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ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ

UNIVERSITY OF PIRAEUS

**ΘΕΜΑ: Χρηματοοικονομική ανάλυση λογιστικών καταστάσεων
εισηγμένων εταιριών της εμπορικής ναυτιλίας**

του ΦΟΙΤΗΤΗ:

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ΕΠΙΒΛΕΠΩΝ ΚΑΘΗΓΗΤΗΣ:

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ABSTRACT

This thesis is the application of the theory of the analysis of accounting statements, using numerical indicators, in 20 companies that are active in the commercial shipping sector, for the period 2019 – 2022. The primary objective is to evaluate the financial health, performance trends, and economic sustainability of these entities over a specified period. Utilizing a range of financial ratios drawn from publicly available balance sheets, income statements, and cash flow statements, the study aims to uncover underlying patterns and insights that affect the overall performance and strategic positioning of these companies within the global marketplace. The analysis is structured around three main categories of financial ratios: liquidity ratios, profitability ratios, and debt ratios. Liquidity ratios, including the current ratio and cash ratio, assess the short-term financial stability and the ability of companies to meet their immediate liabilities. Profitability ratios, such as net profit margin, Return on Total Assets (ROA), and Return on Equity (ROE), provide insights into the companies' ability to generate income relative to revenue, assets, and shareholders' equity. Lastly, debt ratios, highlighted by the debt to equity ratio, offer perspectives on the levels of financial leverage and risk management employed by these firms. By comparing these ratios against industry averages and across different time periods, the thesis identifies trends in financial management and performance efficiency. The study also considers the impact of external economic factors on the financial stability of these shipping companies, including changes in global trade dynamics, fluctuating fuel prices, and evolving regulatory environments. Findings from this research will contribute to a deeper understanding of financial strategies in the commercial shipping industry and provide valuable insights for investors, managers, and policymakers interested in maritime economics. The implications of this study are significant, offering a grounded perspective on the financial tactics that lead to sustainable growth and resilience in a highly competitive and capital-intensive industry.

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1. INTRODUCTION

1.1 Objective purpose of the thesis

The marine industry, a crucial component of global trade, is responsible for facilitating the transportation of over 80% of the world's goods. The objective of this study is to conduct a comprehensive comparative examination of the financial performance associated with four prominent categories of maritime vessels, namely tankers, bulkers, containerships and LNG spanning the timeframe from 2019 to 2022.

A significant advancement has been the increasing digitalization of the maritime industry. Data analytics and digital technology are helping ship owners and operators monitor and optimize several aspects of vessel operations, including fuel usage and repair needs. Implementing predictive maintenance solutions can identify and resolve possible issues in advance, reducing the need for costly repairs or operating downtime. Moreover, the utilization of route optimization software can efficiently reduce fuel usage, which is a substantial factor in operational expenses (OPEX) for most vessels.

The COVID-19 epidemic has significantly impacted vessel operating expenses (OPEX). The worldwide health crisis has led to increased costs related to personnel rotations due to travel restrictions and necessary quarantine requirements. In addition, the enforcement of the International Maritime Organization's (IMO) sulfur cap restriction in January 2020 has led to increased bunker costs. Shipowners have had to bear the financial burden of the higher expenses related to the more expensive IMO sulfur-compliant fuel (Sigalas, 2022).

This paper aims to conduct a comparative analysis of the financial performance associated with Tankers, Bulk Carriers (Bulkers), Containerships and LNG which are widely recognized as FOUR prominent vessel types within the maritime industry. Tankers and bulkers are distinct types of vessels that serve different purposes in the transportation industry. Tankers are primarily used for transporting liquid cargoes, such as crude oil or oil products, while bulkers are designed to carry dry bulk cargoes, including grain and coal. Containerships are designed to carry containers that include financial commercial products and LNG carry liquified natural gas. These four types of vessels exhibit varying operational characteristics and cost structures. The objective of this study is to analyze and compare the financial performance of four distinct vessel types from 2019 to 2022. Through this analysis, we seek to enhance comprehension of the financial dynamics associated with these vessels and make a valuable contribution to the field of cost management within the maritime industry.

By doing this analysis, our goal is to improve understanding of the financial dynamics related to these organizations and provide a meaningful contribution to the field of cost management in the marine industry.

A significant constraint of our study is its limited temporal scope, focusing just on the period starting from 2019.

1.2 Thesis' Structure

The study is structured as follows: In Section 2, we give a brief literature assessment on the shipping business. In Section 3, we illustrate the organization of maritime enterprises by vessel type. In section 4, we present our results. Section 5 describes the data analysis and findings. Finally, in Section 6, we give our conclusions.

2. Presentation of the commercial shipping industry

2.1. Definition of shipping industry and market overview

The shipping industry refers to the sector of the economy that is involved in the transportation of goods and commodities via ships or vessels across various domestic and international waterways. This industry is vital for global trade, as it facilitates the movement of raw materials, manufactured goods, and other products between different countries and regions. The shipping industry encompasses a wide range of activities, including freight transportation, logistics, port operations, cargo handling, and related services such as shipbuilding, ship maintenance, and maritime insurance. It plays a crucial role in supporting international trade, promoting economic growth, and connecting markets worldwide.

Seaborne transportation is the most efficient way of moving large quantities of cargo over long distances. The shipping industry is therefore essential for a large proportion of global trade. Since it accounts for approximately 2-3% of the emissions that cause climate change, there is increasing pressure on the sector to reduce its carbon footprint. If nothing is done, shipping's emissions are expected to increase both in absolute terms and as a share of global CO₂ and GHG emissions. But much is being done! Shipping mirrors the industries that it serves, and hence its emissions will decline along with the decarbonisation of the global economy.

The shipping industry has just come out of a period of extraordinarily high earnings across multiple vessel segments. In 2022, the ClarkSea index almost matched its peak from 2007. Interestingly, all the main vessel segments – few at the same time – occasionally supercharged the index from the fourth quarter of 2019 to the first quarter of 2023. Tankers kickstarted the boom in October 2019 but maintained momentum only until May 2020, and have since May 2022 regained strength.

Crude and Product Tankers are positioned for an extraordinary earnings season in 2023. Distance-adjusted demand is predicted to expand by 5.6% and 10.9%, respectively, while the fleets are scheduled to expand by less than 3%. When we add the fleets' reduced cargo-carrying capacity as a result of longer travel distances, and the expected slow steaming of older vessels in the wake of the new IMO regulations (EEXI and CII), we have one of the strongest market outlooks for decades. Chemical Tankers are not obviously positioned for a fantastic year, but a robust Product Tanker market is likely to swing enough Chemical Tanker capacity to Product Tanker trades to allow freight rates and secondhand prices to increase.

Containers are facing a tough year, with supply predicted to expand significantly ahead of demand. Older vessels are likely to be scrapped, while younger vessels are expected to be laid up. Timecharter rates are expected to drop significantly, while box rates remain subject to liner operators' ability to manage capacity within the alliances.

LNG Carriers could be in for a bumpy ride with periods of surplus vessel capacity. It remains to be seen to what extent steam turbine vessels will be scrapped to balance the market. Many expect that new import and export facilities will open in time to employ the massive fleet expansion set to take place over the next three to four years.

2.2. Distinction of commercial ships according to the purpose and mission they serve

Bulk carrier ships are specifically designed to transport unpackaged bulk cargo, such as grains, coal, ore, and cement, in large quantities. They can be distinguished based on their purpose and the type of cargo they are built to carry. The following are some of the common types of bulk carriers:

1. **Ore Carriers:** These ships are specifically designed to transport raw materials, such as iron ore and nickel, from mining sites to processing facilities or to ports for export. They are equipped with special features to handle the heavy cargo and protect it from the elements during transit.

2. **Coal Carriers:** These vessels are designed to transport coal in large quantities, primarily from coal mines to power plants or ports. They are built to handle the specific requirements of coal transportation, including ventilation systems to prevent the risk of combustion.
3. **Grain Carriers:** These ships are designed to transport agricultural products, including wheat, corn, and other grains, in large quantities. They typically have special features to ensure the proper storage and handling of the cargo to prevent spoilage and contamination.
4. **Cement Carriers:** These specialized bulk carriers are designed to transport cement and similar construction materials in large quantities. They are equipped with features that ensure the safe and efficient transportation of the cargo, including proper storage and handling systems.

Based on its transportation capacity bulk carriers are categorized as below:

Handysize, dry cargo: Dry bulk carrier of between approximately 10,000 and 40,000 dwt.

Handymax, dry cargo: Dry bulk carrier of between approximately 40,000 and 60,000 dwt.

Panamax, dry cargo: Dry bulk vessel with the maximum dimensions for passing through the Panama Canal (width of 32.21 metres and length of 289.5 metres) of approximately 60,000 - 100,000 dwt.

Capesize: Dry bulk carrier of more than approximately 100,000 dwt; too large to pass through the Panama Canal.

Multi-Purpose: Dry bulk carrier with multiple applications, mainly as a feeder vessel or for special cargo.

Container ships can be distinguished based on their purpose and mission, which typically vary according to their design, size, and capabilities. They are generally classified into different categories based on their specialized functions. Some of the common distinctions include:

1. **Ultra Large Container Vessels (ULCVs):** These are the largest container ships designed to transport a vast number of containers in a single voyage, often exceeding 20,000

twenty-foot equivalent units (TEUs). They are used for long-haul routes and are well-suited for high-capacity ports.

2. **Feeder Vessels:** Feeder ships are smaller container vessels that are utilized to transport containers from smaller regional ports to larger central hubs. They play a crucial role in the logistics chain, helping to distribute cargo to and from the mainline vessels.
3. **Panamax and New Panamax Ships:** Panamax vessels are specifically designed to fit through the Panama Canal locks, whereas New Panamax ships are built to the maximum size permissible for the expanded Panama Canal. These ships play a crucial role in intercontinental trade by facilitating the passage through the Panama Canal, connecting the Pacific and Atlantic Oceans.
4. **Specialized Reefer Vessels:** These ships are equipped with refrigeration capabilities and are designed to transport perishable goods, such as fruits, vegetables, and other temperature-sensitive products, over long distances while maintaining the required temperature.
5. **Liner Vessels:** These container ships operate on fixed schedules and routes, providing regular services for transporting containers between specific ports. They are essential for maintaining consistent and reliable shipping services.
6. **Multipurpose Vessels:** Multipurpose ships are versatile vessels that can carry different types of cargo, including containers, general cargo, and even some bulk commodities. They are equipped with various features to accommodate different types of goods, making them adaptable for a range of transport needs.

Based on its transportation capacity LNG are categorized as below:

Panamax, container: Container carrier with the maximum dimensions for passing through the Panama Canal (width of 32.21 metres, length of 291 metres) of approximately 3,000—5,100 teu.

Reefer: Container vessel with cooling/freezing capacity.

Post-Panamax: Container vessel of approximately 5,100+ teu that is too large to pass through the Panama Canal.

Liquefied natural gas (LNG) ships can be categorized based on their purpose and mission within the LNG supply chain. These ships are crucial for the transportation of LNG across the globe. The main types of LNG ships are typically classified as follows:

1. **LNG Carrier (LNGC):** LNG carriers are designed to transport LNG from the liquefaction plants to receiving terminals or from one terminal to another. They come in various sizes and capacities, ranging from small-scale carriers to large vessels capable of transporting significant quantities of LNG across long distances. LNG carriers are equipped with specialized storage tanks and handling systems to ensure the safe transportation of LNG.
2. **Floating Storage and Regasification Unit (FSRU):** FSRUs are a specialized type of LNG ship that serves the purpose of storing and regasifying LNG. These vessels play a crucial role in providing a flexible and efficient solution for the import of LNG, as they can be stationed near the shore, allowing for the regasification of LNG and its injection into the natural gas transmission grid. FSRUs are equipped with onboard regasification facilities, making them an integral part of the LNG supply chain infrastructure.
3. **LNG Floating Production Storage and Offloading (LNG FPSO):** LNG FPSOs are a type of floating production, storage, and offloading unit specifically designed for the production, storage, and offloading of LNG. These vessels are used in offshore LNG production projects, where they serve as a platform for the processing and liquefaction of natural gas extracted from offshore fields. LNG FPSOs combine the functions of a production facility, storage unit, and offloading terminal, making them a comprehensive solution for offshore LNG production.
4. **LNG Bunkering Vessel:** LNG bunkering vessels are designed to provide LNG as a fuel for ships, primarily for use in the marine transportation sector. These vessels play a critical role in facilitating the transition to cleaner fuel alternatives in the shipping industry, supporting the use of LNG as a marine fuel for both environmental and regulatory compliance reasons.

Based on its transportation capacity LNG are categorized as below:

- SNGC (Small Natural Gas Carrier): LNG tanker smaller than 60,000 cbm.
- HNGC (Handy Natural Gas Carrier): LNG tanker between 60,000 cbm and 99,999 cbm.
- MNGC (Medium Natural Gas Carrier): LNG tanker between 100,000 and 139,999 cbm.
- LNGC (Large Natural Gas Carrier): LNG tanker between 140,000 and 199,999 cbm.
- VLNGC (Very Large Natural Gas Carrier): LNG tanker above 200,000 cbm.

