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BOARDS IN GREEK MARITIME LISTED COMPANIES: 2002- 2023

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TABLE OF CONTENTS

 ISSN 1759-0108

Editorial

The year 2025 marks the nineteenth year since the inception and development of the Hellenic Observatory of Corporate Governance. Reports have been produced and published, providing a sound base for a deeper understanding and systematic study of the Board of Directors and Corporate Governance in Greece.

This review builds upon previous findings presented in **six** published reports by the HOCG (Vol. 8, No. 1, 2016, Vol. 7, No. 2, 2014, Vol. 6, No.2 in 2012, Vol. 5, No. 1 in 2011, Vol. 4, No. 3 in 2010 and Vol. 3 No.3 in 2009) that portrayed a dynamic picture of the board composition of Greek Maritime Companies listed in international bourses.

Shipping markets can easily be characterised as volatile, dynamic and munificent. They are influenced not only by the industry players but also by worldwide economic, political and social factors. Setting aside the deep shipping recession in the 1980s, it is quite clear that the shipping industry has not yet fully recovered from the 2008 financial crisis.

In many sectors, the daily rate in US dollars that a ship could earn in 2024 was manifold lower than in 2008, insufficient to cover vessel's operating costs. While average daily rates in the dry bulk and tanker sectors in 2024 were indeed significantly lower than their extraordinary peaks observed in 2008, the container shipping sector experienced notably higher rates in 2024 compared to 2008. Crucially, the overall financial health of the maritime industry in 2024 stood in stark contrast to the widespread financial distress and insolvencies that characterized 2008. In 2024, major shipping segments, including container, tanker, and dry bulk, generally reported strong profitability, with daily charter rates largely exceeding operating costs and breakeven levels (Hellenic Shipping News Worldwide, Navigating Challenges of the Shipping & Ports Industry). The sector's overcapacity and slowing worldwide demand are the pillars of the pressures that the shipping industry is called to face.

2024 saw rates bolstered by significant supply-side disruptions, such as the Red Sea rerouting and Panama Canal restrictions, which effectively tightened available capacity despite ongoing fleet growth (Bulk carrier values to rise on ship scarcity. High Freight Rates strain global supply chains, threaten vulnerable economies, United Nations Conference on Trade and Development).

The prominent role of the Greek maritime industry in the worldwide trade is providing us with the challenge to capture one of the most important aspects of its major participants by our study; which aims to investigate the Boards and Governance mechanisms of a small but extremely significant population of the shipping world. That is the Greek owned shipping companies that are listed around the world. Despite their limited number, these companies hold a disproportionate impact on global shipping, making them a vital population for understanding governance practices in the maritime industry.

Therefore, I am proud to provide our readers with the research report, which builds upon data gathered from 2002 to 2023.

I strongly believe this report will help us understand better important aspects of how maritime firms are managed and prosper.

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ISSN 1759-0108

1. Introduction

The worldwide maritime industry facilitates more than 80% of global trade, but it also accounts for 3% of total greenhouse gas emissions (Review of Maritime Transport, 2023). A concerning insight is that these emissions have increased by 20% over the last decade. The International Maritime Organization (IMO) has set ambitious targets to address this, aiming for net-zero emissions by or around 2050, with interim reduction goals for 2030 and 2040. New regulations like the EEXI and CII rating came into effect in 2023 to improve ship energy efficiency. However, some studies suggest new ships built in the 2000s were less fuel-efficient than those from the 1990s, which contradicts common perceptions of continuous improvement. The industry's future will be influenced by factors such as global unity in combating climatic change and technical advancements, as well as ongoing geopolitical and economical changes.

Recent research presents four exciting potentials that show what the maritime business could resemble in 2050 (Economist Impact, 2023):

- **Progressive and steady transition:** marked by strong worldwide collaboration on climate change and the slow use of newly advanced technology. *Slow but steady shift to green hydrogen and hydrogen-derived fuels (like e-ammonia), driven by policy support and international consensus. Ports are retrofitted, job creation thrives, and seafarer diversity increases. (Lloyd's Register: Global maritime Trends 2050 report/ World Ports Organization).* This slower transition depicts some of the challenges connected with achieving an agreement and dividing expenses and rewards fairly. This vision can only be realised if nations take action to cut emissions between 2020 and 2025, allowing them to integrate technologies early and grow gradually. *By 2040, 25% of seafarers could be women; Africa emerges as a key seafaring talent pool (Lloyd's Registered Foundation).*

- **Fast transition led by technology:** distinguished by strong worldwide collaboration on climate change and quick adoption of new advanced technologies. In the years to come, worldwide collaboration on carbon elimination will necessitate the rapid deployment of breakthrough technologies through large investments, financial schemes, and supportive legislation. In the future, automated systems, smart technology, fuel and system enhanced productivity, and increased data exchange would be widely utilised.

- **Local-specific and fractured shift:** marked by high worldwide fragmentation due to climate change, as well as a quick adoption of new and advanced technologies. Countries may refuse to collaborate on carbon elimination due to geopolitical or economic priorities. In addition, governments are encountering swift yet

ISSN 1759-0108

disorganised adoption of technology to independently satisfy national climate targets and adjust quickly to emerging climate concerns.

- Prolonged transition: defined by high worldwide fracture on climate change paired with a late adoption of new and advanced technology. This blend leads to permanent climate extremes, a critical situation as deemed by the Intergovernmental Panel on Climate Change (IPCC). In this unfair future, the effects of these extremes will be felt everywhere, with the weakest societies and economies be hit the hardest. The effects of this extend beyond the maritime industry, necessitating activities across national authorities driven by adaptation.

The future marine system must keep commodities being transported in a safe and sustainable manner in order to meet society's demands while minimising environmental damage. This includes an energy shift to alternative fuels, modifications to global port infrastructure to handle boats of various sizes and fuel kinds, and the establishment of new routes.

1.1 Recent Developments in the Shipping Sector

From 2020 to 2023, the shipping sector underwent substantial changes affected by a variety of disruptions, such as, geopolitical developments, environmental concerns, economic moves, and technology advances.

The geopolitical setting has had a profound impact on global maritime routes and trade. Russian efforts in the Black Sea in 2023 have generated uncertainty, notably over maritime routes. Geopolitical events such as territorial conflicts and political tensions have direct implications for shipping routes (Investment Monitor, 2023).

The industry faced economic hurdles, with central banks tightening interest rates in 2022 due to inflation fears. The status of the global economy, notably China's unique method to dealing with the COVID-19 pandemic and its implications for ports, has had an impact on containership rates and vessel activity. Furthermore, the market's reaction to economic and geopolitical developments suggests a highly volatile environment that affects maritime markets.

In 2023, the International Maritime Organisation (IMO) issued regulations requiring ships to collect and report pollution data. This is part of a larger strategy to lower all ships' carbon intensity by 40% by 2030, compared to the 2008 baseline. The industry is moving towards more sustainable practices, with an increasing number of new vessel orders for dual-fuel ships that can run on both conventional and renewable energy sources such as LNG (America Ship, 2023).

ISSN 1759-0108

Digital technologies are also being adopted by the sector in order to improve efficiency and environmental compliance. The use of data-driven technologies shall improve industrial collaboration and accelerate environmental initiatives. Tools for monitoring and anticipating disturbances, enhancing forecast accuracy, and controlling purchase orders are increasingly important in establishing supply chain resilience.

Although 2022 brought record revenues for several segments of the shipping industry—particularly container lines—it was also a turbulent year, marked by extreme volatility in freight rates, ongoing port congestion, and significant geopolitical disruptions (Review of Maritime Transport, 2022, UN trade & development).

An economic environment that is under stress provides the backdrop for complex capacity constraints, an industry-move towards sustainability, and the expanding significance of digitalization. Considering all of this, 2023 is going to be another challenging year for the maritime sector (TradeFinanceGlobal, 2023).

Ship Finance & Fleet Growth: A Shifting Landscape

The period between 2002 and 2023 began with significant excitement, faced severe headwinds from the 2008 Global Financial Crisis, and then evolved into a more mature but still highly cyclical market. Greek shipowners continued to leverage public markets for capital, but with a heightened awareness of risk, a focus on resilience, and an increasing eye on environmental sustainability and industry consolidation.

