International Maritime Organization) for the EEXI calculations (Energy Efficiency Existing Ship Index) is an overview with the Greenhouse Gas Strategy towards 2050. The goal of the IMO (International Maritime Organization) is to reduce the carbon intensity by forty percent (40%). This environmental regulation will also affect the shipowner and his decisions in the future regarding his fleet and the implementation of new environmental regulations. Going forward in this chapter analysis, in a more local orientation, we would see many Greek shipping companies handling all the volatility of the shipping industry and stay strong within this field. Some companies achieved their goals and become stronger after some strategic moves that they implemented into their companies, and some could not handle the economic pressure and ‘sank’. This industry shows us that the weak could not survive and only the strong ones make it and move forward even stronger. Furthermore, is needed to point out that there was always a strong asset play and financial management process of the “Greek way” that made many Greek shipowners to succeed in the global and intense shipping business. The one thing that would characterize the Greek shipping companies is the fact that they were always family oriented. That means that they kept management into the family and deal with all challenges and funding procedures this way. When Mr. Pittas Aristeidis⁴, the CEO

⁴ [Interview with Aristides Pittas, CEO of EuroDry and EuroSea- Greece Investor Guide](#)

of EuroDry and EuroSea, was asked what was the main reason that he decided to go “escape” the traditional Greek model company and go public back in 2005 he replied that the globalization era made the shipping industry even more competitive. He continues by saying that the shipping industry is known to be a capital-intensive market with the success of a company to be highly depended on the capital it can raise and invest in. So, the need for the right partners is crucial. He also said that the public company model can raise capital for the company with the investors not having to engage in the company’s decisions as long as their dividends were paid. Ultimately, he admits that this kind of management decision to go public with his family company was a combination of the ambition to raise more capital and invest back to his company and make it bigger and also the realization that a bigger company could have greater returns to the investors (Greece Investor Guide). When Mr. Pittas Aristeidis joined the Nasdaq in 2005 with his company EuroSea, the company had both dry bulk vessels and container vessels. We can see that the company used a diversified fleet model for its operations. He said that at the beginning the mixed fleet management was a good move for the United States investors who they did not know exactly the differences in the different segments of the shipping industry. But he continues by explaining that with the time passing the U.S investors started to understand the shipping business and its specifications, and they began to be more specific with their requirements for the different sectors of dry bulk, containers, tankers, and cruise shipping. So, he said: “Therefore, in 2018 we spun off our dry bulk vessels from EuroSea and formed EuroDry which we also listed on the Nasdaq. This proved to be the right move. The day we completed the split, the combined market capitalization of both companies increased by 50 percent the very next day. This confirmed the fact that the market was ready and wanted to have sector-specific companies.” (Greece Investor Guide). As we witness the logic behind Mr. Pitta’s Aristeidis strategic moves we can understand that the asset play in a right timing for each market segment can play a huge role in the volume of the returns that a company will have. The first decision was that the company went public and attract capital from its investors and the second hand he played was that he split his companies into the different types of vessels that he was operating with. That move appears to be the right one as the market capitalization for both companies increased by 50% within a day. The most important factor by the inside of this shipowner is that when you can “read” the market needs and expectations and of course when you are willing to take high risks then the combination of those two will lead your