Tanker ships are classified based on the purpose and mission they serve. The primary distinction lies in the types of cargo they carry, which can range from crude oil and petroleum products to chemicals and liquefied natural gas (LNG). Here are the main types of tanker ships:

1. **Crude Oil Tankers:** These tankers are specifically designed for transporting unrefined crude oil. They come in various sizes, from smaller vessels that can navigate shallow waterways to massive VLCCs (Very Large Crude Carriers) and ULCCs (Ultra Large Crude Carriers) that can transport millions of barrels of oil across the oceans.
2. **Product Tankers:** Product tankers are used for transporting refined petroleum products such as gasoline, diesel, and jet fuel. They come in different sizes as well, including Panamax, Aframax, and Suezmax tankers, depending on their capacity and the size of the canals or straits they can pass through.
3. **Chemical Tankers:** These specialized tankers are designed to carry various chemicals, including industrial chemicals, organic chemicals, and inorganic chemicals. They are built with specific materials and features to ensure the safe transportation of hazardous and non-hazardous chemicals.
4. **Liquefied Natural Gas (LNG) Carriers:** LNG carriers are designed to transport liquefied natural gas at extremely low temperatures. They are equipped with specialized tanks and advanced insulation systems to maintain the cargo in its liquid state throughout the journey.

5. **Liquefied Petroleum Gas (LPG) Carriers:** LPG carriers are built to transport gases such as propane and butane. They are equipped with specialized tanks and handling systems to accommodate the unique properties of liquefied petroleum gases.

Based on its transportation capacity Tankers are categorized as below:

- Handy, tank: Crude oil tanker or product tanker of between 10,000 and 25,000 dwt
- Panamax, tanker: Crude oil tanker or product tanker with the maximum dimensions for passing through the Panama Canal (width of 32.21 metres and length of 289.5 metres) of approximately 80,000 - 60,000 dwt.
- Aframax: Crude oil tanker or product tanker too large to pass through the Panama Canal and below 120,000 dwt.
- Suezmax: Crude oil tanker with the maximum dimensions for passing through the Suez Canal (approximately 120,000 - 200,000 dwt.).
- VLCC: Very Large Crude Carrier. Crude oil tanker of between approximately 200,000 and 320,000 dwt.
- ULCC: Ultra Large Crude Carrier. Crude oil tanker above 320,000 dwt.

2.3. The evolution of commercial shipping in Greece

The evolution of commercial shipping in Greece has been a significant aspect of the country's economic and cultural history. Dating back to ancient times, Greece has maintained a strong maritime tradition, with a focus on seafaring and trade. Over the centuries, this tradition has evolved, playing a crucial role in shaping the modern shipping industry. The following overview highlights the key stages of this evolution.

Ancient Greece witnessed the emergence of a robust maritime trade network, with city-states like Athens and Corinth establishing themselves as prominent maritime powers. Greek ships, such as the trireme, became renowned for their advanced design and contributed to the expansion of trade routes across the Mediterranean.

During the Byzantine Empire, Greek merchants continued to dominate the maritime trade in the Eastern Mediterranean. They maintained a strong presence in Constantinople (modern-day

Istanbul) and other key ports, facilitating trade between Europe and Asia. The Byzantine navy played a crucial role in protecting trade routes and ensuring the security of maritime commerce.

The period of Ottoman rule saw a decline in Greece's commercial shipping influence, as the Ottoman Empire limited Greek maritime activities. However, Greek shipping experienced a resurgence in the 19th century with the country's struggle for independence. After gaining independence in 1830, Greece began to rebuild its maritime industry, leading to the emergence of significant shipping families such as the Livanos, Onassis, and Niarchos.

The early 20th century marked a turning point for Greek shipping, as it began to expand globally. Greek shipowners capitalized on the aftermath of World War I, acquiring surplus vessels at low prices. During World War II, the Greek merchant fleet played a pivotal role in supporting the Allied forces, solidifying Greece's position in the international shipping industry.

The second half of the 20th century saw a rapid growth in the Greek merchant fleet, making Greece one of the leading maritime nations in the world. Greek shipowners embraced technological advancements and expanded their fleets, contributing significantly to global trade and the transportation of goods. The late 20th and early 21st centuries witnessed further expansion, with Greek shipping companies diversifying their activities to include container shipping, bulk carriers, and oil tankers.

Today, Greece remains a dominant force in the international shipping industry, with a substantial fleet that continues to play a vital role in global trade and the transportation of goods. The country's maritime sector contributes significantly to the national economy, making it a crucial pillar of Greece's economic prosperity.

2.4. The contribution of Greek shipping to the Greek economy

Greek shipping has long been a cornerstone of the Greek economy, contributing significantly to the nation's financial prosperity. The Greek shipping industry has consistently been one of the largest in the world, with a dominant presence in global maritime trade. Its importance is reflected in various economic indicators, including the substantial share of the Greek fleet in the international merchant fleet.

According to data from the Greek Shipping Co-operation Committee (GSCC) and other authoritative sources, Greek-owned ships comprise a substantial portion of the world's merchant fleet, with Greek shipowners controlling one of the largest merchant fleets globally. This has had a profound impact on the country's economy, contributing substantially to its GDP and providing employment opportunities for thousands of individuals in various capacities, including crew members, shipbuilders, and maritime service providers.

Furthermore, the income generated from shipping activities has been instrumental in supporting the national economy through foreign exchange earnings and investment inflows. It has also played a crucial role in shaping the country's trade relations and fostering international economic connections.

The Greek shipping sector's resilience and adaptability in the face of global economic challenges have solidified its position as a critical pillar of the Greek economy, demonstrating its ability to navigate through various market fluctuations and geopolitical uncertainties.

The largest percentage of the Greek fleet consists of trucks and passenger ships. Greek shipping participates in overseas trade, which conducts on behalf of other third countries, since in Greece the transport project is limited and cannot cover the availability of Greek fleet. Thus, Greek shipping is directly affected by the foreign freight market as well as international financial markets. For example, it may be affected by an economic crisis or a war conflict and by measures of protectionism that might be taken by state governments for protection of their shipping.

The shipping industry plays an important role in economic activity of the Greek economy. It belongs to the tertiary sector of the economy and is the major transport sector. It is the most outgoing and dynamic sector of the Greek economy, as it is also involved in a number of other financial sectors activities in various ways, without at the same time relying on state grants. Shipping contributes significantly to its macroeconomic figures economy, as a result of its high international performance and knowledge and of the experience it has acquired from its long course.

Shipping contributes to national product as a private sector through income of working seamen and business annuities but also as a public sector through all kinds of income arising from its activities. According to the data of the Bank of Greece, the receipts from services of maritime transport during the period 2015 to 2018 was on average 12 billion euros per year (i.e., about 6.8% of GDP), representing 37% of the total receipts of the balance of services. In the same period the net receipts (receipts minus payments) averaged 6 billion euros per year and covered about 32% of its deficit balance of goods. The upward trend recorded by maritime receipts transfers in the years 2017 and 2018 continued in the year 2019. According to the study prepared by Deloitte on behalf of "Navtemporiki" either directly or indirectly contribution of shipping to the country's GDP amounted to 12.9 billion euros in the year 2019.

The shipping industry also contributes significantly to the increase in employment, because it employs personnel at sea, on land and in the various paramaritime vessels professions supported by the wider shipping industry. Also, shipping industry has a positive influence on the balance of services, trade balance, in the country's balance of payments but also in the fiscal sector, through tax revenues derived from shipping.

3. Detailed Shipping Market Review

Shipping markets at a glance

The outlook for freight rates and secondhand prices is doubtful. Tanker vessels are poised for success in 2024, but owners of Container, Gas Carrier, and Dry Bulk ships may have to decommission older and less efficient vessels to sustain current fleet utilization rates. Global dynamics are influencing the long-term demand picture, indicating a decrease in seaborne trade relative to economic growth. Trade volumes may decrease, leading to a rise in demand for regional shipments by smaller boats due to reduced parcel sizes and altered trading patterns. The shipbuilding sector is facing challenges in replacing the current fleet. 231 out of 300 shipyards worldwide, which is about 40% of the existing shipyard capacity, will have completed their final vessel order by the end of 2025.

The shipping industry is currently prioritizing the energy transition, focusing on climate targets and sustainable transport fuels. However, there is a high need for ships that carry fossil fuels. Increased oil and gas prices have caused a rise in exploration activities, while numerous renewable energy projects are facing higher costs because of inflation and supply chain challenges. The Gas Carriers orderbook is substantial, however there are few Oil Tankers on order. Gas demand is projected to peak after oil demand, but both sectors are predicted to experience decreased demand as renewable energy generation expands.

In 2023, strong freight rates and high secondhand prices indicate that demand has exceeded supply. The forecast for 2024 is somewhat uncertain. The global fleet is growing faster than demand, with differences observed across different segments. Tanker categories are anticipated to experience significant growth in 2024. The growth in the Container, Gas Carrier, and Dry Bulk fleets is anticipated to be challenging to accommodate without the retirement of older vessels.

New vessel deliveries are expected to reduce by 10% in 2024, while the combined deadweight tonnage capacity is projected to decrease by just 6%. The percentage will rise when measured in cgt due to the upcoming delivery of more LNG and huge Container vessels. Scrapping activity has been minimal in 2023, despite a rise in activity in the Dry Bulk, Container, and LNG sectors. It is probable that more ships will be dismantled in 2024. Contracting activity decreased by 5% (dwt) in the first ten months of 2023 compared to the corresponding period in 2022. Decreased demand for LNG and Container boats is apparent when analyzing activity in cgt terms, as total contracted volumes decreased by 29% in the first ten months. 10% of the fleet is represented in the orderbook, with 10% and 34% of orders set for delivery by the end of 2023 and 2024, respectively. Seaborne trade volumes rose by 2.4% in 2023 and are projected to expand by 2.5%

in 2024. Distance-adjusted demand increased by 1.8 percentage points in 2023 and is projected to decrease to 0.5 percentage points in 2024.

Earning and vessel prices

The ClarkSea Index reached levels in the top 10-15% observed since 2000 by the end of 2022 but has decreased by 34% (almost USD 10,000 per day) since then. In late October 2023, the index was trading at approximately USD 23,500 per day, ranking inside the top 30% of values seen since 2000. Tanker vessels experienced a 50% decline in momentum in 2023 but still made a positive contribution to the ClarkSea Index, along with LPG vessels. Containers made a small impact during the summer, while the Dry Bulk segment was quiet.

High freight rates and secondhand prices

Secondhand prices decreased by almost 30% in the latter part of 2022 but have since stabilized in 2023 at approximately index 150. Secondhand prices are currently in the top 30% of prices observed since 2000, similar to the ClarkSea Index. There was a 15% decrease in the number of vessels involved in sale and buy activities during the first 10 months of 2023 compared to the same time last year. The decrease was mainly caused by less market activity in the Dry Bulk and Tanker sectors. High rates for constructing new ships are benefiting only a few shipyards. Newbuilding prices have consistently increased throughout 2023. The average newbuilding price index rose by 9% throughout the year, with Gas Carriers' newbuilding prices increasing by 11%. Newbuilding prices for Dry Bulk carriers have increased by only 6% during the same time. Prices are being determined by a limited number of yards. Only 81 out of 300 yards worldwide have received new orders in 2023. Scrap values are decreasing and activity is starting to pick up. Steel prices and demolition values have dropped by around 5-10% in 2023. The elevated freight rates have hindered demolition operations in recent years, but there is already a noticeable rise in activity in certain sectors. There has been a noticeable rise in activity in the Dry Bulk and Container categories in 2023, whereas only a small number of Tankers and Gas Carriers have been decommissioned.

Supply Outlook

A stable orderbook-to-fleet ratio

Since the start of 2022, the orderbook-to-fleet ratio has consistently stayed at approximately 11%. There is a strong demand for increasing the number of ships in the smaller vessel categories (LNG, Container, and LPG), leading to a high number of orders at specific shipyards.

Several shipyards are facing challenges due to limited orderbooks caused by a lengthy period of low demand for Tanker vessels (Crude, Product, and Chemical), resulting in a lack of orders for a significant number of shipyards.

Large LNG orderbook

LNG Carriers have an orderbook-to-fleet ratio of 52%, and the last six vessels on order are set to be delivered in 2029. The need for LNG carriers has significantly increased due to the shift in European imports from pipelines to sea transport. There are not many clear options for discarding older vehicles if there is an excess of supply compared to demand. Steam turbine vessels, accounting for 31% of the fleet, are probable candidates for early disposal if profits are affected by an excess of supply.

Large inflow of new vessels in 2024

In 2024, the LNG and Container fleets are expected to experience continued growth, while other vessel categories are anticipated to have a decrease in fleet expansion. The LPG fleet had a growth of over 10% in 2023, but is projected to expand by 4.5% in 2024. If demand is minimal, an influx of new vessels could be excessive. The Dry Bulk sector has an orderbook-to-fleet ratio of less than 8%, indicating that the fleet is projected to grow faster than demand in 2024. In 2024, the Dry Bulk fleet will receive additional capacity amounting to 3.3% of the fleet, while demand is projected to increase by less than 2%. Demolition activity is expected to rise.

Container

The container market has seen a continuous decrease, with both freight rates and secondhand prices dropping significantly. The fleet's cargo-carrying capacity has expanded dramatically, but a large number of vessels are still expected to arrive throughout the remainder of this year and next year. Subdued growth and elevated prices persist in dampening the global economic prospects. The Container industry is anticipated to be impacted by an excess of vessel capacity in the upcoming years. Various strategic approaches and significant investment in dual-fuel vessels by line operators could decrease reliance on chartered vessels in the future. Timecharter rates are expected to decrease, leading to a rise in vessel scrapping and layups.

Freight rates and secondhand prices

Although timecharter rates have been decreasing significantly, they are currently just below the top 40% recorded since 2000. Nevertheless, the average box rates have decreased below the median and are currently approaching levels similar to those before the pandemic. The secondhand price index has decreased by 7% over the last six months, mostly due to reduced pricing of older ships. Newbuilding prices have stayed steady because to the ongoing contracting of the pricier dual-fuel boats. Sluggish global economic development and elevated inflation in

Western nations have resulted in poor demand for containers. Volumes rose by 0.1% in 2023 following a 4% decline in 2022. Distances have contributed an additional 0.8% to the growth in demand. In 2023, fleet utilization decreased due to a 6% expansion in the Container fleet and a 1% increase in active capacity resulting from reduced port congestion. Mean speeds have been relatively constant this year.