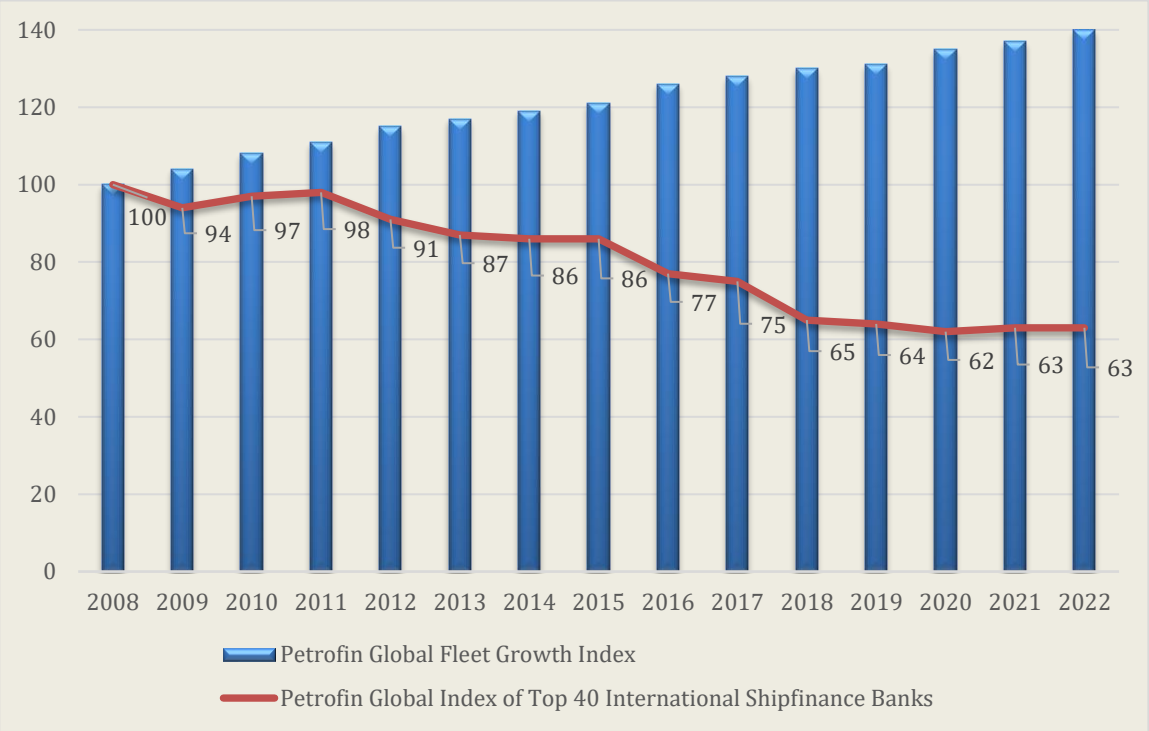

Diagram 1: Shipfinance and Fleet Growth
Source: Petrofin (2023) Global Bank Research

ISSN 1759-0108

Bank lending experiences a downward trend between 2008 and 2020, which flattens at 63 units from 2021 onwards (**Diagram 1**). This trend appears to be unrelated to the constantly rising global fleet growth, with leasing and alternative sources of funds covering the gap (Petrofin, Global Bank Research, 2023).

Greek bank lending to the industry was at USD 9.9 billion at the end of 2019, its highest level since 2014. But this is a long way short of the USD 16.9 billion combined Greek bank shipping portfolio at the outbreak of the financial crisis in 2009.

In 2020, shipping bank-sourced credit for Greek owners fell by 6.24% to USD 49.8 billion, continuing a current trend that began with USD 57.21 billion in 2016 (SeatradeMaritime News, 2021).

In 2021, Greek loans to the shipping sector increased by 5.6%, reaching USD 52.5 billion. This development was significant against the pandemic-impacted global economy and indicated a broader rebound in the international trade and shipping sectors (Hellenic Shipping News, 2022).

Greek banks are among the top lenders in Greece's maritime portfolio. For example, Alpha Bank held a portion of 6.81% (USD 3.54 billion), while Eurobank had 6.65% (USD 3.45 billion) of the Greek shipping portfolio. Piraeus Bank follows with 6.33% (Shipping Telegraph, 2023).

Greek banks have been concentrating in improving their portfolios to boost their competitiveness, whereas international banks' lending practices to the Greek shipping industry have showed various characteristics.

Central banks and various regulators are asking from banks high-credit assets as collateral. As a result, they are pushing banks to participate in highly secure investment projects only. From their side, banks usually chose concentrated financial risks, especially when interest rates were low. Therefore, banks focused on larger firms excluding smaller companies from access to financing.

Despite the challenges, Greek shipping companies, both public and private, demonstrated remarkable resilience. Greek shipowners continued to leverage public markets for capital, but with a heightened awareness of risk, a focus on resilience, and an increasing eye on environmental sustainability and industry consolidation.

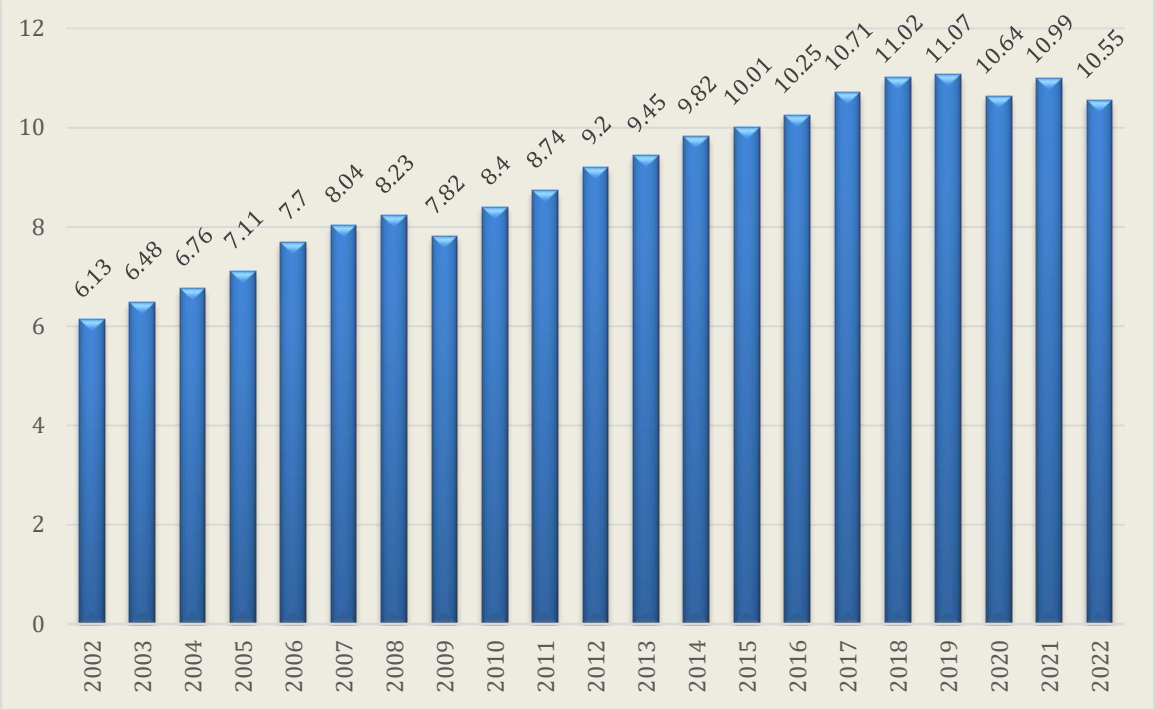

Diagram 2: Transport volume in billion tons loaded
Source: UNCTAD World seaborne trade 2023

As of January 2023, the global merchant fleet size reached more than 105K vessels. The global merchant fleet capacity reported was 2.3B with +3.2% change compared to the previous year (UNCTADSTAT, 2023).

As **Diagram 2** depicts, the volume of global seaborne trade appears to have an upward trend from 2002 until 2019 with exceptions to the year 2009 and the period post-2019. In 2008, the economic crisis upended the landscape for maritime transport and trade and significantly affected growth prospects. Therefore, one year later the transport volume slightly decreased.

COVID-19 disruption caused maritime transport to decrease by 3.8% in 2020 but it almost recovered rapidly with a 3.2% growth in 2021 showing robustness along with a promising forecast. Although the war in Ukraine resulted in a further reduction of 0.4% in 2022, the industry remains strong with forecast projections of 2.4% growth in 2023.

For an economic region such as the European Union, shipping accounts for 80% of total exports and imports by volume, and some 50% by value (International Chamber of Shipping, 2023).

The shipping system is a network of specialized ships, the ports they visit, and the transportation infrastructure from factories to docks, distribution centres, and markets. All components together are an integral part of the global economy. For many commodities and

trade routes, there is no direct substitute for water trade. The main advantage of maritime transport is the reduced transport cost compared to the rest of the modes. This has become feasible thanks to the development of maritime technology, which enables the construction of larger vessels, offering economies of scale.

The basic cargoes moving by sea can be distinguished in the following main categories within the freight industry:

- Dry bulk cargo (raw construction materials, such as, metals, carbon, iron ore, coal and grains).
- Liquid bulk cargo (petroleum products in liquid form, such as, crude oil, LNG and various chemicals);
- Container cargo (finished goods, such as, electrical appliances, machines, clothes and consumer goods);
- Specialised cargoes (sensitive goods requiring special handling, such as, meat, fruits, vegetables, and transportation vehicles. (Sea Freight Transportation, 2024).

According to the Review of Maritime Transport 2023, UNCTAD, there are seven trends that characterize the global seaborne trade:

The marginal contraction of maritime trade volume (by 0.4%) and projected growth (by 2.4%), the shifts in trade patterns due to the war in Ukraine, the focus towards decarbonization and sustainability, the advancements in digitalization and efficiency in response to COVID-19, the softening of container shipping market, the regional connectivity variations as well as the fleet development.

These specific trends involve challenges and opportunities for the shipping industry. Thus, constant control and policy planning are crucial.