company to great success and high returns. Moreover, when the outcome of the decision-making process gives high returns to a shipping company this company can be competitive within the intense and challenging field of shipping. Another Greek family shipping company is the Costamare Shipping Company⁵ which is one the strongest shipping companies in Greece and worldwide. Costamare always being a container shipping company with a lot of trading operation in China sea routes. Costamare Inc. is another Greek shipping company that is gone public and is listed to the New York Stock Exchange (NYSE). This company was a traditional container shipping company operating its vessels into the main sea routes of Shanghai with long term agreements in the time charter operation with major charterers for the shipping industry. This management strategy assist Costamare Shipping Company to steadily grow its fleet of container vessels and with many ups and downs coming strong into the challenging market of global shipping operations. In the public report⁶ of the Costamare inc. with the results of its third quarter for the year of 2021 and for the nine-month period until the September of the same year the financial results disclosed in the profitability section of the report a net income available to common stockholders of 107.4 million dollars for the third quarter (Q3) compared to 17.4 million dollars for the same quarter of the last year, 2020 (Costamare Inc. reports results for the third quarter and the nine-month period ended September 30, 2021). Therefore, the earnings per share for Q3 was at 0.87 dollars in comparison with the Q3 of 2020 which the earnings per share was at 0.14 dollars. The great increase in the earnings of its shares and the net income are outstanding within only one year. In this report of the third quarter for the year 2021 the strategy of the company is revealed by the sale and purchase section which presents a total fleet delivery of thirty-four (34) dry bulk carrier vessels. This shows how the company during the volatile years of Covid-19 and all the globally financial uncertainty took a risk in asset management and invested strongly in another segment of the shipping industry. With this strategic move, this company is trying to invest in a diversified shipping company model and be more competitive to other shipping sectors as well. With the large quantity of second-hand dry bulk carrier vessels, the company is investing in the spot market of dry bulk freight rates and

⁵ [Costamare Inc.](#)

⁶ [Earnings Releases and Presentations | Costamare IR](#)

chartering its container vessels in the long-term time charter agreements. With model of management the company is trying to get ahead of the financial uncertainty during covid period and play in more market segments with different chartering agreements in order to get the best deals out of each freight rate marketplace. Another management move that the Costamare company made is the sale of four (4) old container vessels and the delivery of a new one for the third quarter of 2021 that also come along with the fixture of five new containerships in a long-term time charters at a daily rate of 62,500 dollars. The management in financial and chartering decisions increased the liquidity of the Costamare Company which invests to asset management and diversified fleet. In conclusion, the management style of Costamare Shipping Company presents that the risk management in combination of well understanding of the shipping industry with the strengths and weakness can make a company even more dynamic and be much more competitive even in times of high volatility and extreme financial uncertainty for the global shipping operations. Furthermore, into a larger scale of the shipping industry and the management movements we have notice for the last five decades the creation and rise of the third-party ship management TPSM entities (Gouliemos Alexander M, Giziakis Kosta V. and Pallari Barbara, 2011). The first time that the third-party management of ships appeared was around the 1970s and by 2008 over two thousand (<2000) vessels were managed under third-parry managers. The traditional management style is for a shipping company to manage its own vessels. The third-party management institution thrived when the definition of ownership and management was separated, with Greece being an exception to this concept. Greece often appears to manage shipping industry in a unique ‘Greek traditional’ style from the start and on many occasions it seems to have work to the benefit of Greek shipowners. A great example on that is the history of Aristotle Onassis and his management decisions during the Second World War. Back to the third-party management companies, we can observe that their competitive advantage over the traditional management of the vessels by their own shipping companies internally would be the crew recruitment and the crew training that is provided by ‘crew supply manning agencies’ at the international maritime centers such as Manila in Philippines and China region in general. The crew supply and the crew chain are a key variable to the shipping companies in order to operate their vessels efficiently and with a large scale of accountability. The seafarers always be in nature as ‘freelancers’ they are difficult to obtain and growth within your company. The competition and the offers from all the shipping companies is huge as it is global. The