In the first ten months of 2023, 1.5 million TEU (6% of the fleet) were added, compared to 0.8 million TEU in the same period in 2022. An extra 0.8 million TEU is set to be delivered this year.

In 2023, there has been an increase in scrapping, with 57 vessels sold for demolition, accounting for 0.4% of the total. This exceeds the number in 2022, when only three vessels were demolished. Primarily smaller vessels have been dismantled.

Contracting declined by 40% in the first ten months of 2023, totaling 1.5 million teu (about 6% of the fleet), mostly consisting of methanol-powered dual-fuel boats.

Orderbook: The orderbook has remained consistent due to a balance between vessel deliveries and the ongoing contracting of dual-fuel vessels. The current orderbook has reached a record capacity of 7.5 million teu, which represents 27% of the fleet.

Request: Maritime In 2022, container trade volumes declined by 4% due to a faltering global economy and high inflation impacting demand for containerized goods. In 2023, demand has stayed low, with quantities significantly below those of 2021. The average distances have somewhat increased due to the rise in North American imports from Southeast Asia.

Container Outlook

The Container market is expected to suffer from excess capacity in the coming years, as the supply-demand balance worsens. This may increase the asset concentration towards liner operators.

Highest gross fleet growth in 13 years:

Despite a persistent decrease in profits, shipowners are nevertheless placing orders for new boats. Orders for dual-fuel vessels have been the main driver of contracting activity in 2023, representing 80% of overall orders. There are presently 902 vessels on order, projected to increase the fleet's cargo-carrying capacity by around 10% yearly in 2023 and 2024, and by 6% in 2025, before being scrapped. The Container market has not seen such a high level of gross fleet expansion since 2010.

Race for fleet renewal may lead to higher concentration:

In our last study, we highlighted the potential re-employment risk for tonnage providers due to the increasing surplus vessel capacity, with operators owning the majority of the orderbook (74%). The increased influx of new tonnage could also affect the concentration of ownership in the Container market. Approximately 70% of the orderbook has been placed by the top ten group owners, with a substantial portion being dual-fuel boats. This might compel other group owners

who have not yet started the process of renewing their fleets. Among group owners who typically control five boats, 34% of their fleets consist of vessels over 15 years old. For the top ten group owners, this percentage is 28%. The orderbook represents 18% of their fleets. The percentage of orders for dual-fuel vessels is 4%, which is lower than the overall proportion.

High inflation and low economic growth may impact demand:

The rise in surplus household savings during the pandemic significantly boosted the market for containers. Yet, a significant portion of the surplus savings has diminished because of the elevated cost of living, rising interest rates in recent years, and a return to normal spending levels following the epidemic. Gross savings rates in the EU and the US have reverted to levels seen before the pandemic. The global economic picture continues to face challenges. The anticipated economic growth is expected to decrease from 3.5% in 2022 to 3.0% in 2023 and 2024, which is below the historical average of 3.8% from 2000 to 2019. Projected global inflation rates are 6.9% for 2023 and 5.8% for 2024. These variables will collectively influence the demand for containerized goods in the near to medium future.

Pessimism persists on both the consumer and producer sides:

Geopolitical tensions from the Russia-Ukraine war and strife in the Middle East have caused a global rise in commodities prices. Concerns have been voiced regarding the possibility of more inflation and consumer confidence remaining below 100 in OECD countries. Expectations among producers in the US, the EU, and China have stayed pessimistic, with PMI indexes below 50. Retail stocks in the US have increased, potentially reducing demand for container trade in the short term.

Intra-regional trade seems to be the only positive aspect:

In 2022, container demand decreased by 5.2%, causing total tonne-miles to drop below levels seen before the epidemic. Mainlane trades from the Far East to Europe and North America had the most significant declines. In 2023, demand is predicted to remain low and is projected to partly increase by 3.8% in 2024. Increased variety in supply chains due to more corporations adopting China+1 strategies and the rise of the middle class in developing nations have helped maintain strong intra-regional trade. By 2024, intra-regional commerce in Asia is projected to account for 50% of the demand growth, surpassing the levels seen in 2021. Africa and the Middle East/India are also anticipated to drive demand increase in 2024. The demand for larger Feeder vessels may increase by 3-4% in the near to medium term, with a positive outlook for their rebalancing potential. Supply-demand equilibrium expected to deteriorate in the upcoming years. The supply-demand balance is anticipated to worsen in the upcoming years, despite some optimistic indicators for smaller sectors. Since 2022, the fleet's cargo-carrying capacity has exceeded demand, and this trend is projected to intensify in the future. This could escalate freight charges and result in more vessels being scrapped or put into layup. To provide context, ships would need to decrease their usual speeds by more than 20% in order to accommodate the surplus capacity. Periods of heightened cascade impacts from larger boats may also occur.

Currently, 15,000+ teu vessels are being used on intra-Asia routes, accounting for 4% of total capacity, a change from previous years.

Dry Bulk

The market fundamentals in the Dry Bulk segment have been dismal. An increase in the average port congestion normalization has led to a rise in the active supply of vessels and created excess capacity in the market, especially in the Capesize sector. The Baltic Dry Exchange Index is presently trading approximately 15% lower than the five-year average. Positive fundamentals on the supply side are expected due to low contracting activity, which will restrict fleet expansion in the short run. Nevertheless, there is still ambiguity regarding the demand side. The Chinese property sector is not just burdened by unsustainable debt but also by structural issues due to a decreasing population. This might greatly affect the demand for Capesize vessels in the long run, as it relies largely on this particular trade. Smaller segments appear to be more resilient due to favorable supply and demand fundamentals.

Freight rates and secondhand prices

Increased fleet utilization has led to an average 18% reduction in timecharter rates over the last six months. Prices for newer secondhand ships have remained steady, but prices for vessels older than ten years have decreased, leading to price-to-earnings ratios in the top 40% observed since 2000. Newbuilding prices are expensive and have mostly been determined by a limited number of orders at top-tier shipyards. The worldwide maritime demand for Dry Bulk commodities has gradually rebounded from the decline in 2022. In 2023, volumes are projected to rise by 3.7% after decreasing by 2.8% in 2022. Extended travel distances are expected to contribute an additional 0.9% to demand growth in 2023. The DryBulk fleet is expected to grow by 3.3% in 2023, with an additional 2.0% capacity already added due to reduced port congestion. Current vessel speeds have barely slightly decreased. During 2023, fleet utilization has decreased. Shipments: 28 million deadweight tons (dwt) were added to the fleet in the first ten months of 2023, which accounts for 2.9% of the fleet, compared to 26 million dwt in the same time in 2022. 9 million deadweight tons are set to be delivered in the remaining months of 2023. 5 million deadweight tons have been scrapped in 2023, accounting for 0.5% of the fleet. This is a 40% growth from the corresponding period last year, while starting from a low base. Contracting declined by 3.1%, from 28 million dwt in the first ten months of 2022 to 27 million dwt in 2023, representing approximately 2.7% of the fleet.

The orderbook decreased by 2.2% in 2023 and currently stands at 81 million dwt, which represents 8% of the fleet.

Seaborne trade volumes in 2023 have risen by 3.1% due to robust seaborne coal trading. The levels are slightly higher than the quantities observed during the same period in 2022. Travel distances contributed an additional 0.8% to the increase in demand during the first ten months of

2023. The rise was fueled by the long-distance transportation of coal and increased Chinese imports of iron ore and soybeans from Brazil.

Dry Bulk Outlook

In the longer term, favorable supply-side factors are anticipated to bolster freight rates for small and mid-sized vessels. The future for Capesize vessels is grim.

Anticipated minimal expansion of the fleet in the upcoming years.

The present orderbook is at a historic low of 8% of the fleet, which will restrict fleet expansion in the future. The fleet is projected to grow by 3.3% in 2023, mostly due to the Capesize segment. In 2024 and 2025, the fleet will increase by 3.2% and 2.5% due to the scheduled deliveries of Handymax and Panamax boats before they are scrapped. In 2023 and 2024, upcoming hull surveys and scrubber retrofits are expected to somewhat reduce fleet growth by just over 1.0%, and by 2.0% in 2025.

Starting in January 2024, the EU ETS will gradually expand to include the maritime industry, potentially altering the vessels that use EU ports. This could result in substantial expenses for ships traveling to, from, and between ports in the EU. Since regulations vary by area, shipowners/operators may transfer newer boats to EU routes and older vessels to other routes. In 2022, 334 Dry Bulk vessels over 20 years old either loaded or unloaded in the EU, and many of them may be replaced. This could lead to decreased fleet efficiency and reduced supply availability.

The Chinese real estate industry could impact the iron ore trade.

As anticipated in our last study, the Chinese real estate industry, which represents about half of the worldwide seaborne iron ore trade, has further deteriorated. Real estate projects initiated recently have declined by 25% compared to the previous year and nearly halved from 2019 levels. It is anticipated that the property sector would further decline, reducing the need for iron ore. Government interventions can intermittently bolster demand in the near run. The medium- to long-term forecast is pessimistic due to a decreasing population, projected to decrease by 80 million people in the next 25 years, a growing number of empty housing units, and a move away from capital-driven growth in China that could restrict investments in the real estate industry. Global seaborne iron ore trade is projected to decrease by 0.7-1.0% each year until 2025. The future is even more grim beyond 2025. Capesize vessels could be greatly affected since iron ore traffic makes up more than 80% of their overall demand.

Coal trading may offer assistance to bigger vessels.

Coal demand peaked globally in 2022. Anticipated high demand in 2023 and 2024 will be fueled by the power generation industry in China and India, which collectively represent 70% of worldwide consumption. Coal consumption in these two countries is expected to increase by approximately 2.5% per year until 2024, while domestic output will stay relatively constant. Seaborne supplies from Indonesia and Australia will likely meet the extra demand. Reduced domestic coal consumption in the US could lead US producers to increase exports, contributing considerably to overall tonne-mile growth. The global seaborne coal trade is expected to grow by around 3.0% each year from 2022 to 2024. This will mostly favor Panamax and smaller Capesize vessels, as they account for around 75% of the seaborne traffic.

South America has the potential to play a crucial role in the shift towards sustainability... In addition to abundant iron ore and coal, South American countries possess significant quantities of essential raw materials for the green transition. Lithium, copper, nickel, and graphite are essential raw minerals used in manufacturing batteries, solar panels, turbines, and other products. South America holds more than 20% of the world's known deposits of these basic minerals, according to estimates. They represent only 5.5% in terms of productivity. Expanding the production of these basic minerals has the potential to bring significant opportunities for South American countries. Thus, the area is likely to see a notable rise in seaborne exports of these raw materials in the near future, favoring Handysize and Handymax vessels, as these commodities are mainly transported by these types of ships. Larger boats may also extend to these trades, as explained in more detail.

...and in agriculture

South America's grain exports have surged in recent years, attributed to increased yields and the expansion of arable land. Soybean production in Brazil has significantly increased, with unprecedented quantities being exported to China. This tendency is anticipated to persist, perhaps increasing grain exports from the area. Projections indicate that grain exports from South America will surpass those from other regions, with an expected annual growth rate of approximately 2.0% until 2025. This will lead to an increased need for Handymax and Panamax boats.

Crude Tanker

The Crude Tanker market is expected to have a positive outlook in 2024 across all subsegments. Despite hurdles including oil supply cuts from OPEC+ nations, reduced global economic growth, and decreased projections for Chinese GDP growth, optimism remains. Fleets are expected to increase by only 1% before being scrapped next year, in contrast to an anticipated 5% expansion in distance-adjusted demand. VLCCs are well-positioned to benefit from increased long-haul export volumes from the US and Brazil in 2024, compensating for reduced exports from the Middle East to China. The optimistic outlook for Suezmax and Aframax Tankers may be affected by decreasing oil price discounts and violations of price restrictions on Russian crude oil.

Freight rates and secondhand prices

In 2023, both freight rates and secondhand prices for Crude Tankers have remained stable at high levels. On average, the rates have consistently ranked in the top 30% since the end of 2022, with costs falling within the upper 10-20% range. Newbuilding prices are currently at record levels due to the continuous demand for dual-fuel contracts. These pricing are mostly being discussed and agreed upon with high-quality shipyards. There has been an increase in fleet usage this year. During the first 10 months of 2023, the total amount of crude oil transported by sea exceeded the levels seen in the corresponding time over the previous six years. Volume growth is anticipated to increase by 2% in 2023, with longer travel distances likely to contribute an additional 4% to

the growth in demand. The Crude Tanker fleet is projected to grow by 2% in 2023, although this increase has been somewhat counteracted by a 1% decrease in average speeds.

In the first ten months of 2023, 8.8 million deadweight tons (dwt), which accounts for 2% of the fleet, were added, compared to 20 million dwt added in the same period in 2022. This year, an extra 1.6 million deadweight tons (dwt) are anticipated to be completed and delivered. 3.5 million deadweight tons are expected to be delivered in 2024, marking a record low.

No Crude Tankers were scrapped in the initial ten months of 2023. This is unprecedented.

Contracting activity increased to 11.4 million dwt (3% of the fleet) in the first ten months of 2023, compared to 2.5 million dwt in the same time in 2022.

An orderbook of 19 million deadweight tons is now in progress, showing a 39% increase over the last six months, while starting from a small initial amount. 4% of the fleet is represented in the orderbook.