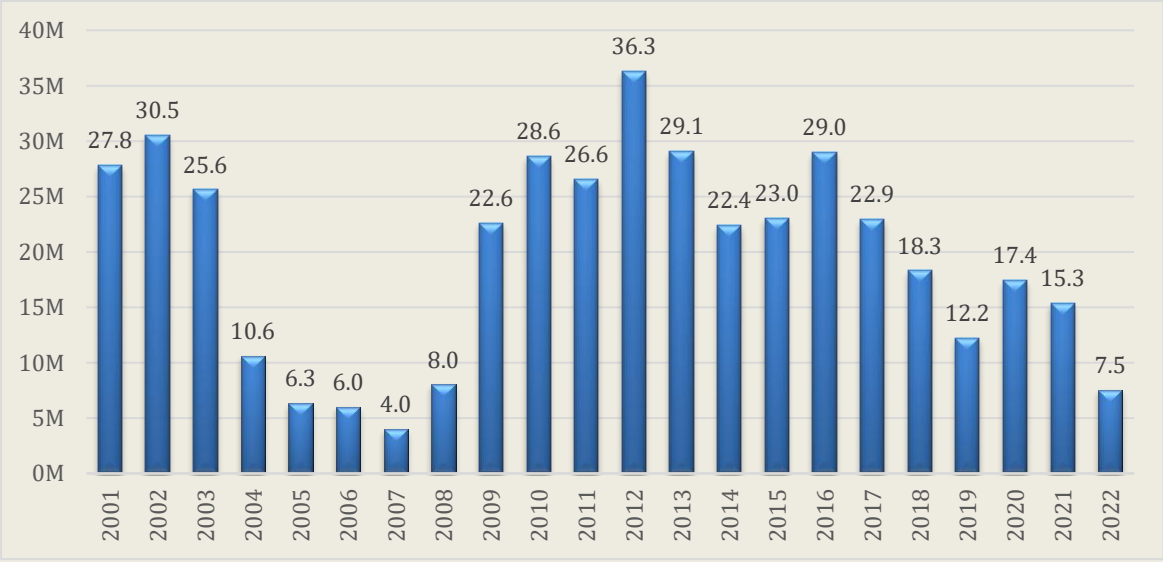

Diagram 3: Ship recycling in Gross Tonnage
Source: UNCTAD Ship recycling

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The demolition market, also popularly referred to as ship recycling, is a process of dismantling a ship when it completes its life tenure. It includes every step of the process, including, mooring of the vessel, disassembling its components, material collection and reprocessing. This process is considered during the ships' design and maintenance. Almost every component of the hull and machinery systems is recycled or repurposed, and ninety five percent of a vessel can be saved in an effort that can take four months to a year (Seatrade Maritime News, 2024).

More specifically, there are four recycling methods used worldwide:

- Dry Docking (this method is applied in some places in Europe)
- Pier breaking (in China, Europe and the US)
- Landing (applied in Turkey)
- Beaching (in Bangladesh, India and Pakistan) (OECD publishing, 2019).

Shipping companies strategically utilise scrapping to manage deadweight tonnage surplus and improve fleet utilization, particularly during periods of market oversupply and low freight rates. Ship recycling is an essential part of fleet management, driven primarily by the economic viability of a vessel, which is heavily influenced by prevailing freight rates, the vessel's age, escalating maintenance and regulatory compliance costs, and the available market for its scrap value. Source: Hellenic Shipping News Worldwide)

From a holistic perspective, the ship recycling sector is advantageous, but over time, it has tended to concentrate in nations with cheap labour, poor occupational safety laws, and insufficient environmental enforcement (Seatrade Maritime News, 2024).

Ship recycling continues to be at modest levels despite an aged fleet. Due to a lack of supply at shipyards and the high cost of new builds, owners have either opted to use the earnings they have made since the epidemic to pay off their loan early or have been active participants in the market for used ships (UNCTAD, 2023).

As **Diagram 3** breaks down, 2016 was the year that an increasing number of companies were focusing on ship recycling, reaching almost 30 million in gross tonnage. Ship demolitions in 2017 were almost one-quarter less in gross tons than in 2016, an indicator of improved market optimism. Around 85% of the world's ship recycling activities occur in India, Bangladesh, Turkey and Pakistan because of the wide availability of cheap labour. In 2018, Bangladesh became the first country in demolition. It received approximately 8,632 thousand gross tons (or 8.632 million GT) of ships for scrapping, accounting for about 47.20% of the global tonnage (UNCTAD, 2018).

The pandemic in 2019 caused delays and decreases in newbuilding deliveries, as well as a halt in ship recycling. This can be attributed to lockdown-induced labour shortages in the shipbuilding and ship

recycling industries. In addition, other measures implemented to reduce the spread of the pandemic, such as travel restrictions, made it impossible for owners to arrange visits or obtain a crew for final delivery. Port closures also affected tonnage arrival into scrapping destinations on the Indian subcontinent (Hellenic Shipping News Worldwide, 2020b).

Since January 2020, the International Maritime Organization (IMO) banned ships from using fuels with a sulphur content above 0.5%. The tonnage of ships sold for recycling rose by 44% in 2020 compared to the previous year despite the pandemic setback, noting however that recycling rates were still lower than they were between 2014 and 2017. Ship owners thought that by keeping older vessels in service, they could maintain high income levels even in the face of increasing scrap metal costs (UNCTAD, 2021). Recycling volumes fell from 17.4 to 15.3 million gross tonnage (GRT) (-11%). While buoyant markets played a major role in encouraging owners to hold onto their vessels, additional factors contributed including, COVID restrictions and application of stricter rules on vessel imports ("vessel imports" refers to: The physical arrival of end-of-life ships into a country for the purpose of being dismantled and recycled. So, when UNCTAD refers to "stricter rules on vessel imports," they are referring to national regulations in recycling countries, or the increasing global push for stricter compliance with international conventions, that govern how and which ships can be brought into their territories for scrapping, often focusing on hazardous materials and worker safety (UNCTAD, 2022).

Furthermore, there are three International and regional regulations, which aspire to facilitate human health by reducing environment pollution.

- The Basel Convention (1989). It controls transboundary movements of hazardous wastes and their disposals.
- The IMO Hong Kong Convention (2009). It is a control system with obligations for flag states, ship owners, recycling states and recycling facilities.
- The EU Ship recycling regulation (2013). It is based on the HKC with additional obligations related to Health, Safety and Environmental requirements. It is more rigorous than the HKC. (OECD, 2019).

Overall, shipbreaking is a difficult endeavour that requires strict measures to protect the maritime environment, to ensure environmentally safe and sound management of hazardous waste as well as to guarantee high health and safety standards for workers. Yet only a fraction of retired ships is handled in a safe and sustainable manner (Bimco,2020) (**Diagram 4**).

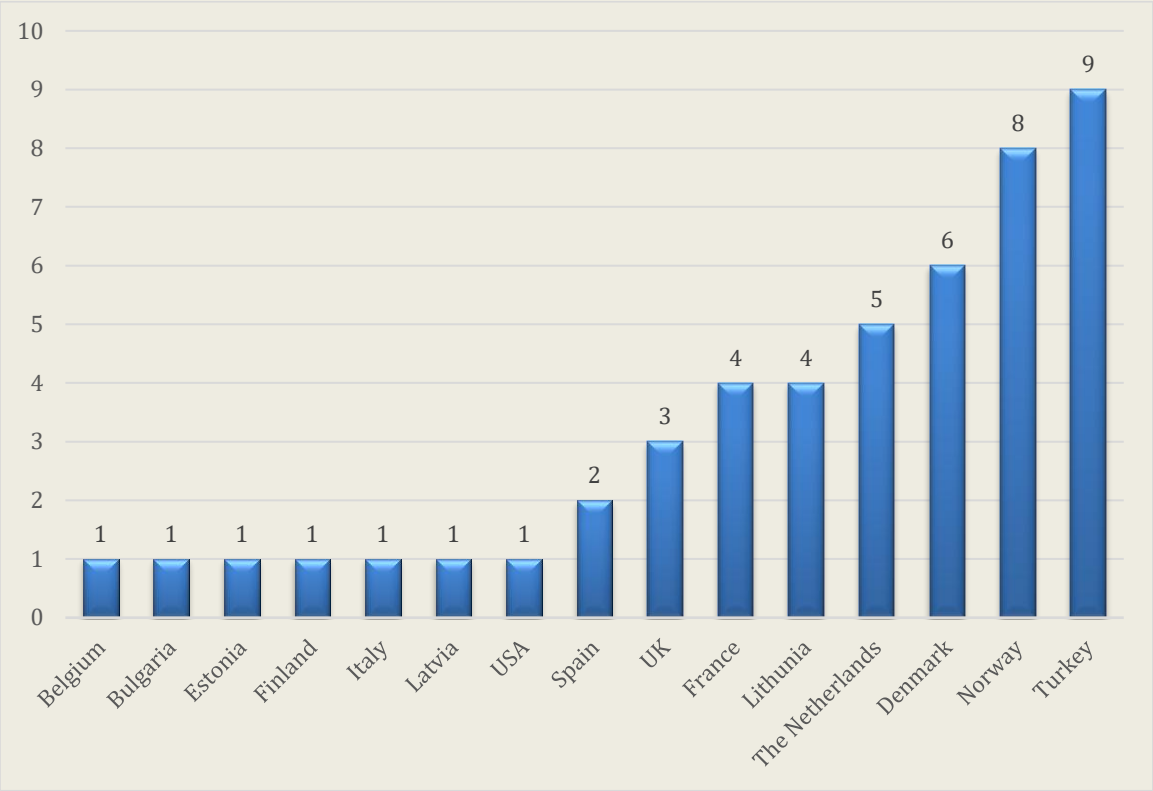

Diagram 4: Ship recycling yards per country
Source: European Commission, July 2023

The shipping market by major vessel type

As **Table 1** depicts, from January 2001 to January 2023, there is a consistent upward trend in the dwt of **oil tankers** over the years. The demand for oil and petroleum products around the world is reflected in the steady rise in deadweight tonnage (dwt) for oil tankers. With an emphasis on decarbonisation, the shipping industry is presently undergoing a considerable transformation that is anticipated to bring about significant changes soon. The oil tanker segment may be greatly impacted by the switch to greener energy sources in terms of fleet composition and operating expenses (UNCTAD, 2023).