crew retention and the creation of a solid crew pool for a shipping company can be described as vital to the shipping organization and of course safe operations. The safety comes first in the challenging field of maritime industry and the timely and efficient operations follows, especially on the containerships which are “selling” high quality and timely services to their clients. For a company to create a solid crew pool over the years can be one of the competitive advantages over other companies. The crew pool creation can be difficult and the negotiations and good relationship with the manning agencies can be very challenging task for a shipping company to act on an internal basis especially if that shipping company handles a multinational crew onboard its vessels. The quality of the crew is another great factor that will engage the shipping companies to find ways in order to keep its seafarers in a high level of knowledge and experience over the years. The training certifications that are mandatory by the IMO (International Maritime Organization) are based on safety and seaworthiness of the vessel. A third-party manager is willing to keep and organized crew list and keep track of all the new trainings that a crew member need to undertake at a specific period in time and of course based on his pas training and experience in rank. We can understand that the crew management that a third-party manger has to offer is a huge link between the profitable and safe operation of a vessel. In an in-depth analysis of the management style and decision-making of a shipping company, and in order to understand the decision of some shipping companies to choose third-party managers in full management or just an entity of operations such as crew management previously presented we need to observe the traditional management structure of a shipping company (Stopford, 2009). First we have the ‘beneficial owner’ which enjoys the profit and actually has all the control of the company. Moreover, we have the ‘ship owning company’ for a one ship ownership. This is also known in legal terms as a ‘corporate veil’ that protects the shipowner financially. If something goes wrong with one vessel and claims arise then there is another company behind this particular ship and can protect the shipowner from losing any other assets in between financial negotiations with a third-party that has a claim on his vessel. Moving forward to the shipping company traditional structure we have the ‘holding company’ which owns all the shares of every ship company that belongs to the beneficial owner or owners. End last but not least we have the ‘management company’. This company could be internal or external with third-party managers. The third-party ship management is a very attractive model of management the day-to-day operations of a vessel or a whole fleet to an investor who is unaware of the shipping

industry and the markets that this industry is involved in. For example, if a bank can choose to invest in a vessel or a shipping company but does not actually have the knowledge of the actual operations and needs of a vessel. In order not to waste a perfectly good investment chooses to hire a third-party management with a full management agreement to run the vessel or vessels. This management agreement is usually closed with an agreed daily fee from the shipping company to the shipping manager. In other words, the third-party ship management is very attractive way of management your vessels when the amount of knowledge on the field of maritime is limited. Of course, due to the complexity and high-risk volatility in this particular case the third-party management is a one-way street. There are many requirements nowadays that can come from the STCW (Standards of Training, Certification and Watchkeeping) 1978/95 convention, ISM 1998/2002 Code (International Safety Management), ISPS 2004 Code (International Ship and Port Facility Security Code), SOLAS 1960/74 (Safety of Life at Sea) and MARPOL 1973/78 (Marine Pollution), also OPA 1990 (Oil Pollution Act) in the United States of America. All those requirements may exceed the capacity of knowledge of someone outside the maritime market and/or a small shipowner (Gouliemos Alexander M, Giziakis Kosta V. and Pallari Barbara, 2011). The third-party manager may offer a variety of solutions that a small shipowner could not obtain by his own management in an internally view. The economies of scale of the volume that a third-party manager might have to offer to the suppliers can be an advantage to a small company that does not have the suitable international network or lacks volume in order to achieve better prices. A small company with a small fleet may not achieve the prices that a third-party manager could because he has a greater list of suppliers and can also negotiate price in a different scale of volume because he manages more vessels from other companies as well and has the advantage of the economies of scale. Therefore, it is understood that the election of third-party ship management of a company is also management move in order to overcome the daily operation issues that will occur from managing its own vessels. The key to the successful third-party management deal is also for the shipowner to find the right company to operate his/her vessels. The management style that a third-party manager has is as important as for the shipping company to decide and manage its own vessels internally. A non-suitable third-party ship management company could be proven as catastrophic as an unsuitable owner to manage his/her fleet or fleets. The development of shipping markets is highly affected from China's economic