In 2023, demand has risen by 4% compared to the first ten months of 2022, primarily due to increased volumes from the US and Brazil. Current seaborne trade volumes exceed 2019 levels by 2%. Travel distances have increased due to heightened trade activities between Russia-Asia and Brazil-China. This continues to absorb the availability of Crude Tankers.

VLCC freight rates experienced a significant rise in the latter part of 2022 and have since remained stable at elevated levels throughout 2023. Over the last six months, the one-year timecharter rate has dropped by 7% to USD 39,000 per day. Secondhand pricing have stabilized as well. The cost of a five-year-old Very Large Crude Carrier (VLCC) has decreased by 2%, falling from USD 100 million to USD 98 million. This remains at a 15-year peak.

The high fleet utilization of Suezmax vessels is maintaining the one-year timecharter rate significantly above the ten-year average. The pricing has consistently remained at approximately USD 40,000 per day since November 2022. The demand for Suezmax vessels remains consistently high due to the strengthening of trade routes between Russia-Asia and US-Europe. The one-year timecharter pricing has dropped by 7% over the past six months to USD 39,000 per day. The cost of a five-year-old ship has risen by 14% to USD 78 million. This is the peak level reached since 2008.

Reductions in Russian seaborne crude oil exports have impacted the primary factor influencing distance-adjusted Aframax demand. The one-year timecharter rate has declined by 22% in the last six months to USD 37,000 per day, still at historically high levels (in the upper 5%). During the same year, the cost of a five-year-old Aframax vessel has increased by 13% to USD 70.5 million.

Crude tanker outlook

The optimistic market prognosis for Crude Tankers in 2024 is driven by firm distance-adjusted demand and minimal fleet growth. Fleet utilization is projected to approach record levels, with ongoing uncertainty on the impacts of oil price cap violations and oil supply reductions in Saudi Arabia and Russia. The equilibrium of global oil production and demand is anticipated to be reached by the latter part of 2024. Global oil demand is projected to increase by 2% in 2023. By 2024, global oil demand is expected to increase by only 1%, due to weak GDP growth and a long-term decrease in the consumption of road transport fuel in important markets like the US

and OECD Europe. The global oil production is projected to exceed demand in the first half of 2024 and stabilize in the second half. Non-OPEC+ countries such as the US and Brazil will drive the rise in supply, while OPEC+ production, particularly in Saudi Arabia and Russia, will depend on voluntary output reductions until 2024.

Lower discounts on Russian crude may dampen demand for Suezmax and Aframax Tankers

Russian oil export profits have increased significantly despite a decrease in seaborne exports of Russian crude oil, reaching their highest levels since October 2022 due to oil prices surpassing the price cap established by the EU and G7 countries. China and India are the top purchasers, acquiring 16% of their seaborne crude oil imports from Russia. This has increased the need for Suezmax and Aframax Tankers based on distance. As the discounts on Russian crude oil compared to global benchmarks decrease, China and India might start seeking alternate sources to meet their increasing domestic oil consumption in 2024. If this happens, there will be an increase in demand for Aframax and Suezmax Tankers in 2024, albeit to a smaller amount compared to 2022-23 due to the rerouting of Russian exports. Projected demand growth for Suezmax and Aframax Tankers is expected to decrease to 4% and 3% in 2024, down from 8% in 2023.

VLCC demand is expected to increase by 6% in 2024

Saudi Arabia has declared an extra reduction in oil output of 1 million barrels per day. The cuts are set to terminate by the conclusion of 2023, but, Saudi Arabia and other OPEC members continue to uphold voluntary oil output limitations into 2024. OPEC nations in the Middle East (Saudi Arabia, Kuwait, UAE, Iraq, and Iran) can only increase seaborne exports by a total of 300,000 barrels per day in 2024, as long as these limits are followed. Majority of the barrels transported by sea from these nations are carried on Very Large Crude Carriers (VLCCs) and currently account for 40% of China's crude oil imports by sea. In the upcoming year, China might increasingly depend on other sources to completely meet its projected rise in oil demand of 600,000 barrels per day. Increasing the number of barrels sourced from Brazil and the US on long-haul routes by China will enhance the utilization of Very Large Crude Carriers (VLCC) fleet. The demand for VLCCs is projected to increase by 6% in 2024, whilst the fleet is anticipated to rise by only one vessel.

Price cap breaches may lower the cargo-carrying capacity of Aframax and Suezmax Tankers

Russian crude oil is prohibited from being unloaded at ports in the EU and G7 countries due to sanctions. Third countries can bypass the restrictions by buying Russian crude oil at or below the specified price limit. Continued breaches of the current price cap may lead to an increase in Aframax and Suezmax Tankers transporting Russian crude without international insurance coverage. Expanding the "shadow fleet" would typically reduce the cargo-carrying capability of the existing Aframax and Suezmax fleets.

Crude Tankers are likely to continue to prosper

If the global economy avoids a severe recession and Chinese GDP remains stable, the forecast for Crude Tankers in 2024 is positive. The projected growth in 2024 for Distance-adjusted Crude Tanker demand is 5%, driven by a 4% increase in seaborne volumes and an additional 1% from longer distances. Expected fleet growth is minimal, ranging from 0.5% to 1%. The utilization of the Crude Tanker fleet is projected to increase to record levels in 2024, surpassing the strong levels seen in both 2022 and 2023.

LNG Carriers

The market forecast for LNG Carriers is significantly influenced by the extensive orderbook. Excess capacity is projected to increase until 2027 unless older, less efficient ships are retired early to stabilize the market. A fleet of steam turbines is the most probable choice for dismantling. Asian demand, particularly from China, is expected to drive half of the region's development. The United States is expected to provide approximately half of the additional LNG supply, solidifying its status as the leading LNG exporter globally. We are starting to notice a rising global awareness of methane leakages associated with natural gas, which is leading to higher costs and structurally diminishing the long-term demand potential.

In October 2022, the one-year timecharter rate for a 174,000 cu.m LNG Carrier reached a record high of USD 260,000 per day, but then decreased by 61% to USD 102,500 per day in October 2023.

Reduced income but higher prices

The decrease in earnings results in an income reduction of around USD 50 million for a charter applicant. During the same period, the price of a five-year-old vessel rose by USD 40 million to reach USD 245 million, just USD 5 million shy of the highest price recorded. The cost of a decade-old ship rose by USD 30 million to reach a new peak of USD 165 million.

Lower market activity

In 2023, the sale and purchase market had a significant decline, with only 18 boats sold totaling 2.4 million cbm in capacity. In comparison, 35 vessels were sold in the same period in 2022, totaling 5.4 million cbm in capacity.

Record-high newbuilding price

The demand for new ships has decreased. 42 vessels were contracted in the first nine months of 2023, a decrease from 139 vessels in the same time last year. The cost of constructing the new

building has risen to USD 265 million, making it the most expensive project to date.

Between 2011 and 2022, the LNG fleet doubled in size, while distance-adjusted demand climbed by 60%. US export volumes grew by half. These volumes are typically sold immediately and have allowed for more import adaptability, but have also resulted in more fluctuation in freight rates. The number of commerce routes has doubled, increasing from 179 in 2011 to 365 in 2022. One-third of the LNG fleet is now engaged in spot trading. Spot markets are mainly filled with new vessels awaiting long-term cargo agreements and older vessels. Utilization of LNG fleet decreased in 2023 due to supply outpacing demand. Supply has risen by 5.5% in 2023, whilst distance-adjusted seaborne LNG demand has climbed by 4.2%. There has been a 3.3% increase in volumes. Speed profiles have been modified to align with market conditions: older, less efficient vessels, especially those with steam turbines, have decreased speeds, whilst newer, more advanced ships have maintained or slightly raised speeds. This may also indicate a desire to adhere to the upcoming IMO regulations.

Deliveries will rise by about 2 million cubic meters to reach 6.5 million cubic meters in 2023, and then double in 2024. The 2024 level is projected to be sustained in both 2025 and 2026.

Ship scrapping has increased from one vessel being dismantled in 2022 to six in 2023.

Demolition activity is anticipated to rise when the orderbook is fulfilled.

Contraction has decreased. In 2022, 181 vessels were contracted, whereas just 42 vessels have been ordered in 2023.

The orderbook-to-fleet ratio has exceeded 50%, primarily for the larger LNG Carriers. 77% of orders were made at five South Korean shipyards, with the remaining 22% distributed among 12 Chinese shipyards. Newbuilding pricing have been agreed upon by just 17 shipyards, collectively accounting for 99% of the orderbook.

Global LNG trade increased by 3% in the first three quarters of 2023. The increase was mostly driven by the United States and Algeria, which together represented 85% of the additional worldwide LNG supply. Asia-Pacific and Europe were the main drivers of LNG demand growth, with their LNG imports rising by 2.7% and 2.5%, respectively.

Market Dynamics in 2023

Spot rates exhibit significant volatility. Spot markets consist mainly of new vessels awaiting long-term cargo agreements and older vessels. Spot rates typically experience a significant increase in the winter, often reaching at least twice the yearly norm.

LNG volumes have increased by 3%

Seaborne LNG volumes increased by 3% in the first three quarters of 2023. The expansion was mainly fueled by increased export volumes from the US (+8%) and Algeria (+30%), which accounted for over 80% of the worldwide LNG supply increase. Asia and Europe were at the forefront of the increase in LNG demand, with their seaborne LNG imports rising by about 3% apiece.

European imports up by 3%

Despite decreased gas consumption and high storage levels (95%) in the third quarter, LNG imports into Europe rose by about 3% in the first nine months of 2023. The rise was mainly driven by increased LNG shipments to the Netherlands, Germany, and Italy.

Asian imports up by 2.6%

Asian LNG imports rose by 2.6% in the first three quarters of the year. The main driving force behind this was China. China's net LNG imports rebounded in March after declining for almost 13 months, finishing 13% higher than the amount imported in the first three quarters of 2022.

Reduced Japanese imports

Japan experienced a 9% decrease in LNG imports in the first three quarters of 2023 because to increased nuclear power availability and decreased electricity consumption, leading to lower gas demand. Japan had a 19% decrease in LNG imports in May, marking the lowest level in over 20 years.

Distance-adjusted LNG demand up by 4.2%

Seaborne demand, adjusted for distance, is projected to rise by 4.2% in 2023, with longer distances contributing nearly 1 percentage point to seaborne volumes. The fleet's utilization has decreased in 2023 because to the anticipated 5.5% rise in supply.

LNG fleet outlook

The LNG fleet is expected to undergo significant growth in 2024, 2025, and 2026, perhaps leading to an excess of vessel capacity. Youthful ships may be put into storage, while aged ships could be dismantled to stabilize the market. The fleet of steam turbine vessels is the first to be dismantled, with the possibility of further vessels needing to be demolished.

Fleet renewal

There are currently 740 vessels in the fleet, with a further 330 vessels on order. The orderbook-to-fleet ratio averages 45% based on the number of vessels and 51% based on cubic meters (cbm). The biggest ships have an orderbook equivalent to over 59% of their fleet and no clear candidates for demolition.

Massive inflow of new vessels until 2026

The most recent six LNG purchases are scheduled for delivery in 2029 from South Korean shipyards. A significant amount of new capacity totaling 42.4 million cubic meters is expected to be added to the fleet in 2024, 2025, and 2026, leading to a double-digit expansion in the fleet size (excluding scrapped vessels).

Young fleet and few retirement candidates

The fleet's age profile does not allow for a standard retirement plan. The interaction of recent environmental legislation and technology advancements in the last ten years is expected to decrease the economic lifespan of current vessels. The fleet of 240 steam turbine vessels, totaling 33.6 million cubic meters in capacity, are expected to be the first to be retired to offset the impact of the 56.5 million cubic meters orderbook. It is uncertain how much demolition will be required to equalize supply and demand.

Large residual risk

There is a significant residual risk increasing in secondhand prices. Many new vessels may need to be decommissioned when there is an excess of vessel capacity, possibly as soon as 2024. This is expected to significantly affect secondhand prices. If surplus vessel capacity keeps growing after the last steam turbine vessel is demolished, the situation will deteriorate further.

4. Methodology

We utilize financial ratios to evaluate the financial performance and condition of organizations by analyzing their balance sheets, income statements, and cash flow statements. Investors and analysts utilize ratio analysis to evaluate a company's financial well-being by scrutinizing historical and current financial accounts. Comparative data enables the prediction of future performance and demonstrates a company's progress over time. This data can be utilized to evaluate a company's standing relative to others in its sector and to measure its financial performance versus industry norms.

The financial ratios were calculated using the accounting variables mentioned before. Our focus when assessing performance lies in liquidity, profitability, debt load, and efficiency.

4.1 Liquidity Ratios

Liquidity ratios are utilized by financial analysts to assess the financial stability of a company. Liquidity ratios assess a company's capacity to settle short- and long-term debts. Standard liquidity ratios include the following:

The current ratio assesses a company's capacity to settle short-term debts using current assets. This ratio is more inclusive than other liquidity ratios like the quick ratio because it takes into account all current assets, such as cash, marketable securities, accounts receivable, and inventories. Yet, an excessively high current ratio indicates that the corporation is retaining an excessive amount of unneeded capital instead of allocating it towards projects for company expansion. It is determined by: **Current ratio = Current assets / Current liabilities**

The cash ratio, also known as the cash asset ratio, assesses a company's capacity to settle its short-term debt using cash and cash equivalents. The cash ratio is a more stringent and conservative measure than the current ratio and quick ratio as it only takes into account cash and cash equivalents, which are a company's most liquid assets.