Bulk carriers also show a steady increase in dwt. The expansion in international trade, particularly for commodities like iron ore, coal, and cereals, is reflected in the growth in the dead weight of bulk carriers. In recent years, the dry bulk market has displayed inconsistent patterns. Short-term market influences include China's economic expansion and the resolution of supply chain problems associated with the pandemic. The long-term view is still cautiously hopeful, though, with predictions of a recovery fuelled by a balance between market demand and fleet growth (S&P Global 2023).

The dwt of **general cargo vessels** shows a more fluctuating trend with a slight overall decrease. The shifting nature of international trade may be the cause of the variation and minor decrease in the dwt of general cargo boats. Cargo transportation is moving towards more specialised and effective methods, such containerisation. Logistics developments and the growing demand for quicker and more dependable transit options are probably contributing factors to this trend. (America Ship, 2023).

There is a significant and consistent increase in the dwt of **container ships**. The exponential growth in containerised traffic is reflected in the noticeable increase in the dwt of container ships. However, because of significant investments in new construction and a decrease in port congestion, the industry is facing problems from supply-side pressures. The industry is also adjusting to shifts in consumer behaviour and the state of the world economy, which may have an effect on operational dynamics and container freight rates. (S&P Global 2023).

Specialised ships such as chemical tankers and LNG carriers are included in "**Other Types**" category, which is gradually growing. Both industry demand and the general movement towards greener and more sustainable methods of transportation are anticipated to have an impact on the trends in this market. The industry is placing greater emphasis on green technologies and sustainability, such as energy efficiency systems and cleaner fuels (Ship Technology, 2023).

Looking at the last decade, from January 2013 to January 2014 the world fleet rose by 4.1% and by January 2015 another 3.5%. In terms of DWT (deadweight tonnage: a measure of how much weight a ship can carry) the global commercial shipping fleet grew by 3.48% in the 12 months to 1 January 2016, the lowest growth rate since 2003. On 1 January 2017, the fleet consisted of 93,161 vessels, with a combined tonnage of 1.86 billion dwt. Moreover, in early 2018, the world fleet consisted of 94,171 vessels, with a combined tonnage of 1.92 billion dwt. After five years of decelerating growth, in 2017, a slight rebound was noticed in growth rate. The first months of 2019, the global fleet stood at 95,402 ships, accounting for 1.97 billion dwt of capacity. In 2020, there were 98,140 ships of 100 gross tons and above, equivalent to 2,061,944 dwt of capacity.

The world's fleet of commercial ships increased by 3% in the 12 months leading up to January 1, 2021, reaching 99,800 ships with a gross tonnage of 100 gross tonnes or more, or 2,136,190 dwt of capacity. However, this growth rate has declined since peaking at 11% in 2011.

In the beginning of 2022, there were 102,899 merchant ships with a gross tonnage of 100 gross tonnes or more, or 2,202,962 thousand Dwt. The worldwide commercial number of vessels expanded by 2.95 percent in dwt terms in the year ending, which is the second lowest

growth rate since 2005. With the help of a strong worldwide gas demand at that time, the fleet of liquified gas carriers grew by 8.15% over that same era.

In 2023, 105,493 ships weighing 100 gross tonnes, or more were used to carry out maritime trade worldwide. Oil tanker, bulk carriers and container ships made up eighty five percent of the total capacity.

All things considered, the shipping sector is going through a major period of transition brought about by things like geopolitical events, technical breakthroughs, global economic trends, and environmental restrictions. The industry's ability to bounce back from setbacks and seize new possibilities is critical (**Diagram 5**).

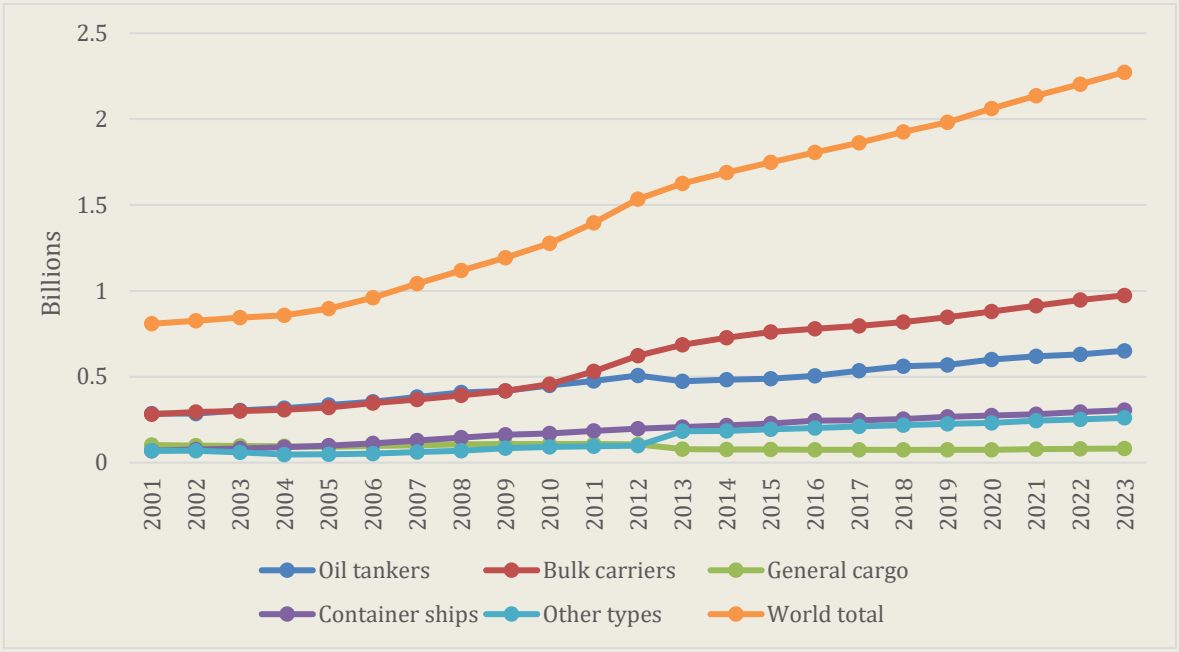

Diagram 5: World fleet by principal vessel types, 2001–2023
Source: Data retrieved from UNCTAD Reports 2001-2023 on the basis of data supplied by Clarkson Research Services

ISSN 1759-0108

Type of Vessel	2001 000 of dwt	2002 000 of dwt	2003 000 of dwt	2004 000 of dwt	2005 000 of dwt	2006 000 of dwt
Oil tankers	285 441 (35.3%)	285 519 (34.6%)	304 396 (36.1%)	316 759 (37.0%)	336 156 (37.5%)	354 219 (36.9%)
Bulk carriers	281 654 (34.8%)	294 588 (35.7%)	300 131 (35.6%)	307 661 (35.9%)	320 584 (35.8%)	345 924 (36.0%)
General cargo	102 653 (12.7%)	99 872 (12.1%)	97 185 (11.5%)	94 768 (11.1%)	92 048 (10.3%)	96 218 (10.0%)
Container ships	69 216 (8.6%)	77 095 (9.3%)	82 793 (9.8%)	90 462 (10.6%)	98 064 (10.9%)	111 095 (11.6%)
Other types	69 412 (8.6%)	68 578 (8.3%)	59 730 (7.1%)	47 324 (5.5%)	48 991 (5.5%)	52 508 (5.5%)
World total	**808 376** **(100.0%)**	**825 652** **(100.0%)**	**844 235** **(100.0%)**	**856 974** **(100.0%)**	**895 843** **(100.0%)**	**959 964** **(100.0%)**

Table 1a: World fleet by merchant vessel types of 100GT and above, 2001–2012

	2007 000 of dwt	2008 000 of dwt	2009 000 of dwt	2010 000 of dwt	2011 000 of dwt	2012 000 of dwt
Oil tankers	382 975 (36.7%)	407 881 (36.5%)	418 266 (35.1%)	450 053 (35.3%)	474 846 (34.0%)	507 454 (33.1%)
Bulk carriers	367 542 (35.3%)	391 127 (35.0%)	418 356 (35.1%)	456 623 (35.8%)	532 039 (38.1%)	622 536 (40.6%)
General cargo	100 934 (9.7%)	105 492 (9.4%)	108 881 (9.1%)	108 232 (8.5%)	108 971 (7.8%)	106 385 (6.9%)
Container ships	128 321 (12.3%)	144 655 (12.9%)	161 919 (13.6%)	169 158 (13.3%)	183 859 (13.2%)	198 002 (12.9%)
Other types	62 554 (6.0%)	68 624 (6.1%)	84 895 (7.1%)	92 072 (7.2%)	96 028 (6.9%)	99 642 (6.5%)
World total	**1 042 328** **(100.0%)**	**1 117 779** **(100.0%)**	**1 192 317** **(100.0%)**	**1 276 137** **(100.0%)**	**1 395 743** **(100.0%)**	**1 534 019** **(100.0%)**