development and the Chinese seafarers also become more and more self-sufficient, so in terms of marketing and strategy of the shipping companies, the managers and the shipowners should have a long-term view on China region as a solid and fruitful strategy. China was planning to become the world's greatest shipbuilder by the year 2015 and achieved to build simple dry cargo vessels and starting to grow into the business of more sophisticated designs such as tankers and containerships. The China market is a market of which every shipowner wants to reach as a management move into a successful shipping company moving forward into the future. The companies shipping strategies consists of new shipping markets within the structure of specializes shipping segments such as containerships (Dr. Lorange Peter, 2005). So, a shipping company will have to cover various shipping functions and activities relatively well into specific shipping segments and their own turbulences. This means that a technical side and specific vessel needs will have to covered but also a deeper understanding of the marketplace mechanisms. Every shipping sector has different drivers and interacts in a different way. In this respect, a shipowner needs to act in a management way according to the market segment that he or she is operating in. The shipping freight rates in each sector are behaving in a different way and the chartering decision may change according to the conditions of the market. A shipping company with a diversified fleet which means that owns vessels of different types should act in a more complicated manner in order to cover every management decision of each fleet and each section of the market. For a shipowner with one type of vessel to operate and manage the decisions may be simpler because he or she has to coordinate and monitor just one shipping market. But when that one shipping market collapse then the chooses are limited and he or she is extremely open to failure if the company is not financially strong enough to deal with the market collapse. For a shipping company with a diversified fleet the monitoring and chartering decisions may vary, and this makes the management decisions even more complicated but when one market collapse maybe he can gain profits and sustain the vessels that are in the weak market with the ones that are in market with higher freight rates and better chartering agreements. This strategy is the 'Leverage Business' strategy (Dr. Lorange Peter, 2005) for shipping companies entering a new shipping segment in order to repeat a successful business model they already have for another shipping sector. Adding new markets into the shipping company's business plan in another way of management decision during rough waves and global economic uncertainty. This financial strategy also gives leverage to the

shipping company and creates a stronger competitive style of management towards the others shipping companies. The competition into the shipping industry is highly intense and every smart management move such as entering a new shipping sector could be proven really profitable for the shipping company that may decide to implement.

Conclusions

To sum up, this study tried to cover the academic perspective of the volatility and financial uncertainty of the shipping industry. The shipping industry being a highly capital-intensive market has many sectors and fields that needs to be examined and understood. The extreme volatility emerges from the global nature of this particular business. Firstly, the shipping cycles were presented because they are controlling the freight rates of every segment of shipping and the fluctuations occurring to those shipping freight rates. The understanding of those cycles, the seasonal fluctuations, and each wave a shipowner has to face each time before entering into a decision regarding the better operation of its assets is crucial. The conclusion after analyzing the shipping cycles is that for some of the shipowners they might not be able to recognize the wave that there are in and the decisions they will make will not profit their shipping companies. Maybe the greatest soft skill for a shipowner, a ship manager, an investor, a charterer, and any other stakeholder in the shipping industry is the situation awareness in combination of deep analytical skills that will lead to the best possible forecasting. The better the forecasting for the shipping company the best chance that company has for a good outcome after a management decision regarding the next moves of the shipping company. A major role for all the management decisions is the human element and if the shipowner will be more optimistic for a certain period than the actual period “can handle”. Another conclusion after our research is that within a lot of financial management strategies, this industry indicates that high risks may bring high returns, but a misread of a situation can cost the shipowner’s company. A difficulty that was observed during this research was the fact that some data on the freight rates and orderbook statistics were hard to be retrieved in a long-time scale that was needed in order to be fully compared with the whole length of the respective timescale that we analyzed regarding the EPU (Economic Policy Uncertainty) variable from the China region. Another difficulty that was met during the unfolding of this particular thesis was that the academic references and background for this particular research was very limited and this made it challenging in order to have sufficient data to examine, compare