Creditors want a greater cash ratio since it signifies the company's ability to promptly settle its debts. An optimal figure does not exist, however a ratio between 0.5 to 1 is typically favored. A high cash ratio suggests that the company is retaining an excessive amount of cash rather than using it to invest in generating returns or growth, similar to the current and quick ratios. It is determined by: **Cash ratio = Cash and Cash equivalents / Current Liabilities**

4.2 Profitability Ratios

Profitability ratios assess a company's capacity to generate money in relation to revenue, balance sheet assets, operating costs, and equity. We utilize the following profitability financial ratios:

Net profit margin is a financial measure that calculates the percentage of profit a firm generates from its total revenue. The metric calculates the company's net profit per dollar of sales earned. It is determined by: **Net margin ratio = Net Income / Total Revenue**

The Return on Total Assets ratio measures a company's profitability relative to its total assets. An increasing Return on Assets (ROA) suggests that the company is becoming more efficient at generating income from its assets. A decreasing Return on Assets (ROA) indicates

that a corporation has made poor investments, is overspending, and could be facing difficulties. It is determined by: **Return on assets ratio = Net income / Total assets**

The Return on Equity ratio measures how efficiently a company is using its equity to generate profit. ROEs will vary based on the industry or sector in which the company operates. Net Income is calculated before dividends paid to common shareholders and after dividends to preferred shareholders and interest to lenders. It is calculated by:

$$\text{Return on equity ratio} = \text{Net income} / \text{Shareholder's equity}$$

$$\text{Debt ratio} = \text{Total liabilities} / \text{Total assets}$$

By weighing overall debt and financial liabilities against shareholders' equity, the debt to equity ratio determines how much each is worth. A high D/E ratio is risky, whereas a notably low one might mean that the hotel is expanding via debt finance. Because it carries more risk than short-term obligations, the ratio only takes long-term debt into account. It is determined by:

$$\text{Debt to equity ratio} = \text{Total liabilities} / \text{Shareholder's equity}$$

5. Data

Our sample covered the period 2019–2022 and included listed maritime companies in United States of America. Our sample’s companies presented in Table 1

Table 1

NAME OF COMPANY	STOCK EXCHANGE	TICKER
ATLAS Shipping & Trading Ltd.	NYSE	ATCO
DANAOS Shipping Co. Ltd.	NYSE	DAC
GLOBAL SHIP LEASE Services Limited	NYSE	GSL
MAERSK (AP Moller-Maersk Group)	NYSE	AMKBY
NAVIOS Maritime Holdings	NYSE	NM
DIANA Shipping Services S.A.	NYSE	DSX
EAGLE BULK SHIPPING Inc.	NASDAQ	EGLE
GLOBUS Shipmanagement Corp.	NASDAQ	GLBS
GOLDEN OCEAN Group	NASDAQ	GOGL
STAR BULK CARRIERS Corp.	NASDAQ	SBLK
DYNAGAS LTD.	NYSE	DLNG
FLEX LNG	NYSE	FLNG
GASLOG LNG Services Ltd.	NYSE	GLOG
GOLAR LNG	NASDAQ	GLNG
TEEKAY LNG	NYSE	TNK
DHT HOLDINGS Inc.	NYSE	DHT
EURONAV Ship Management Ltd.	NYSE	EURN
FRONTLINE Ltd.	NYSE	FRO
NORDIC AMERICAN TANKERS Ltd.	NYSE	NAT
TSAKOS Energy Navigation Ltd.	NYSE	TNP

From each company we extracted accounting data for the examining period from their annual Financial statements. These financial statements are public available in their websides according to US legislation.

Tables 2 to 6 presents the descriptive statistics of our data:

Table 2

VARIABLE	MEAN				
	2022	2021	2020	2019	ALL PERIOD
TOTAL ASSETS	\$2,867,073,050.00	\$3,072,195,800.00	\$2,842,239,152.80	\$2,845,861,306.80	\$2,906,842,327.4
NON-CURRENT ASSETS	\$2,466,334,000.00	\$2,527,217,750.00	\$2,602,335,913.80	\$2,586,300,038.65	\$2,545,546,925.6
CURRENT ASSETS	\$400,739,050.00	\$544,978,100.00	\$239,903,239.00	\$282,061,268.15	\$366,920,414.2
CURRENT LIABILITIES	\$233,537,900.00	\$469,837,150.00	\$295,136,896.15	\$341,880,059.10	\$335,098,001.3
NON-CURRENT LIABILITIES	\$1,047,850,950.00	\$1,157,021,050.00	\$1,256,926,752.50	\$1,285,037,050.85	\$1,186,708,950.8
EQUITY	\$1,317,733,000.00	\$1,188,045,500.00	\$1,040,487,854.15	\$1,054,824,996.85	\$1,150,272,837.7
REVENUES	\$703,019,350.00	\$549,389,950.00	\$534,182,900.00	\$552,624,831.90	\$584,804,257.9
OPERATING INCOME	\$274,803,100.00	\$164,675,700.00	\$178,219,510.80	\$116,983,856.60	\$183,670,541.8
NET INCOME / LOSS	\$282,013,650.00	\$168,270,350.00	\$54,424,426.60	\$37,684,405.75	\$135,598,208.0
OPERATING EXPENSES	\$301,434,269.45	\$264,687,750.00	\$240,062,489.20	\$297,981,025.30	\$276,041,383.4
INTEREST EXPENSES	-\$33,047,050.00	-\$33,202,000.00	-\$37,492,218.85	-\$62,986,275.55	-\$41,681,886.1
TOTAL OTHER EXPENSES	-\$13,319,750.00	\$37,469,450.00	-\$23,007,513.20	-\$29,671,400.60	-\$7,132,303.4
CASH AND CASH EQUIVALENTS	\$196,487,900.00	\$133,766,050.00	\$127,818,829.70	\$124,874,994.90	\$145,736,943.6
INVENTORIES	\$21,648,450.00	\$18,948,000.00	\$15,525,991.65	\$13,848,113.90	\$17,492,638.8

Table 3

VARIABLE	MEDIAN				
	2022	2021	2020	2019	ALL PERIOD
TOTAL ASSETS	\$2,422,179,000.00	\$2,733,867,500.00	\$2,509,200,000.00	\$2,412,937,000.00	\$2,519,545,875.0
NON-CURRENT ASSETS	\$2,097,316,000.00	\$2,099,393,000.00	\$2,291,356,500.00	\$2,233,743,500.00	\$2,180,452,250.0
CURRENT ASSETS	\$326,597,500.00	\$234,554,500.00	\$176,351,000.00	\$204,336,000.00	\$235,459,750.0
CURRENT LIABILITIES	\$220,017,500.00	\$267,537,500.00	\$221,639,500.00	\$224,176,500.00	\$233,342,750.0
NON-CURRENT LIABILITIES	\$642,882,000.00	\$1,128,296,500.00	\$1,141,247,500.00	\$1,273,441,500.00	\$1,046,466,875.0
EQUITY	\$1,221,546,000.00	\$1,169,575,000.00	\$1,072,258,500.00	\$907,069,500.00	\$1,092,612,250.0
REVENUES	\$682,746,000.00	\$433,862,000.00	\$408,106,500.00	\$465,599,500.00	\$497,578,500.0
OPERATING INCOME	\$226,498,500.00	\$71,363,500.00	\$82,607,500.00	\$79,780,000.00	\$115,062,375.0
NET INCOME / LOSS	\$205,858,500.00	\$68,955,000.00	\$18,441,000.00	\$15,487,500.00	\$77,185,500.0
OPERATING EXPENSES	\$246,016,500.00	\$184,982,500.00	\$237,790,000.00	\$284,097,753.00	\$238,221,688.2
INTEREST EXPENSES	-\$33,245,500.00	-\$37,197,500.00	-\$44,641,000.00	-\$65,808,000.00	-\$45,223,000.0
TOTAL OTHER EXPENSES	-\$655,500.00	\$407,000.00	-\$1,835,000.00	-\$9,998,500.00	-\$3,020,500.0
CASH AND CASH EQUIVALENTS	\$130,366,000.00	\$109,632,500.00	\$87,619,000.00	\$123,412,000.00	\$112,757,375.0
INVENTORIES	\$11,352,500.00	\$10,010,500.00	\$8,895,500.00	\$8,029,000.00	\$9,571,875.0

Table 4

MAX					
VARIABLE	2022	2021	2020	2019	ALL PERIOD
TOTAL ASSETS	\$11,302,400,000.00	\$10,569,600,000.00	\$9,289,100,000.00	\$8,072,684,000.00	\$9,808,446,000.00
NON-CURRENT ASSETS	\$10,709,200,000.00	\$10,021,900,000.00	\$8,704,800,000.00	\$7,636,300,000.00	\$9,268,050,000.00
CURRENT ASSETS	\$1,258,506,000.00	\$5,138,702,000.00	\$689,971,000.00	\$1,142,868,000.00	\$2,057,511,750.00
CURRENT LIABILITIES	\$1,038,500,000.00	\$3,338,500,000.00	\$1,180,206,000.00	\$1,443,949,000.00	\$1,750,288,750.00
NON-CURRENT LIABILITIES	\$6,135,000,000.00	\$5,876,500,000.00	\$4,808,900,000.00	\$4,337,712,000.00	\$5,289,528,000.00
EQUITY	\$4,128,900,000.00	\$3,517,600,000.00	\$3,625,600,000.00	\$3,232,700,000.00	\$3,626,200,000.00
REVENUES	\$1,697,400,000.00	\$1,646,600,000.00	\$1,421,100,000.00	\$1,945,391,000.00	\$1,677,622,750.00
OPERATING INCOME	\$751,400,000.00	\$762,200,000.00	\$984,017,000.00	\$687,000,000.00	\$796,154,250.00
NET INCOME / LOSS	\$939,057,000.00	\$1,052,841,000.00	\$475,182,000.00	\$439,100,000.00	\$726,545,000.00
OPERATING EXPENSES	\$992,629,000.00	\$884,400,000.00	\$962,500,000.00	\$1,562,085,000.00	\$1,100,403,500.00
INTEREST EXPENSES	\$235,400,000.00	\$197,100,000.00	\$191,600,000.00	\$218,900,000.00	\$210,750,000.00
TOTAL OTHER EXPENSES	\$31,281,000.00	\$700,472,000.00	\$30,308,684.00	\$31,128,247.00	\$198,297,482.7
CASH AND CASH EQUIVALENTS	\$878,838,000.00	\$450,285,000.00	\$367,269,000.00	\$353,241,000.00	\$512,408,250.00
INVENTORIES	\$107,114,000.00	\$80,787,000.00	\$60,200,000.00	\$66,664,000.00	\$78,691,250.00

Table 5

MIN					
VARIABLE	2022	2021	2020	2019	ALL PERIOD
TOTAL ASSETS	\$93,680,000.00	\$72,271,000.00	\$56,117,000.00	\$55,399,000.00	\$69,366,750.00
NON-CURRENT ASSETS	\$53,617,000.00	\$46,469,000.00	\$43,381,000.00	\$43,699,000.00	\$46,791,500.00
CURRENT ASSETS	\$40,063,000.00	\$25,802,000.00	\$12,736,000.00	\$5,489,000.00	\$21,022,500.00
CURRENT LIABILITIES	-\$153,198,000.00	-\$131,587,000.00	-\$131,832,000.00	-\$57,732,000.00	-\$118,587,250.00
NON-CURRENT LIABILITIES	-\$1,619,224,000.00	-\$1,551,947,000.00	\$1,337,013,000.00	-\$744,285,000.00	\$1,313,117,250.00
EQUITY	-\$907,090,000.00	-\$889,387,000.00	-\$835,175,000.00	-\$839,265,000.00	-\$867,729,250.00
REVENUES	\$61,755,000.00	\$43,381,000.00	\$11,753,000.00	\$15,623,000.00	\$33,128,000.00
OPERATING INCOME	-\$60,837,000.00	-\$306,896,000.00	-\$112,675,000.00	-\$180,334,000.00	-\$165,185,500.00
NET INCOME / LOSS	\$15,101,000.00	-\$339,204,000.00	-\$188,605,000.00	-\$148,986,000.00	-\$165,423,500.00
OPERATING EXPENSES	-\$671,696,000.00	-\$726,666,000.00	-\$708,859,000.00	-\$744,081,000.00	-\$712,825,500.00
INTEREST EXPENSES	-\$184,675,000.00	-\$166,955,000.00	-\$165,281,000.00	-\$279,059,000.00	-\$198,992,500.00
TOTAL OTHER EXPENSES	-\$101,188,000.00	-\$142,164,000.00	-\$247,021,000.00	-\$238,977,000.00	-\$182,337,500.00
CASH AND CASH EQUIVALENTS	\$10,057,000.00	\$11,832,000.00	\$5,865,000.00	\$2,366,000.00	\$7,530,000.00
INVENTORIES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Table 6