Table 1b: World fleet by merchant vessel types of 100GT and above, 2001–2012

Type of Vessel	2013 000 of dwt	2014 000 of dwt	2015 000 of dwt	2016 000 of dwt	2017 000 of dwt	2018 000 of dwt
Oil tankers	472 890 (29.1%)	482 447 (28.6%)	489 388 (28.0%)	505 736 (28.0%)	535 700 (28.8%)	562 035 (29.2%)
Bulk carriers	686 635 (42.2%)	726 322 (43.1%)	760 468 (43.5%)	779 289 (43.2%)	795 518 (43.5%)	818 921 (42.5%)
General cargo	77 589 (4.8%)	77 507 (4.6%)	76 731 (4.4%)	74 992 (4.2%)	74 908 (4.0%)	73 951 (3.8%)
Container ships	206 547 (12.7%)	215 880 (12.8%)	227 741 (13.0%)	244 339 (13.5%)	245 759 (13.2%)	253 275 (13.1%)
Other types	182 092 (11.2%)	185 306 (11.0%)	194 893 (11.1%)	200 923 (11.1%)	210 455 (11.3%)	218 002 (11.3%)
World total	**1 625 750** **(100.0%)**	**1 689 462** **(100.0%)**	**1 749 222** **(100.0%)**	**1 805 279** **(100.0%)**	**1 862 340** **(100.0%)**	**1 926 183** **(100.0%)**

Table 1c: World fleet by merchant vessel types of 100GT and above, 2001–2012

ISSN 1759-0108

Type of Vessel	2019 000 of dwt	2020 000 of dwt	2021 000 of dwt	2022 000 of dwt	2023 000 of dwt	Change 2022/ 2023
Oil tankers	568 244 (29.0%)	601 163 (29.0%)	619 331 (29.0%)	629 890 (28.6%)	651 348 (28.7%)	3.4%
Bulk carriers	846 418 (43.0%)	879 330 (43.0%)	913 175 (42.8%)	947 121 (43.0%)	973 743 (42.8%)	2.8%
General cargo	74 192 (4.0%)	74 583 (4.0%)	77 910 (3.7%)	79 670 (3.6%)	81 815 (3.6%)	2.7%
Container ships	266 087 (13.0%)	274 856 (13.0%)	281 825 (13.2%)	293 790 (13.3%)	305 313 (13.4%)	3.9%
Other types	226 568 (11.0%)	232 012 (11.0%)	243 949 (11.4%)	252 489 (11.5%)	260 554 (11.5%)	3.2%
World total	**1 981 510** **(100.0%)**	**2 061 944** **(100.0%)**	**2 136 190** **(100.0%)**	**2 202 961** **(100.0%)**	**2 272 772** **(100.0%)**	**3.2%**

Table 1d: World fleet by merchant vessel types of 100GT and above, 2001–2012

Source: UNCTAD Reports 2001-2012 on the basis of data supplied by Clarkson Research Services.

ISSN 1759-0108

Each of the following sections (tanker, dry bulk, container, LPG, LNG) provides specific, relevant, and valuable insights into their respective segments of the shipping market. They move beyond just stating general trends to discuss:

- Specific drivers of demand and supply.
- Geopolitical and economic influences.
- Future outlooks and challenges.
- Key players or technologies relevant to that segment.

The tanker market

In addition to rising petroleum product deliveries to China and longer anticipated sailing lengths, strong forecasted demand for jet fuel in 2024 is expected to sustain clean tanker markets internationally. These factors all point to a positive picture for the industry. The clean tanker industry is also helped by the longer distances between production and demand centres created by the recent increases to capacity in the Middle East and the shutdown of refining capacity in Europe (**Diagram 6**).

Growth will be aided by geopolitics and new laws, including as import bans on Russian barrels in Europe and other regions, even though the capacity of the tanker fleet is not expected to increase much (S&P Global, Commodities 2024).

The dry bulk carrier's market

With the help of rising steel demand, iron ore shipments are predicted to rise globally by approximately 4% in 2023 and by 1% in 2024 and 2025. As per the World Steel Association, there will be an almost 2% increase in global steel demand in 2024. While demand is predicted to expand again overall in advanced economies, demand growth may decelerate in China.

Positive benefits on steel demand, should the government effectively intervene, may not be felt until 2025 because there are currently very few construction projects, therefore the effects of the intervention will take time to manifest. Iron ore exports may exceed current projections if the intervention proves to be particularly effective. Chinese steel output may be driven by infrastructure, manufacturing, and exports to other Asian countries in 2024 (BIMCO, 2023).

The container carrier's market

The International Chamber of Shipping (2023) estimates that approximately eleven billion metric tonnes of cargo are shipped in shipping containers annually. The shipping business has grown throughout time in tandem with the expansion of the global economy in recent decades. This is a result of a rise in international trade and business. Consequently, the size of the container fleet worldwide has increased as well.

Marine transportation is the main application for container shipping. The supply of maritime transport is becoming more unreliable due to the epidemic. As firms stored up in anticipation of additional epidemic waves and some governments lifted restrictions and approved national stimulus packages, maritime commerce flows rose even more. The shipping container market is predicted to grow as a result of altered consumer behaviour and business pattern changes (Persistence Market Research, 2022).

Diagram 6: Baltic Exchange Dry Index
Source: Trading Economics 2024

The LPG carrier's market

From 2022 to 2030, the global LPG tanker market is projected to develop at a compound annual growth rate of 5.3% from its 2021 valuation of USD 182.02 million. In the upcoming years, the market is probably going to rise at a strong rate due to the increase in shale gas production. Due to the instability of crude oil prices as well as advancements in horizontal drilling and hydraulic fracturing techniques, big corporations have shifted their focus to producing gas and oil from shale rock.

The demand for liquefied petroleum gas began to increase in 2021, and over the

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forecast period, vessels will be involved in an increase in liquefied petroleum gas trade along the US-Asian route. In 2022, new orders are probably going to stay low because of the effect that COVID-19 has had on the companies.

Nevertheless, a number of tankers are already on the list of orders and will deliver the LPG to the specified places. Businesses around the nation are updating their current fleets. They are consistently introducing LPG carriers that utilise cutting-edge technologies to withstand the demanding climate (Grand View Research, 2022).

The LNG carrier's market

An expansion in LNG liquefaction capacity and the rising demand for natural gas will have a significant impact on the market dynamics of LNG carriers in 2023. The market for LNG carriers is significantly influenced by this rise in supply and demand. A small number of major companies, including Chevron Corporation, Shell plc, ExxonMobil Corporation, and others, dominate the worldwide market and will play a significant role in determining its destiny. These companies concentrate on creating new technology to build massive LNG ships, increasing the market's overall capacity and efficiency.

The final investment decisions (FID) for LNG projects in Qatar and North America, along with the ongoing LNG contractual activity for pre-final investment decision projects, were two of 2022's biggest highlights. These changes reflect the market's expected expansion and LNG's growing significance in the world's energy mix.

A forecasted demand-supply gap in the early 2030s for the LNG market suggests the need for more LNG projects and liquefaction capacity. This disparity underscores the need for strategic planning and investment in the LNG sector, posing both a problem and an opportunity for the market (McKinsey, 2023).

Global Fleet Expansion in Recent Years

Following a period of decelerating growth, the global commercial shipping fleet saw a slight rebound in 2017. While growth rates have varied, the overall trend has been one of expansion. For instance, the fleet grew by 3% in the 12 months leading up to January 1, 2021, reaching 99,800 ships (2,136,190 dwt), and further expanded to 102,899 ships (2,202,962 thousand Dwt) by early 2022, and 105,493 ships by 2023. This growth, however, represents a decline from peak rates seen around 2011. (UNCTAD, 2023).

1.2 Greek Shipping Industry

With respect to ship ownership and operational capability, the Greek shipping industry remains a major player on a global scale (**Diagram 7**). Latest data from 2023 report that Greek shipowners have a remarkable 21% of the deadweight tonnage of the world's commercial fleet, demonstrating the nation's considerable impact on global logistics and trade. This percentage

highlights the maritime industry's ongoing growth and strategic significance to the world economy in Greece. Greek shipowners control a sizeable share of the world fleet in important industries including LNG carriers, bulk carriers, and oil tankers, demonstrating the industry's supremacy in these areas. Over the last ten years, the Greek merchant fleet has grown significantly, adding fifty percent more vessels to its fleet with Greek investors investing large capital with 241 new vessels ordered as of April 2023 (Greek City Times, 2023).

According to Union of Greek Ship-owners' Annual Report 2023, nearly one in six LNG carriers and more than forty percent of oil tankers now under construction are expected to be supplied to Greek shipping companies. Furthermore, the Greek-owned fleet's average age of roughly 10 years is smaller than the average age of approximately 11 years worldwide.