and present for this research. Moreover, the variables that were examined in the quantitative scale of this study were the volume of mentions regarding the uncertainty keyword in articles and paper over the China region, which plays a major role into the shipping trading routes. The results showed that there is considerable connection between all those variables that interfere and influence each other. As it seems the volume of EPU (Economic Policy Uncertainty) can influence the shipping freight rates in an adverse way as they can influence the geopolitical risks. The difference in the interaction between all those variables is in the tension, the time and outcome results. For future references and deeper analysis, we can further observe the Covid-19 pandemic period and how it influences the shipping companies' strategic moves regarding their financial decisions and their decisions on the way of chartering the vessel. Also, it can influence the decision for a shipowner if he will enter the sale and purchase market which is a process combined with the freight rates fluctuation and of course in regard of the volume of EPU (Economic Policy Uncertainty). It will be interesting to review how the financial variable of uncertainty will unfold over the coming years influencing the freight rates and the orderbook of the newbuilding container vessels. At this moment we are still into the wave of the Covid-19 pandemic that started on 2019 and is still on going. The Covid-19 pandemic had very big impact on supply, demand, and the international trade (Christine Arriola, Przemyslaw Kowalski and Frank van Tongeren, 2021). There was also a great variation in the impact of goods across the world so different sectors affected in a different way than others. In this regard, we can assume that different shipping freight rate indexes were behaving in a different trend (and of course still are affected for all market sectors). A collapse and a recovery for various market segments already occurred and the aftermath of this pandemic along with all the new container vessels deliveries expected until 2025 will unfold the consequences and reveal at what stage of the shipping cycle the 2025 onwards will stand. The crew challenges and the difficulties into China region ports due to extreme measures against the Covid-19 is affecting the trade regarding the various routes of China and Shanghai being important shipping centers. The decisions of management from the shipowner's side will begin to present after the pandemic is over and well-adjusted into everyday life globally. After that period another wave will hit the shipping industry in a positive or negative way for the shipowner's side. Whatever the results of such research will conclude to be the key variables will be the decisions of the shipping companies in the liner sector all together and how they reacted

into the financial uncertainty variable. At this moment we can only touch the surface of those decisions into the challenges of the pandemic by looking at the years that started and the current year that we are still in. The outcome of this challenging years will provide the whole picture of an era that really challenged the shipping industry and the trading market along with the crewing and chartering market. The crew members and the manning agencies in China change a lot the landscape for the shipping companies and their decision making for cutting as many costs that emerge during Covid-19 as possible. The crew planning strategies and the crew management is becoming even more crucial with the Covid-19 pandemic. The shipping companies, especially those trading in China and having Chinese crew onboard their vessels, are still struggling to find solutions for their crew pools retention, the crew reliefs and repatriation plans. Many companies in order to cut costs may choose to make full crew changes nationalities onboard in order to avoid high costs on wages, tickets, quarantine days and repatriation fees. After the combination of all variables around the shipping industry we can come to the conclusion that China has a strong growth of demand and has an increasingly freight-intensive economic structure (Xun Xu, Nicholas Chase, Tianduo Peng, 2021). The globalization of the world economic factors together with an increased competition and of course the rapid technological developments in all the shipping freight transportation market segments are affecting the financial environment of the maritime industry. All these challenges will lead the shipping companies to step up their management game in every aspect of shipping and this means the environmental aspect, the crewing management, the asset play, the financial management and decision-making, the chartering management, the risk assessment and all the new technological innovations that will need to be implemented to their vessels' operations in order to be efficient and profitable. The importance of the financial uncertainty variable and the volume of mentions in the news sector will need to be taken into account along with the freight rates fluctuations for the final management decisions regarding the choice between the newbuilding market, the sale and purchase market of second-hand vessel purchase or selling their assets or go to the demolition market that will also provide another form of liquidity for the shipping company to invest with and also release some pressure of tonnage from the international shipping transportation. After all the quantitative and qualitative data analysis in this particular study we can safely come to the conclusion that each shipowner may act in a different management way by looking with a unique way into the future. This means that for some shipowners

their decision making will be modest and for some will be bold and more risk taking. The management model that will handle the volatility of shipping industry and the financial external environment is an answer yet to be discovered after each challenging era that the shipping industry will have to deal with. For the Greek shipping companies model we usually observe that the decisions on cargo and procurement policies, the sale and purchase decisions and the financial management is usually handled internally. So, for a third-party manager the rest non-core functions are left to 'chase' and actually achieve a management agreement between them (TPSM) and the shipowner company. The decision of a shipowner to hire a third-party manager comes with the competitive efficiency a shipping company has to present to the market in order to gain more clients and chartering deals for their vessels. In this whole study we analyzed in many ways through various sections that the shipping industry is highly volatile, capital-intensive, and extremely competitive. All those characteristics are explained and driven through the complexity and the intonational nature of this particular business. If a shipowner is willing to survive in those extreme circumstances and also stay competitive himself/herself, then the shipowner as a highly competitive move will choose to give his vessels to be managed and high operated by a third-party ship management company. In the year of 2022, we can say that third-party manager is 'walking' hand-by hand and in parallel roads with the ship owning shipping companies.