VARIABLE	ST.DEV				
	2022	2021	2020	2019	ALL PERIOD
TOTAL ASSETS	\$2,462,951,978.80	\$2,470,218,595.87	\$2,307,739,029.98	\$2,221,613,748.19	\$2,365,630,838.2
NON-CURRENT ASSETS	\$2,305,151,812.74	\$2,202,248,120.34	\$2,137,062,989.96	\$2,017,310,090.44	\$2,165,443,253.3
CURRENT ASSETS	\$307,293,375.13	\$1,079,574,179.69	\$186,243,385.90	\$266,448,952.30	\$459,889,973.2
CURRENT LIABILITIES	\$243,045,492.14	\$752,566,422.97	\$336,231,971.78	\$396,280,114.55	\$432,031,000.3
NON-CURRENT LIABILITIES	\$1,500,988,751.42	\$1,442,871,413.75	\$1,391,333,055.75	\$1,236,998,827.86	\$1,393,048,012.1
EQUITY	\$1,148,309,691.96	\$1,032,047,205.82	\$1,021,031,206.87	\$964,821,550.75	\$1,041,552,413.8
REVENUES	\$480,067,576.66	\$434,564,987.65	\$416,262,062.63	\$444,054,246.83	\$443,737,218.4
OPERATING INCOME	\$225,499,287.67	\$266,768,487.48	\$253,777,650.83	\$171,172,624.25	\$229,304,512.5
NET INCOME / LOSS	\$242,125,798.52	\$319,132,920.96	\$171,178,568.34	\$124,413,652.78	\$214,212,735.1
OPERATING EXPENSES	\$450,774,480.46	\$388,664,961.75	\$367,743,643.27	\$452,483,485.51	\$414,916,642.7
INTEREST EXPENSES	\$76,405,116.80	\$66,187,889.68	\$66,059,404.90	\$93,010,520.02	\$75,415,732.8
TOTAL OTHER EXPENSES	\$33,492,538.95	\$160,251,008.79	\$62,120,153.82	\$61,101,893.29	\$79,241,398.7
CASH AND CASH EQUIVALENTS	\$190,018,987.81	\$108,101,388.00	\$102,375,076.91	\$88,538,675.15	\$122,258,531.9
INVENTORIES	\$26,989,492.30	\$23,663,009.65	\$18,454,381.42	\$17,266,205.46	\$21,593,272.2

6. Data Analysis

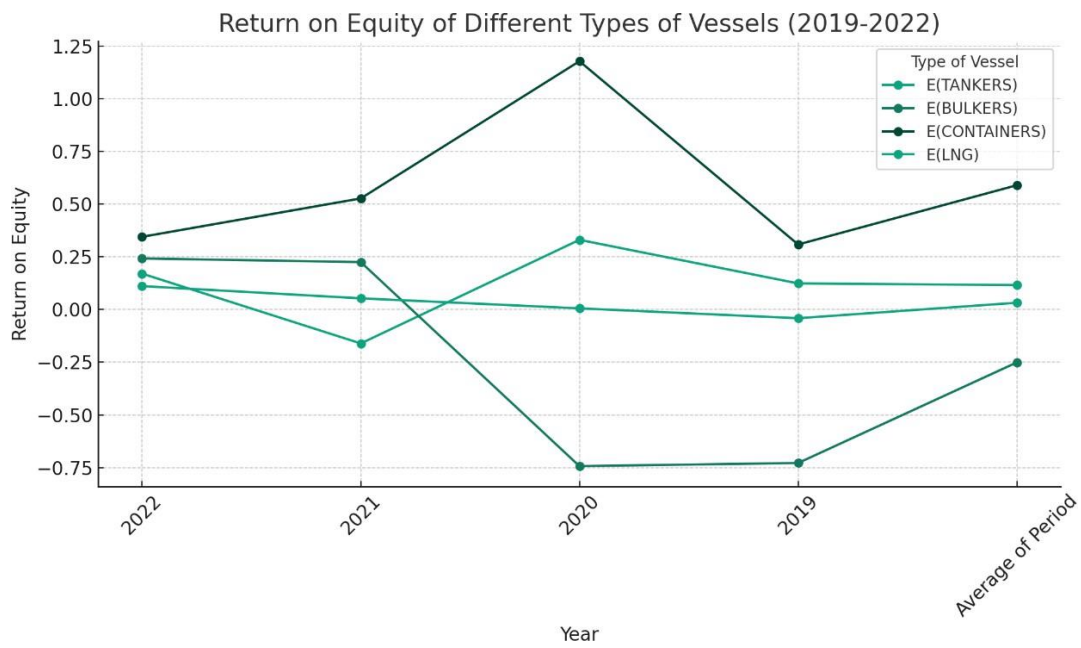
This section provides the Average Ratios for each type of vessel for each year and compares the values of the ratios between the different types of vessels.

RETURN EQUITY	Return on Equity					ON
	2022	2021	2020	2019	Average of Period	
E(TANKERS)	0.170091	-0.16093	0.330318	0.123704	0.115794	
E(BULKERS)	0.242103	0.224809	-0.74257	-0.72779	-0.25086	
E(CONTAINERS)	0.344635	0.526662	1.177247	0.308218	0.589191	
E(LNG)	0.110958	0.052919	0.005477	-0.04132	0.032008	

Tankers showed a varying path, starting with a modest return on equity (ROE) of 0.123704 in 2019. It then increased significantly to 0.330318 in 2020, but decreased to -0.16093 in 2021. However, it recovered to 0.170091 in 2022. The average return on equity (ROE) over the four-year period was 0.115794, indicating the sector's ability to withstand market fluctuations. In contrast, bulker vessels experienced a significant decline in their return on equity (ROE) in 2019 and 2020, reaching negative values of -0.72779 and -0.74257 respectively. Nevertheless, there was a notable improvement in the following years, with return on equity (ROE) reaching 0.224809 in 2021 and 0.242103 in 2022. Although there was a recovery, the average return on equity (ROE) for Bulk carriers continued to be negative at -0.25086, suggesting a difficult period characterized by substantial operational and market pressures. Container vessels demonstrated exceptional financial strength in the dataset, with a consistently increasing return on equity (ROE) reaching an impressive peak of 1.177247 in 2020. The sector exhibited robust performance, with return on equity (ROE) figures of 0.308218 in 2019, 0.526662 in 2021, and 0.344635 in 2022. The average ROE over the period was 0.589191. The sector's ability to leverage operational efficiencies and market opportunities, consolidating its financial strength, is highlighted by this impressive consistency. In contrast, LNG vessels exhibited a cautious financial stance, with relatively low return on equity (ROE) figures. The ROE started at -0.04132 in 2019 and gradually increased to 0.110958 by 2022. The gradual increase in growth led to a conservative average Return on Equity (ROE) of 0.032008 in the LNG sector, indicating a careful sense of optimism and consistent, albeit

gradual, financial progress.

To summarize, the data presents a complex story of financial performance in the main sectors of the maritime industry. The durability of Tankers, the volatile rebound of Bulkers, the strong prosperity of Containers, and the consistent rise of LNG vessels together depict an industry facing both challenges and opportunities, navigating through the fluctuations of global economic trends and sector-specific dynamics.



RETURN ON ASSETS

Return on Assets					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	0.061292	-0.05827	0.113116	0.04781	0.040986
E(BULKERS)	0.143086	0.129337	-0.08772	-0.12676	0.014486
E(CONTAINERS)	0.152768	0.142898	0.013185	0.043827	0.08817
E(LNG)	0.097294	0.048993	0.002702	-0.0106	0.034596

The table presents a detailed examination of the Return on Assets (ROA) for four main maritime vessel categories: Tankers, Bulkers, Containers, and LNG. The analysis covers the years 2019 to 2022, and includes an average calculation for the entire period. The metric known as Return on Assets (ROA) is a crucial indicator that measures the efficiency of asset utilization by the management of each vessel category in generating profits.

Tankers have exhibited significant fluctuations in their annual return on assets (ROA) values, reaching a notable low of -0.05827 in 2021, in stark contrast to their peak performance of 0.11312 in 2020. Although there was some inconsistency, the average return on assets (ROA) over the four-year period remained positive at 0.04099. This indicates a strong underlying operational efficiency that may have been affected by external factors during the year of economic decline.

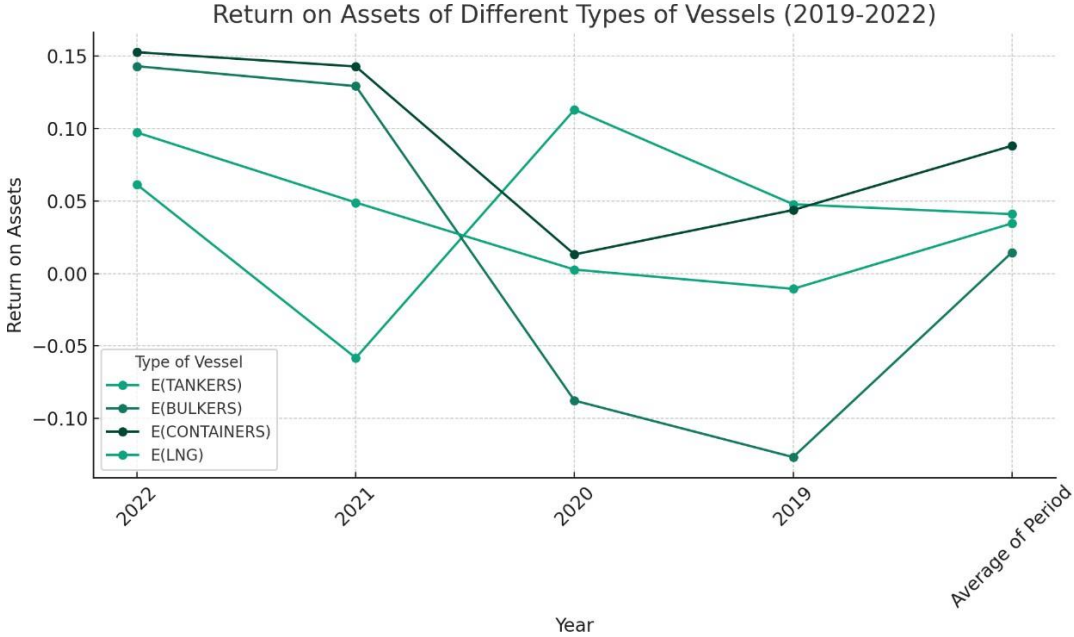
Bulker vessels exhibit a trend of rebound, surpassing the negative return on assets (ROA) of -0.12676 in 2019 and -0.08772 in 2020, to achieve positive results in 2021 and 2022, with values of 0.12934 and 0.14309, respectively. The period's average return on assets (ROA) of 0.01449 indicates a positive shift from previous losses, suggesting that strategic adjustments have resulted in enhanced asset performance.

Containers exhibit the highest and most stable Return on Assets (ROA) throughout the period, beginning at a moderate 0.04383 in 2019 and peaking at 0.15277 in 2022. The container shipping sector has achieved the highest average return on assets (ROA) of 0.08817 among all categories. This indicates a robust and effective utilization of assets to generate earnings, which can be attributed to the sector's high demand and profitability during the specified period.

Liquefied natural gas (LNG) ships exhibit a consistent and incremental enhancement over the timeframe, reaching the peak annual return on assets (ROA) of 0.09729 in 2022, compared to a negative ROA of -0.01060 in 2019. The ROA of 0.03460 indicates a careful but favorable trend in the efficiency of asset utilization, demonstrating consistent growth despite volatile market conditions.

To summarize, the data shows that there were different levels of performance across different vessel categories in terms of Return on Assets (ROA) during the four-year period. Although

Tankers and Bulkers encountered difficulties during the recovery period, Containers demonstrated robust and consistent profitability, while LNG vessels exhibited a gradual transition from negative to positive Return on Assets (ROA). The variations in these paths may indicate the unique market conditions, operational effectiveness, and strategic management choices specific to each type of vessel. The prevailing upward trajectory in return on assets (ROA) across various sectors by 2022 indicates a widespread enhancement in the maritime industry's capacity to generate profits from its resources.



NET PROFIT MARGIN

Net Profit Margin					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	0.116171	-0.10728	0.200282	0.098216	0.076848
E(BULKERS)	0.391384	0.3677	-0.52174	-0.45346	-0.05403
E(CONTAINERS)	0.415356	0.571223	-0.03707	0.243062	0.298142
E(LNG)	0.98836	0.621481	-0.05213	-0.07063	0.371769

The table provides a comprehensive analysis of the Net Profit Margin (NPM) for four specific types of maritime vessels: Tankers, Bulkers, Containers, and LNG, covering a period of four years from 2019 to 2022. The table concludes with the calculation of the average NPM for the entire period. Net Profit Margin (NPM) is a crucial financial measure that represents the proportion of revenue that remains as profit after subtracting all expenses. It serves as an indicator of both overall profitability and operational efficiency.

Tankers have undergone a substantial reversal in net profit margin (NPM), shifting from a negative margin of -0.10728 in 2021 to a positive performance of 0.11617 in 2022. The highest point of the NPM (Net Promoter Score) was recorded in 2020, reaching a value of 0.20028. This coincided with the cyclical pattern commonly observed in the shipping industry. The mean Net Profit Margin (NPM) for the given period is 0.07685, suggesting that, despite the variations, the Tanker segment has consistently maintained profitability over time.

Bulker vessels exhibit a clear disparity between the years. The negative net profit margin (NPM) values in 2019 and 2020 (-0.45346 and -0.52174, respectively) significantly improved in the following years, reaching positive margins of 0.36770 in 2021 and 0.39138 in 2022.