The Greek shipping industry's leading figures and accomplishments are highlighted by the Lloyd's List Greek Shipping Awards 2023. Notably, awards have been given to Diana Shipping and Tsakos Energy Navigation for their respective achievements to the dry cargo and tanker industries. Tsakos Energy Navigation won the Tanker Company of the Year Award, demonstrating their outstanding operational performance and noteworthy contributions to the maritime sector, while Diana Shipping was recognised as the Dry Cargo Company of the Year (Informa Markets, 2023).

In the shipping industry's most influential people, the Lloyd's List sets Maria Angelicoussis in the 12th position. She was the 2nd wealthiest person in Greece with net worth of approximately USD 5.7 billion, as per Bloomberg Billionaires Index 2024, owning a fleet of 134 vessels (including those on order), valued at approximately USD 14 billion (Greek City Times, 2023).

Other ship owners in the Lloyd's List Top 2023 include, George Prokopiou – Dynacom / Dynagas / Sea Traders (19th), Angeliki Frangou – Navios Group (21st), Evangelos Marinakis – Capital Group (22nd), Melina Travlos – Union of Greek Shipowners (25th), George Oikonomou – TMS Group (33rd), K. Konstantakopoulos – Costamare (37th), Peter G. Livanos – GasLog / DryLog (41st), Petros Pappas – Star Bulk (42nd), George Logothetis – Libra Group (62nd), Semiramis Paliou – Diana Shipping / Helmepa (75th) and Elpi Petraki – Wista (77th). Most of them are descended from well-known seafaring families.

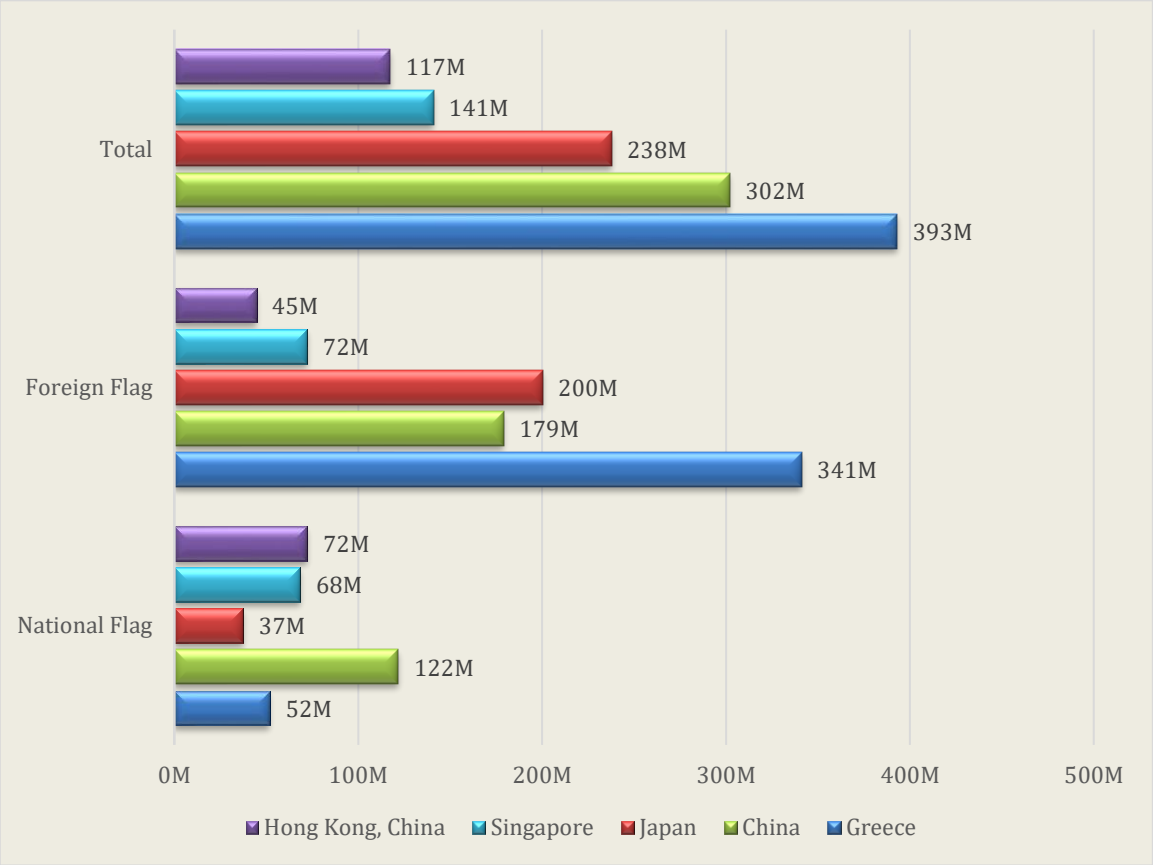

Diagram 7: World Fleet Ownership
Source: UNCTAD (2023)

Global Leadership in Ship Ownership (by DWT)

As per UNCTAD (2023), the Greek maritime fleet comes first controlling 17.4% of the world's total Dwt, ahead of nations, such as China (second at 13.4%), Japan (third at 10.5%), Singapore (fourth at 6.2%) and HK China (fifth at 5.2%).

This sustained leading position underscores Greece's immense influence on global trade flows and logistics.

Flag Registration, Global and European Standing

Greece is the ninth-most-registered ship per flag in the world, and its maritime registration ranks second in the European Union with 647 ships (greater than 1,000 gross tons), according to the Union of Greek Ship-owners (UGS, 2023). This highlights its importance within the EU's maritime sector.

Trends in the Number of Greek Shipping Companies

In 2022, the number of Greek shipping companies decreased to 599 (1.3% less than in 2021), switching the steady increase of the previous three years. In 2021, there were 607 Greek companies, an increase from an all-time low of 588 in 2018, but down from 926 a record peak in 1998 (Petrofin Research, 2023) (**Diagram 8**).

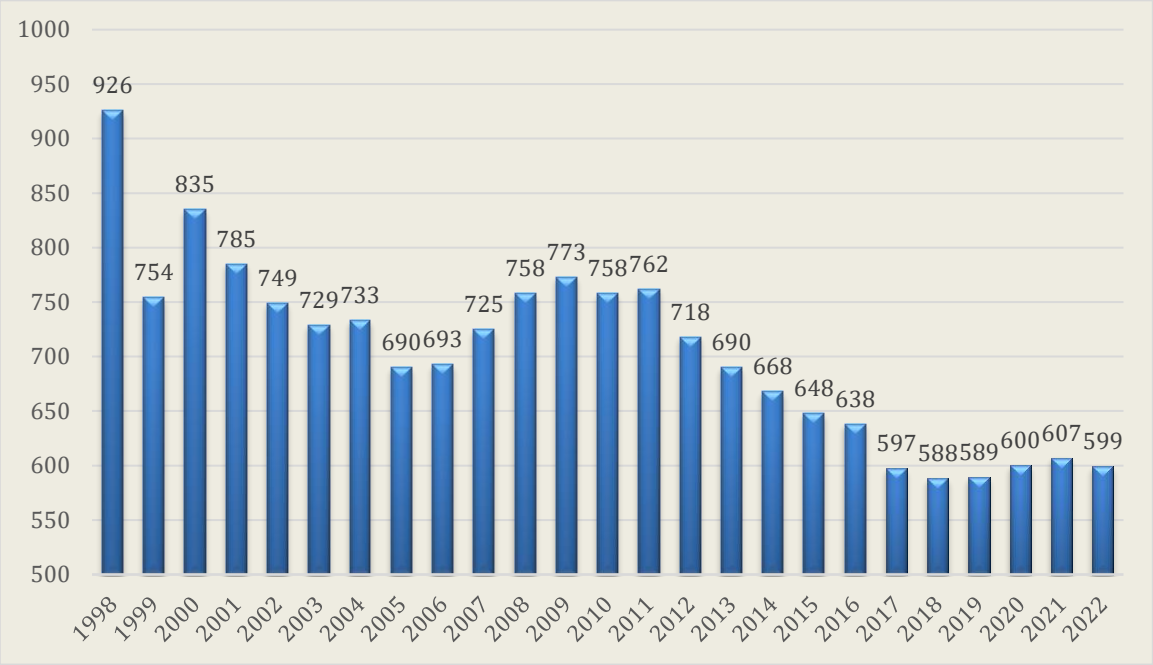

Diagram 8: Number of Greek Shipping Companies in operation 1998-2022
Source: Petrofin Research (2023)

As illustrated in **Diagram 9**, there is a continuous increase after 2013 and as a result, the Greek owned and Greek based fleet reached 6409 vessels in 2022, from 4573 vessels in 2013. The Greek maritime industry remains an important pillar of the Greek economy. For the year 2022, the maritime services added 21,004 million euros to the Greek government's balance of payments, compared to 17,153 million euros in 2021, marking an increase of 22.5% according to the Bank of Greece (Services Balance 2023).