Appendixes

Excel file – “China_Mainland_Paper_EPU”

A	B	C	D	E	F	G	H	I	J	K
year	month	EPU	Source: "Economic Policy Uncertainty in China Since 1949: The View from Mainland Newspapers," by Steven J. Davis, Dingqian Liu and Xuguang S. Sheng, 2019.							
2000	1	59,0	These data can be used freely with attribution to the authors, the paper, and www.policyuncertainty.com.							
2000	2	15,9								
2000	3	46,5								
2000	4	28,3								
2000	5	31,4								
2000	6	43,2								
2000	7	42,7								
2000	8	27,4								
2000	9	31,5								
2000	10	42,3								
2000	11	10,1								
2000	12	48,5		426,8	35,6					
2001	1	52,6								
2001	2	40,7								
2001	3	58,2								
2001	4	26,1								
2001	5	27,7								
2001	6	41,3								
2001	7	30,3								
2001	8	38,8								
2001	9	43,5								
2001	10	51,1								
2001	11	53,3								
2001	12	60,7		524,3	43,7					
2002	1	62,4								
2002	2	40,9								
2002	3	54,1								
2002	4	45,9								
2002	5	47,0								
2002	6	30,4								
2002	7	54,3								
2002	8	44,1								
2002	9	55,5								
2002	10	56,7								
2002	11	59,9								
2002	12	91,0		642,1	53,5					
2003	1	46,2								
2003	2	28,0								
2003	3	71,2								
2003	4	101,6								
2003	5	68,8								
2003	6	55,0								
2003	7	85,3								

2003	8	61,1							
2003	9	49,7							
2003	10	62,9							
2003	11	38,9							
2003	12	53,1		721,7	60,1				
2004	1	55,9							
2004	2	57,6							
2004	3	47,9							
2004	4	58,9							
2004	5	37,1							
2004	6	51,1							
2004	7	47,4							
2004	8	44,3							
2004	9	34,6							
2004	10	61,9							
2004	11	48,7							
2004	12	73,2		618,5	51,5				
2005	1	48,8							
2005	2	39,7							
2005	3	41,2							
2005	4	79,5							

2005	5	23,7							
2005	6	46,8							
2005	7	61,6							
2005	8	59,4							
2005	9	70,0							
2005	10	52,5							
2005	11	35,5							
2005	12	64,1		622,7	51,9				
2006	1	97,8							
2006	2	63,5							
2006	3	55,1							
2006	4	59,4							
2006	5	37,9							
2006	6	47,0							
2006	7	55,9							
2006	8	59,3							
2006	9	24,9							
2006	10	70,8							
2006	11	59,0							
2006	12	64,1		694,6	57,9				

2007	1	29,0							
2007	2	39,8							
2007	3	60,2							
2007	4	41,1							
2007	5	37,0							
2007	6	44,4							
2007	7	58,8							
2007	8	50,1							
2007	9	59,0							
2007	10	55,1							
2007	11	46,7							
2007	12	84,1	605,3	50,4					
2008	1	82,0							
2008	2	54,4							
2008	3	135,9							
2008	4	91,6							
2008	5	67,6							
2008	6	62,9							
2008	7	126,0							
2008	8	128,4							
2008	9	103,9							
2008	10	150,5							