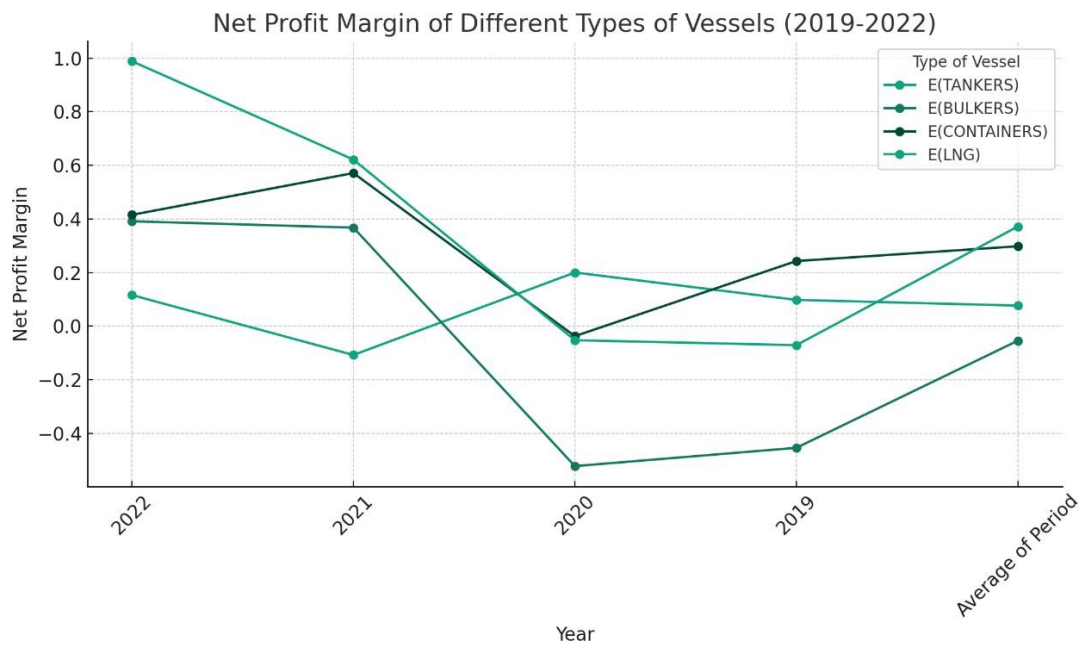
Nevertheless, the sector's average net profit margin (NPM) remains in the negative territory at -0.05403. This indicates that the sector has encountered substantial difficulties, and the recent improvements in profitability may not yet fully offset the previous losses.

Container vessels demonstrate exceptional profitability, maintaining a strong net profit margin (NPM) consistently over time, except for a minor decline in 2020 (-0.03707). In 2021, the NPM reached its peak at 0.57122, showcasing a remarkable recovery from the previous year's performance. The NPM (Net Profit Margin) of 0.29814, on average, indicates a strong trend of profitability, highlighting the sector's resilience to market volatility.

The LNG vessels demonstrated the highest net profit margin (NPM) in 2022, reaching an impressive value of 0.98836. This represents a substantial increase compared to the NPM of 0.62148 recorded in 2021. Although experiencing negative margins in 2019 and 2020, the average net profit margin (NPM) for the period is a positive 0.37177. This indicates that the LNG sector has undergone a remarkable transformation, possibly due to strategic changes or

favorable market conditions.

To summarize, the data contains various profitability stories for different types of vessels. Tanker and bulker vessels have exhibited resilience during the recovery period, while container vessels have consistently maintained strong profitability. Additionally, LNG vessels have experienced an exceptional rebound. The diverse NPM paths underscore the diversity of the shipping industry's financial results, which are affected by numerous factors such as market demand, operational effectiveness, and cost control. The data suggests a consistent improvement in profitability over the past few years, especially for Bulkers and LNG vessels. This may indicate a positive outlook for the financial well-being of the maritime industry.



DEBT TO EQUITY RATIO

Debt to Equity Ratio					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	0.679399	0.441266	0.435798	0.643558	0.550005
E(BULKERS)	0.731591	0.736741	2.90271	1.730313	1.525339
E(CONTAINERS)	1.838042	6.253328	-10.5516	3.842893	0.345676
E(LNG)	1.30801	1.810711	1.950485	1.811926	1.720283

The table contains data that presents an analytical view of the Debt to Equity Ratio (D/E) for four categories of maritime vessels: Tankers, Bulkers, Containers, and LNG. The data covers the years 2019 to 2022. The D/E ratio is a fundamental financial measure that shows the proportion of shareholders' equity and debt used to fund a company's assets. This ratio is crucial for assessing the financial leverage and risk profile of companies in the maritime industry.

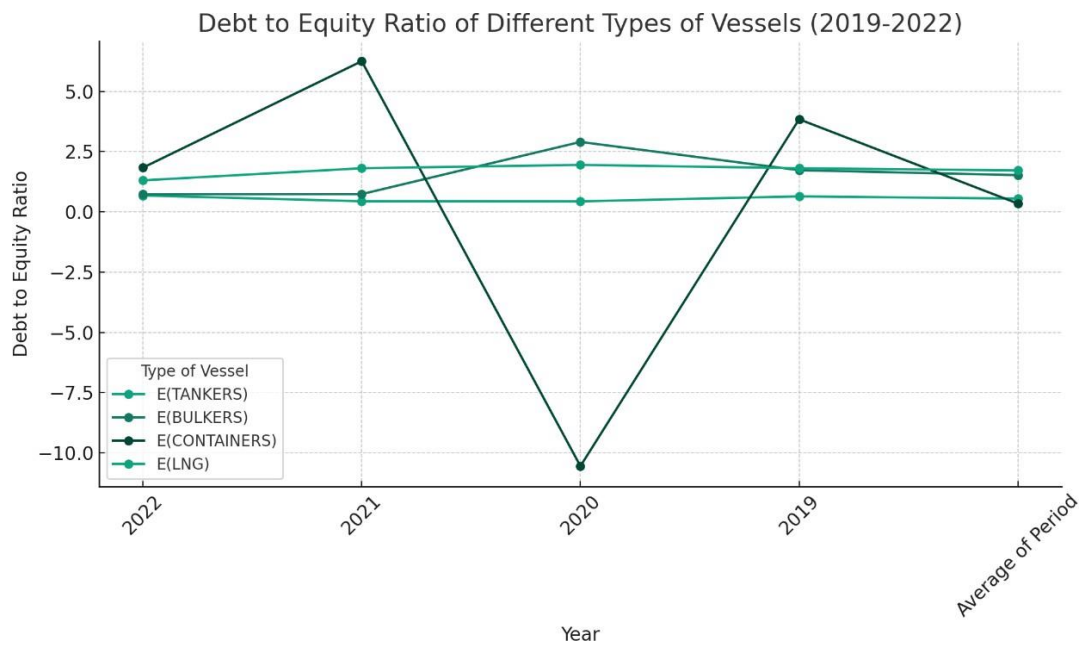
Tankers have consistently maintained a relatively stable debt-to-equity (D/E) ratio over the period, experiencing a marginal rise from 0.43580 in 2020 to 0.67940 in 2022. The mean debt-to-equity (D/E) ratio for the four-year duration is 0.55001, indicating a moderate dependence on debt financing compared to equity. This implies a well-balanced financial framework that does not excessively expose the sector to financial risk.

Bulker vessels have shown a range of debt-to-equity ratios. The ratio reached its highest point in 2020 at 2.90271, but has since stabilized with figures of 0.73674 in 2021 and 0.73159 in 2022. The mean debt-to-equity (D/E) ratio for Bulk carriers is significantly elevated at 1.52534, indicating a substantial reliance on debt financing. This suggests a heightened financial risk profile and susceptibility to market fluctuations.

The container vessel industry exhibited an atypical pattern in 2020, with a negative debt-to-equity ratio of -10.55156. This observation may indicate anomalies in equity financing or data inconsistencies during that year. However, the ratio has subsequently improved and reached positive values in the subsequent years, with a notably high ratio of 6.25333 in 2021. The Container sector has an average debt-to-equity (D/E) ratio of 0.34568, suggesting that the sector as a whole has been cautious in managing its finances by relying less on debt compared to equity. LNG vessels have consistently maintained high debt-to-equity (D/E) ratios over the course of four years. The highest ratio was recorded in 2020 at 1.95049, followed by a slightly lower yet significant ratio of 1.30801 in 2022. The average debt-to-equity (D/E) ratio is 1.72028, which suggests a substantial reliance on debt financing. This suggests the implementation of an assertive expansion plan funded through borrowing, while also implying an elevated level of financial vulnerability.

To summarize, the data illustrates an intricate financial environment within the maritime sector.

Tankers have adopted a cautious and steady approach to financing, while Bulkers and LNG vessels have demonstrated a greater inclination towards borrowing money, although the former has recently shown signs of becoming more stable. Containers exhibit a relatively low average debt-to-equity ratio, but experience significant annual fluctuations. Therefore, it is crucial to conduct a detailed analysis of their financial strategies and the factors that contribute to this volatility. The different levels of financial leverage in these categories reveal the different strategic financial approaches and risk preferences within the maritime sector.



CURRENT RATIO

Current Ratio					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	5.193811	9.552945	9.340321	6.544074	7.657788
E(BULKERS)	1.99564	2.229486	1.43416	1.196593	1.71397
E(CONTAINERS)	1.496672	1.125467	0.730434	0.880531	1.058276
E(LNG)	1.241309	0.348832	0.235917	-0.05001	0.444012

The tabulated data presents a quantitative evaluation of the Current Ratio, a measure of liquidity that compares a company's current assets to its current liabilities. The data specifically focuses on four different categories of maritime vessels (Tankers, Bulkiers, Containers, and LNG) from 2019 to 2022. The data also includes an average ratio calculated over the entire period. The Current Ratio is crucial for assessing a company's immediate financial well-being, with higher values indicating a stronger capacity to meet current financial obligations.

Tankers have consistently maintained remarkably high Current Ratios, reaching an exceptional peak of 9.55295 in 2021, and a substantial ratio of 5.19381 in 2022. The declining pattern observed from 2021 to 2022 nevertheless suggests a strong liquidity position. The average ratio for Tankers over the four-year period is 7.65779, indicating a robust liquidity buffer that can help withstand short-term financial fluctuations or downturns.

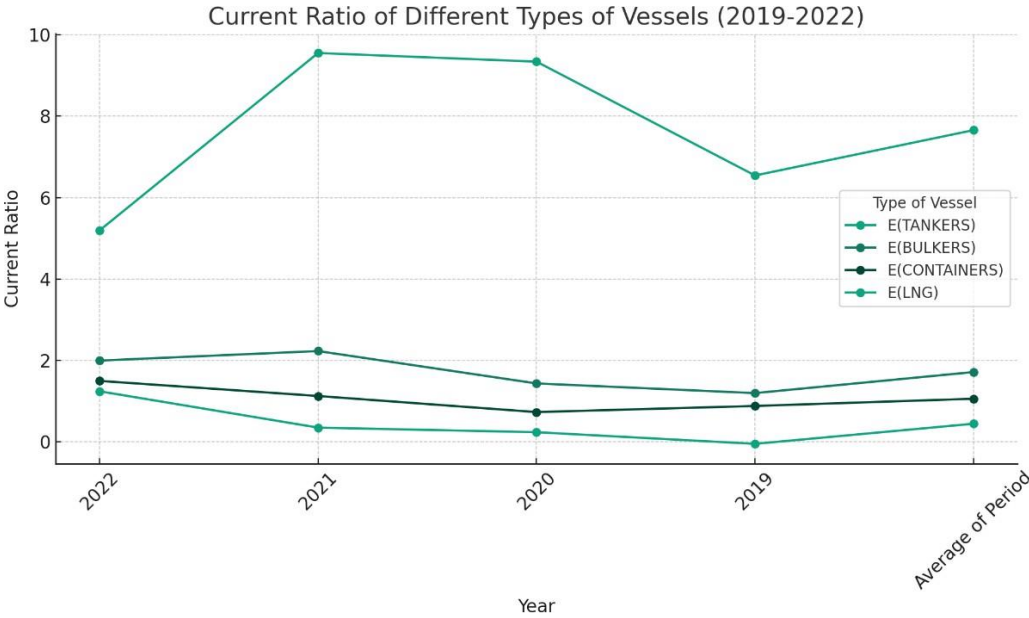
Bulker vessels have consistently maintained a stable and positive Current Ratio over the given time frame, indicating a strong liquidity position. The ratios have consistently exceeded 1.0 each year, resulting in an average ratio of 1.71397. The consistent performance demonstrates a strong capacity to fulfill immediate financial obligations, which is crucial for maintaining operational longevity.

The liquidity position of container vessels has demonstrated a positive trend, increasing from 0.88053 in 2019 to 1.49667 in 2022. The sector's average Current Ratio for the period, which stands at 1.05828, although lower than that of Tankers and Bulkiers, still suggests that the sector typically possesses sufficient current assets to meet its short-term obligations.

LNG vessels demonstrate a higher degree of liquidity volatility, as evidenced by a negative Current Ratio of -0.05001 in 2019, which subsequently improves to 1.24131 in 2022. The overall average ratio of 0.44401 is the lowest among the categories, indicating a more constrained liquidity position that could potentially hinder the ability to promptly address immediate financial needs.

To summarize, the data highlights a varied liquidity situation in the maritime sector. Tankers demonstrate outstanding liquidity, Bulkiers exhibit consistent and robust ratios, Containers indicate a gradual progression towards a stronger position, and LNG vessels, despite an uncertain beginning, demonstrate a rebound towards a more favorable liquidity status by 2022. These figures demonstrate the diverse strategies employed by the maritime sector to effectively handle

their current assets and liabilities. This is crucial for maintaining financial flexibility and operational preparedness in the immediate future.