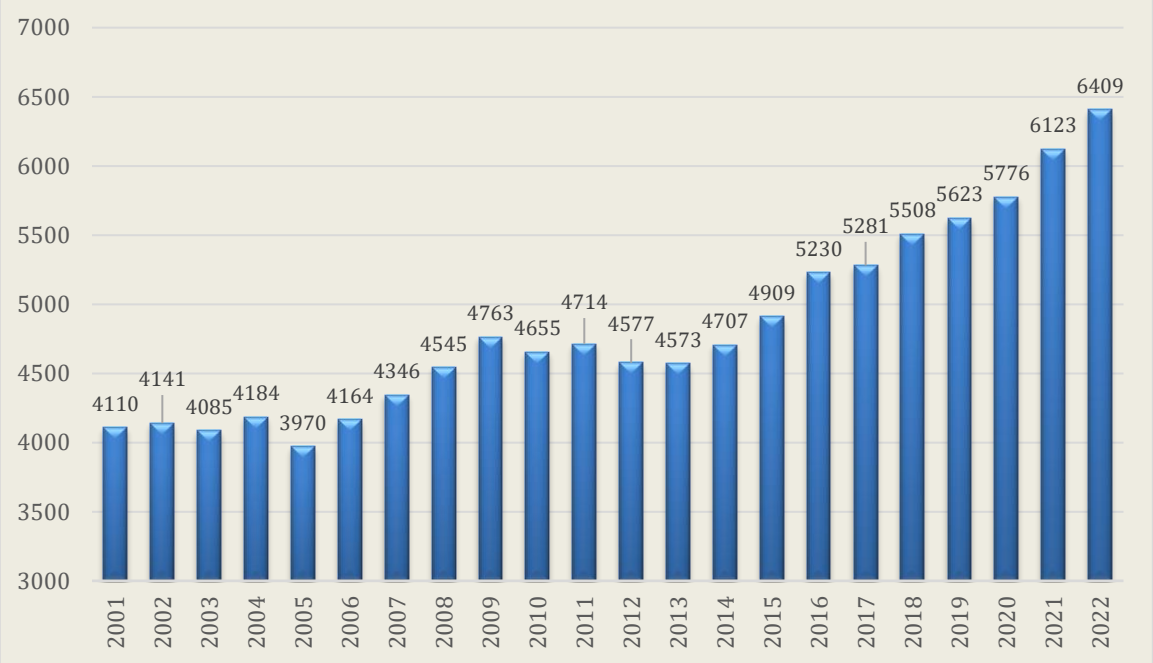

Diagram 9: Number of vessels in the Greek-based, Greek-owned fleet
Source: Petrofin Research (2023)

Despite the obstacles created by global economic shifts, the Greek economy has shown resilient and is expected to grow in the future years. Following an effective rebound from the COVID-19 epidemic, economic indications point to a healthy future. Greece's GDP is predicted to expand by 2.9% in 2024, driven by strong investment, increased private consumption, and major improvements in the tourism sector (Greek Reporter, 2023). The International Monetary Fund (IMF) has changed its growth projection for Greece, anticipating a 2.2% growth rate in 2023 and an upward trend through 2024. This forecast is bolstered by record foreign investment inflows over the last two years, indicating restored confidence in the Greek economy (Business Daily, 2024).

Greece's recent acquisition of investment grade status for its debt has sparked additional investment, reinforcing its financial system. The government's fiscal management aims for a primary budget surplus of 2.1% of GDP in 2024. Greece plans to reduce its public debt to 152.3% of GDP by 2024, currently at 160.3% (Reuters, 2023).

In 2023, the maritime transport sector globally showed signs of recovery and expansion, as opposed to the decline seen in 2020 due to worldwide economic downturns. UNCTAD predicts a 2.4% growth in maritime commerce volume in 2023, up from a 0.4% decrease in 2022. This positive trend is further reinforced by the forecast that maritime trade will rise at a rate greater than 2% per year between 2024 and 2028 (Review of Maritime Transport, 2023).

In the specific domain of fossil gas consumption and imports, Greece had a significant decline in consumption rates, which is consistent with larger European trends. While the country's gas consumption decreased, it continued to play an important role in the regional gas export market (DESFA, 2023).

Global Maritime Freight Rate Dynamics (2002-2023)

The period from 2002 to 2023 witnessed significant shifts and cycles in global freight rates across various maritime sectors due to supply/demand, economics, and geopolitics. A "super cycle" (2003-2008) saw soaring dry bulk rates, ending abruptly with the 2008 GFC. Post-GFC (2010-2019) brought volatility and oversupply. COVID-19 (2020-2023) saw contrasting impacts: tanker surges initially, then a container boom, with 2023 showing strong energy/car carrier markets.

The average level of the freight rates increased by 17.1% the period January-September 2020, as the oil tanker freight rates almost doubled, while the Drybulk freight rates reduced approximately by 23% (Bank of Greece, 2020).

According to the ClarkSea Index's latest assessment for 2023, the maritime industry's performance has fluctuated across various areas. Despite a 37% drop from 2022, the ClarkSea Index remained 33% higher than the ten-year trend, suggesting strong performance in some areas of shipping (SeatradeMaritime News, 2023).

Significant development was observed in the energy shipping sector, with LPG carriers setting all-time high prices and tankers having another excellent year. LNG rates, albeit lower than the previous year, remained solid, and the offshore sector rebounded, with Floater drilling rigs reaching 90% utilisation for the first time since 2014. Car carrier charter rates have stayed at all-time highs, indicating a 19% rise in commerce with only a 1% increase in fleet size since 2019 (Clarkson Research Services, 2024).

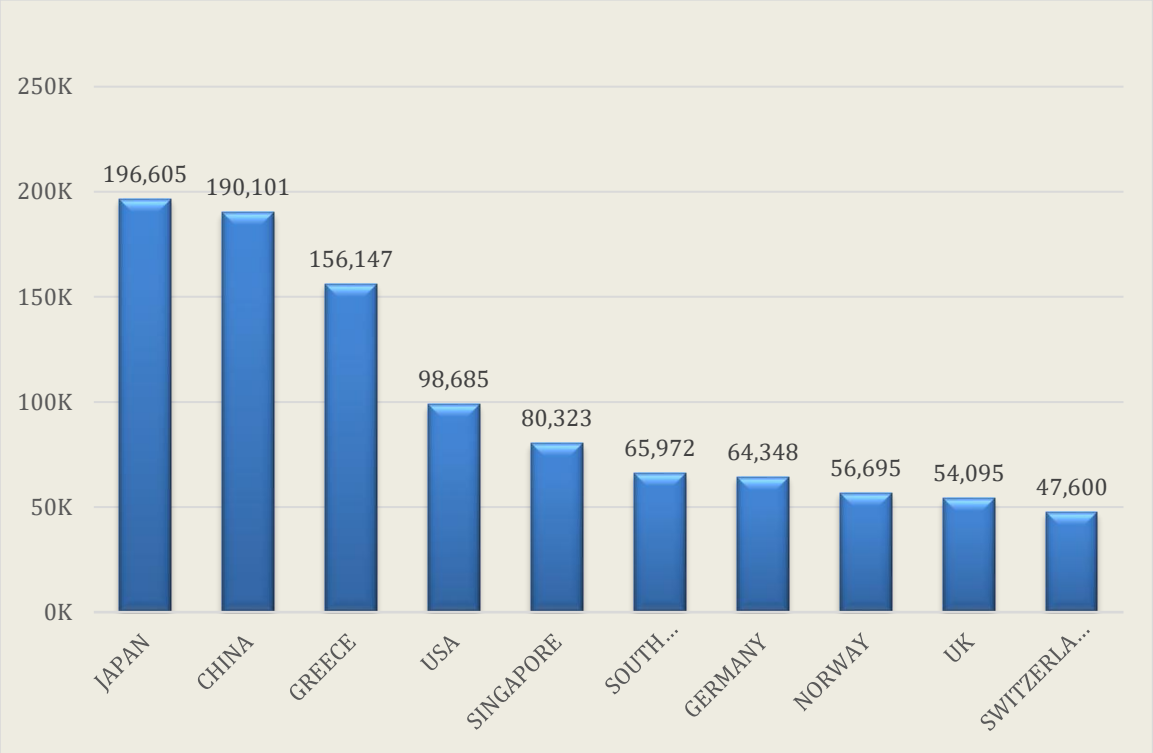

Diagram 10: Top 10 Ship owning nations by value
Source: VesselsValue as of October 2022

The fleet value is related to the expectations of revenue and performance of shipping markets as well as to return on investment (Hellenic Shipping News Worldwide, Unctad 2020). It can also be linked to the transport and logistics value chain as well as to the digital technology of the fleet, making it possible to improve safety, efficiency, equipment maintenance and operational processes (Riviera Maritime Media, 2020, Unctad ,2020).

At the beginning of 2020, bulk carriers, oil tankers and offshore vessels were the main ship types representing the highest proportion of the value in the global fleet. According to VesselsValue, the top ship owning nation by fleet value, in 2022, was Japan with over USD 196

billion worth of fleet (**Diagram 10**). The value of Japan's bulk carriers amounted to approximately USD 51.56 billion (Statista,2022).

Greece has maintained its third place ranking in terms of total fleet size and value. However, China has surpassed Greece in terms of tanker fleet size, with 1,466 vessels compared to 1,461 of Greece, but Greece still ranks first in terms of fleet value, with a fleet worth of USD 56.2 billion. Improved profitability has revived interest in this industry, with very large crude carriers' (VLCC) earnings, the highest level in over 2 years. This is mostly due to increased demand, as well as the effects of the ongoing war between Russia and Ukraine. Since the beginning of the year, VLCCs, Suezmaxes, and Aframaxes have seen a 14% to 86% gain in value (VesselsValue, 2022).