2008	11	126,1							
2008	12	125,1	1254,7	104,6					
2009	1	133,9							
2009	2	102,9							
2009	3	116,1							
2009	4	81,1							
2009	5	57,3							
2009	6	179,8							
2009	7	134,8							
2009	8	121,9							
2009	9	190,3							
2009	10	121,3							
2009	11	123,1							
2009	12	103,6	1466	122,2					
2010	1	119,2							
2010	2	106,0							
2010	3	143,9							
2010	4	95,0							
2010	5	106,9							
2010	6	138,5							
2010	7	127,5							

2010	8	95,2							
2010	9	82,1							
2010	10	97,9							
2010	11	93,3							
2010	12	125,8		1331,3	110,9				
2011	1	155,0							
2011	2	59,0							
2011	3	120,8							
2011	4	135,2							
2011	5	74,1							
2011	6	102,7							
2011	7	99,8							
2011	8	140,3							
2011	9	142,5							
2011	10	157,7							
2011	11	161,9							
2011	12	159,6		1508,6	125,7				
2012	1	120,4							
2012	2	139,2							
2012	3	136,8							
2012	4	126,3							

2012	5	133,2							
2012	6	139,0							
2012	7	120,4							
2012	8	78,8							
2012	9	120,5							
2012	10	113,1							
2012	11	122,3							
2012	12	142,1		1492	124,3				
2013	1	130,2							
2013	2	84,3							
2013	3	90,5							
2013	4	119,7							
2013	5	71,5							
2013	6	102,7							
2013	7	76,2							
2013	8	100,9							
2013	9	100,9							
2013	10	153,1							
2013	11	120,6							
2013	12	124,2		1274,8	106,2				

2014	1	103,5							
2014	2	70,6		one of the lower prices since 2007					
2014	3	100,0							
2014	4	129,5							
2014	5	77,4							
2014	6	105,8							
2014	7	94,6							
2014	8	77,6							
2014	9	107,9							
2014	10	99,8							
2014	11	120,1							
2014	12	58,9		1145,8	95,5				
2015	1	98,0							
2015	2	95,1							
2015	3	116,3							
2015	4	63,9							
2015	5	68,3							
2015	6	95,5							
2015	7	133,6							
2015	8	60,2							
2015	9	96,4							
2015	10	87,3							

2015	11	96,1							
2015	12	94,5		1105,4	92,1				
2016	1	127,5							
2016	2	108,1							
2016	3	155,2							
2016	4	165,2							
2016	5	117,5							
2016	6	131,5							
2016	7	112,4							
2016	8	116,3							
2016	9	147,6							
2016	10	106,8							
2016	11	133,1							
2016	12	130,6		1551,8	129,3				
2017	1	306,0							
2017	2	176,4							
2017	3	349,1							
2017	4	174,2							
2017	5	130,8							
2017	6	227,7							
2017	7	228,2							

2017	8	164,7							
2017	9	206,4							
2017	10	142,5							
2017	11	206,0							
2017	12	167,7		2479,7	206,6				
2018	1	265,1							
2018	2	149,6							
2018	3	254,1							
2018	4	241,7							
2018	5	210,8							
2018	6	203,1							
2018	7	395,7							
2018	8	269,5							
2018	9	314,1							
2018	10	343,4							
2018	11	438,2							
2018	12	248,5		3333,8	277,8				
2019	1	288,1		Covid-19 starts					
2019	2	240,0							
2019	3	411,2							
2019	4	319,4							
2019	5	365,1							
2019	6	649,1							
2019	7	375,9							
2019	8	396,0							
2019	9	347,4							
2019	10	234,1							
2019	11	396,2							
2019	12	337,9		4360,3	363,4				
2020	1	250,3							
2020	2	195,7							
2020	3	219,4							
2020	4	328,8							
2020	5	501,3		*compared to freight rate index for the last week of May and first of June					
2020	6	421,6							
2020	7	324,7							
2020	8	451,6							
2020	9	493,4							
2020	10	396,8							
2020	11	661,8							
2020	12	439,1		4684,7	390,4				
2021	1	378,4							
2021	2	237,4							
2021	3	302,3		918,1	306				

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