QUICK RATIO

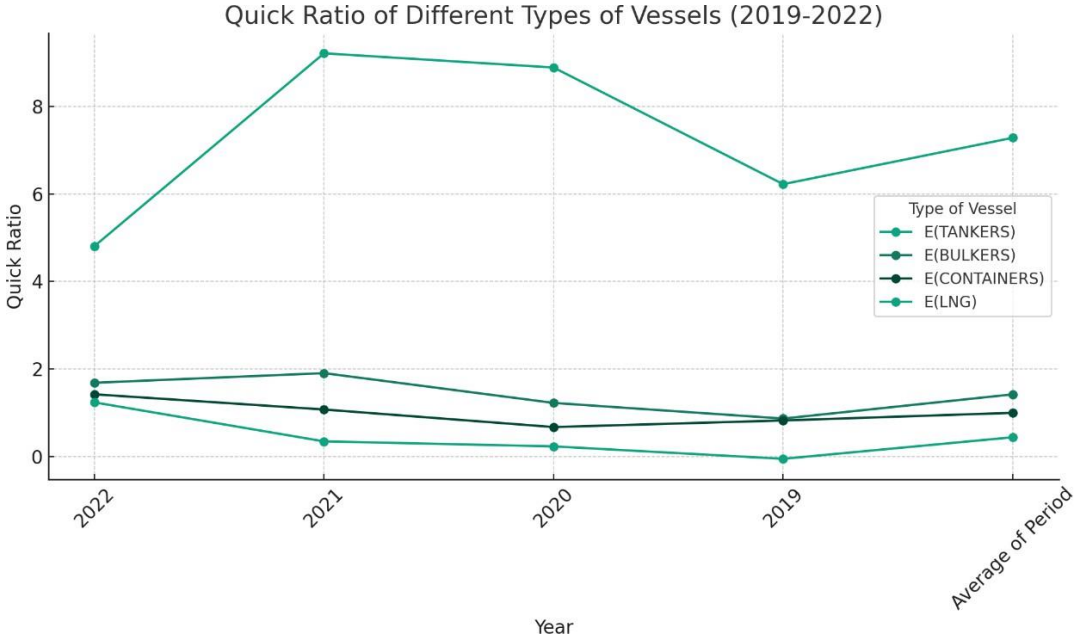
Quick Ratio					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	4.807316	9.215268	8.890197	6.223863	7.284161
E(BULKERS)	1.683716	1.904023	1.22322	0.865245	1.419051
E(CONTAINERS)	1.420104	1.072812	0.671431	0.822199	0.996636
E(LNG)	1.235351	0.344159	0.229779	-0.05477	0.43863

The table provides a comprehensive analysis of the Quick Ratio for four categories of maritime vessels—Tankers, Bulkers, Containers, and LNG—from 2019 to 2022, including the average Quick Ratio for the entire period. The Quick Ratio, also referred to as the acid-test ratio, is a rigorous measure of a company's immediate liquidity status. It assesses the company's capability to settle current debts using its most readily convertible assets, while excluding inventories. Tankers have consistently reported Quick Ratios that are significantly above the threshold of 1, which is generally regarded as a strong indicator of liquidity. The Quick Ratio reached its highest point in 2021 at 9.21527, but experienced a significant decline to 4.80732 in 2022. Although there has been a decline, the average Quick Ratio for Tankers over the past four years remains strong at 7.28416. This indicates a stable and secure liquidity position, suggesting that Tankers have sufficient resources to meet their short-term obligations without having to rely on selling inventory.

The Quick Ratio of bulker vessels remained consistently above 1 during the entire period, reaching its lowest point in 2019 at 0.86524 and its highest point in 2021 at 1.90402. This signifies a consistently favorable liquidity position, with the ability to fulfill short-term obligations. The mean Quick Ratio for Bulkers is 1.41905, indicating a favorable liquidity position, although it is relatively weaker when compared to Tankers.

The Quick Ratio of container vessels has increased steadily from 0.82220 in 2019 to 1.42010 in 2022. The increasing trend indicates an improvement in the management of available funds over time, as reflected by the average Quick Ratio of 0.99664. This ratio is slightly below the optimal threshold, suggesting that the sector is moving towards a more favorable liquidity situation. Liquefied natural gas (LNG) ships exhibit significant fluctuations in their Quick Ratio, starting at a negative value of -0.05477 in 2019 and progressing to a positive value of 1.23535 in 2022. The Quick Ratio, with an average value of 0.43863, is the lowest among all vessel types, suggesting possible difficulties in maintaining sufficient liquidity. Nevertheless, the observed recovery trend is significant and could potentially indicate enhanced financial administration or alterations in market circumstances.

Overall, the Quick Ratios for different types of vessels suggest that Tankers and Bulkers exhibit robust liquidity profiles, with Tankers demonstrating a notably superior ability to fulfill immediate financial obligations. Containers have exhibited a positive trend, progressing towards a more favorable liquidity position, while LNG vessels, despite initial obstacles, demonstrate a path of recuperation. The liquidity profiles play a crucial role in ensuring that companies in the maritime sector can effectively manage the unpredictability and hazards that come with the shipping industry. They are essential for maintaining operational flexibility and financial stability.



CASH RATIO

Cash Ratio					
TYPE OF VESSEL	2022	2021	2020	2019	Average of Period
E(TANKERS)	-0.04137	-0.08089	-0.15919	-0.14839	-0.10746
E(BULKERS)	1.46225	1.770286	0.929639	0.69368	1.213964
E(CONTAINERS)	0.676712	0.402275	0.418488	0.554661	0.513034
E(LNG)	0.923929	-0.0457	0.14277	-0.18472	0.20907

The table presents a comprehensive analysis of the Cash Ratio for four types of maritime vessels—Tankers, Bulkers, Containers, and LNG—covering the years 2019 to 2022. Additionally, it includes the average Cash Ratio calculated for the entire period. The Cash Ratio is a rigorous measure of liquidity that evaluates a company's capacity to settle its immediate debts solely with cash and cash equivalents, without taking into account other current assets. The data for Tankers indicates a worrisome pattern, with negative Cash Ratios observed in all four years, reaching its lowest point in 2020 at -0.15919. The consistently negative values lead to an average Cash Ratio of -0.10746 during the specified period, which implies a possible liquidity risk. This suggests that the Tanker category may not possess enough cash reserves to meet short-term obligations without resorting to selling other assets.

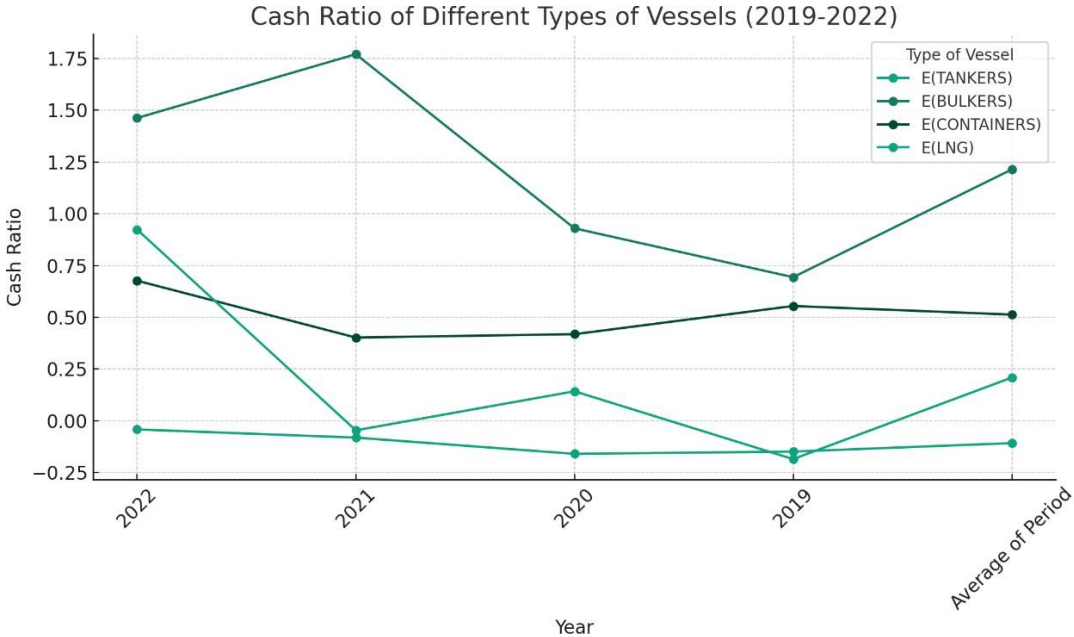
On the other hand, Bulker vessels demonstrate strong financial flexibility, as evidenced by their Cash Ratios consistently exceeding 1 each year. The highest Cash Ratio was recorded in 2021 at 1.77029. This indicates a robust financial position with abundant cash reserves to fulfill immediate financial obligations, as evidenced by the elevated average Cash Ratio of 1.21396. These figures indicate a strong financial cushion to protect against uncertainties in operations.

The Cash Ratio of container vessels remains consistently favorable and steady throughout the four-year period, reaching its lowest point at 0.40227 in 2021 and its highest point at 0.67671 in 2022. The category's Cash Ratio, with an overall average of 0.51303, indicates a reasonably strong liquidity position. However, it is not as robust as the Bulkers category. Nonetheless, it demonstrates the capacity to meet short-term debts using liquid cash assets.

LNG vessels display fluctuation in their Cash Ratio, showing negative values in 2019 and 2021, but positive results in 2020 and 2022, with the latter being notably high at 0.92393. The average value for the given period is 0.20907, suggesting that although there have been difficulties in maintaining sufficient funds, the sector is displaying indications of improvement and the possibility of achieving a stable financial position.

To summarize, the data indicates notable differences in the level of liquidity strength among the various vessel categories. Although Bulkers demonstrate a commendable liquidity profile, Tankers raise concerns due to their negative ratios. Container vessels exhibit a stable level of liquidity, while LNG vessels show signs of improving liquidity conditions. The Cash Ratios offer a crucial overview of the financial strength of the maritime industry, which has implications for

its ability to sustain operations and manage risks. The differences among the categories highlight the wide range of financial strategies and conditions within the maritime industry.



7. Conclusion

The thorough examination of financial performance using a range of metrics such as Return on Equity (ROE), Return on Assets (ROA), Net Profit Margin (NPM), Debt to Equity Ratio (D/E), and liquidity ratios (Current, Quick, and Cash Ratios) uncovers a complex story of resilience, recovery, and strategic adjustment within the maritime industry, specifically in the Tankers, Bulkers, Containers, and LNG vessels sectors.

Tankers have exhibited a robust financial performance, characterized by minimal fluctuations in return on equity (ROE) and return on assets (ROA), which suggests a strong operational efficiency that can effectively navigate through economic fluctuations. The sector's consistent debt-to-equity ratio indicates a well-balanced approach to financing, while the high liquidity ratios demonstrate a strong ability to fulfill short-term obligations, despite concerns raised by negative cash ratios.

In contrast, bulker vessels have encountered notable difficulties, especially during the initial years of the study period, resulting in unfavorable return on equity (ROE) and net profit margin (NPM) values. Nevertheless, the subsequent recuperation, characterized by enhancements in Return on Assets (ROA) and Net Profit Margin (NPM), highlights an impressive reversal of fortunes. Although Bulkers have a high debt-to-equity (D/E) ratio, which suggests a significant reliance on debt, they have managed to maintain strong liquidity positions. This demonstrates their effective financial management strategies in dealing with challenges.

Container vessels have consistently demonstrated superior financial performance, with exceptional returns on equity (ROE) and net profit margin (NPM), and the highest average return on assets (ROA) among all categories. This demonstrates not only the sector's operational efficiency, but also its capacity to effectively exploit market opportunities. The sector's debt-to-equity ratio, especially the abnormality observed in 2020, indicates the need for a prudent yet flexible financing strategy. Container ships have also consistently shown an increase in their ability to quickly convert assets into cash, thereby ensuring financial adaptability.

Liquefied natural gas (LNG) ships have shown a prudent financial path with incremental enhancements in return on equity (ROE) and return on assets (ROA). The high debt-to-equity (D/E) ratio in the sector indicates a deliberate dependence on borrowing to fund growth initiatives. This, combined with fluctuating liquidity ratios, implies a cautious approach to managing both financial well-being and operational risks.

The analyzed data reveals that the maritime industry is distinguished by its varied financial and operational approaches, which are influenced by the distinct challenges and opportunities associated with each type of vessel. The industry's capacity to navigate through variations in global economic patterns, operational obstacles, and market forces is apparent in the overall upward trend observed in profitability and liquidity measures by 2022.

This analysis highlights the significance of strategic financial management, operational efficiency, and market adaptability in maintaining profitability and guaranteeing financial stability in the maritime sector. The maritime industry's financial health appears promising, as demonstrated by the recovery and growth of Bulkers and LNG vessels, as well as the consistent strength of Container vessels. Nevertheless, it is crucial to engage in prudent financial planning,

specifically in the areas of liquidity management and leveraging growth prospects, in order to minimize risks and take advantage of emerging market trends.

To summarize, the financial landscape of the maritime industry is intricate and offers both difficulties and prospects. The capacity of different types of vessels to adjust to evolving market conditions, efficiently handle financial risks, and exploit operational efficiencies will play a crucial role in guiding the industry towards long-term growth and profitability in the future.

TABLES LIST

Table 1: Return of equity Ratio

Table 2: Return on assets Ratio

Table 3: Net profit margin Ratio

Table 4: Debt to equity Ratio

Table 5: Current Ratio

Table 6: Quick Ratio

Table 7: Cash Ratio

BIBLIOGRAPHY:

Danish Ship Finance, Shipping Market Review, 2023

Financial Ratio ebook, Corporate Finance Institute

Investopedia. "Shipping Industry." Investopedia, 26 June 2020

Clarksons Research. "Shipping Review & Outlook."

UNCTAD Review of Maritime Transport. "Review of Maritime Transport 2019 & 2020."

Drewry Maritime Research. "Annual Review and Forecast of Global Container Terminal Operators."

International Chamber of Shipping (ICS). "Shipping and World Trade."

Yahoo Finance

LNG World Shipping. "Types of LNG Carriers."

BIMCO. "Shipping Market Outlook."

Hellenic Chamber of Shipping. "Greek Shipping and Economy."

Deloitte. "Economic Impact of Greek Shipping." Naftemporiki, 2019.