Singapore remained in fifth place, with a fleet worth of approximately USD 80.3 billion, and fourth in terms of number of vessels. Singapore's container fleet is the world's fifth largest, valued at USD 23 billion, which represents more than one-quarter of the total fleet value (Safety4Sea, 2023).

Countries like Norway, South Korea, USA, Germany, UK and Switzerland have seen low figures in their fleet value but still enough to remain in the top ten list of the world ship owning nations by value.

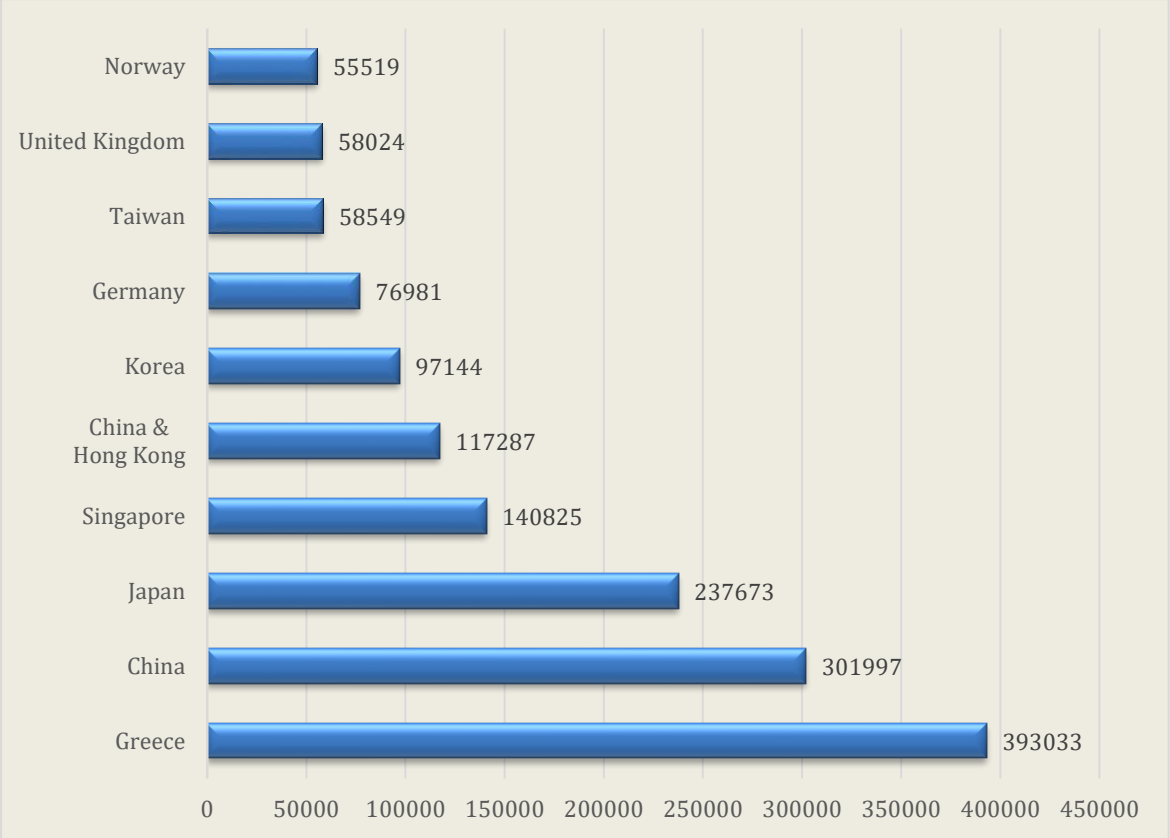

Diagram 11: Flag Registration of commercial ships of 1000gt and above (DWT)
Source: Handbook of Statistics (Unctadstat,2023)

The concept of Flag State or Ship Registration remains fundamental to maritime operations, as it adapts to current problems and regulatory frameworks in 2023 and 2024. The International Chamber of Shipping's 2023/2024 Shipping Industry Flag State Performance Table focuses on Flag States' evolving performance, underlining their critical role in guaranteeing the global merchant fleet's safety and environmental compliance. This table emphasizes the significance of continual discussion between shipowners and their Flag States to drive enhancements in safety, environmental protection, and seafarers' working conditions (Safety4sea, 2024).

The term Flag State or Ship registration appeared due to the early use of flags as a symbol of the ship's nationality or tribe. Every merchant ship must be registered to a state of its choice. Ships are obliged to carry the flag of that country and follow the rules and regulations. The flag of the ship plays a major role in the court's trial decision in case of maritime incidents and accidents, labor disputes, breaches of international maritime conventions, or environmental pollution. Ship registration is important in many aspects such as newbuilding deliveries, vessel purchases, financing, vessel leasing and different priorities of owners and mortgages (maritimeinssight,2019). More specific, any ship over 100gt has to be registered whether it is a cargo ship, a fishing vessel or a passenger vessel. It is not mandatory for ships to be registered under a country's own flag.

According to **Diagram 11**, Greek owners remain the dominant force in the shipping industry, in 2023, as they own the largest number of Dwt that have a flag registration. China is the second largest group with flag registrations as it has registered more than 300 million of dwt tons. On the contrary, UK and Norway have seen low figures in their Dwt registrations but still enough to be accounted in the top ten countries of flag registration by tonnage.

There are different types of ship registration:

- **Traditional registers:** ship registers that are conducted by an individual country as a national registry of their own ships carrying their own flag, operated, owned and manned by nationals of that country. Moreover, the owner of the ship must be from the country of registration as well as the place of business should be in the country of registration.
- **Open:** ship registers that allow ship owners of different nationalities to flag and operate ships under their flag.
- **FOC:** Flag of Convenience is a type of open registry with a slight difference in that FOC's may offer some additional features such as more accessibility to the registry, an attractive fiscal regime, lower administrative fees, flexible to lose maritime safety policies and lower costs for the ship owners. FOC usually has no genuine link between the state and the ships that are flagged under the state. For

instance, the vessel does not belong and is not operated by anyone from that country of registration as well as the country of registration has no crew members, technical or social connection with that ship. Because of this, organisations like ITF (International Transport Workers Federation) find it difficult to rely on such ship owners as they may not follow the various regulation framework.

- **Second National Register:** These registries are established by countries that have national registrations but are losing their vessels to other countries with open registries or FOCs.
- **Offshore registers:** these are operated by autonomous regions of a particular country or countries considered as an overseas territory of a particular country. Similar to Second National Register, ships register under the Offshore registers may be protected of the home nation, but be more cost- effective (Shippingandfreightresource, 2018).

1.3 Future Outlook

Global Market

The shipping business is quickly evolving, owing to the deployment of powerful artificial intelligence (AI) systems that improve operational efficiency and modify global trade patterns. Understanding and responding to the most recent marine industry trends while preserving business operations is critical for remaining viable, meeting client requests, and creating growth and revenue (Sedna, 2023).

Autonomous ships and self-navigating vessels are a rapidly growing trend in the worldwide maritime business. While both function with few or no personnel, autonomous ships are outfitted with advanced self-governing technology, allowing them to make more independent judgements. Unmanned vessels, on the other hand, are controlled remotely by humans.

Increasing worldwide trade volumes and stricter delivery times push ports to enhance operations, such as decreasing ship wait times and expediting container loading and unloading. Smart ports use digital technology and automation to optimise operations, including docking and cargo processing.

Another emerging trend, digital twins, allows operators to replicate and assess port operations in a precise virtual environment. Port managers optimise logistics, predict possible challenges, and streamline operational workflows by testing scenarios and tactics in a digital twin. (ING, 2023).

Greek Market

For the Greek market, the prognosis must be viewed in relation to the larger Mediterranean and European background, which is shaped by geopolitical issues, such as the consequences of Russian sanctions changing shipping corridors and influencing worldwide trade patterns. The global shipping forecast is mixed,

with poor cargo growth and market dynamics turning towards additional capacity, notably in the container category. This scenario signals a period of adaptation for shipping businesses, especially those operating in Greece's marine sector, which has historically played a prominent role in global shipping (ING, 2023).

According to KPMG, seven milestones have been identified within the framework of Green Shipping associated with regulatory standards for energy-efficient operational methods, the advancement of alternative fuels, the use of efficient technology, data transparency and accuracy, sustainable investment, carbon pricing policy, and sustainability in each shipping business plan (KPMG, 2022).

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2. Methodology

The study focuses on the board characteristics of Greek maritime companies, which are listed in foreign Stock Exchanges. **Diagram 12** illustrates their number throughout the same period. Furthermore, **Table 2** presents the maritime companies included in our study from 2001-2022 and **Table 3** depicts all the significant developments related to these companies.

Table 4 demonstrates the number of IPOs, Mergers & Acquisitions as well as any Delistings of publicly listed Maritime Companies for the period 2001-2022.

2.1 Population/Sample

Data was collected both from the annual reports found in the corporate websites of the Greek maritime companies as well as from the websites of the bourses that the companies were listed. As such the Securities & Exchange Commission (SEC) (www.sec.gov), the New York Stock Exchange (www.nyse.com), the London Stock Exchange (www.londonstockexchange.com), the Nasdaq Stock Market (www.nasdaq.com) and the Singapore Stock Exchange (www.sgx.com) were consulted. The data collection process took place during Spring of 2024, while the analysis was based on 52 maritime companies.

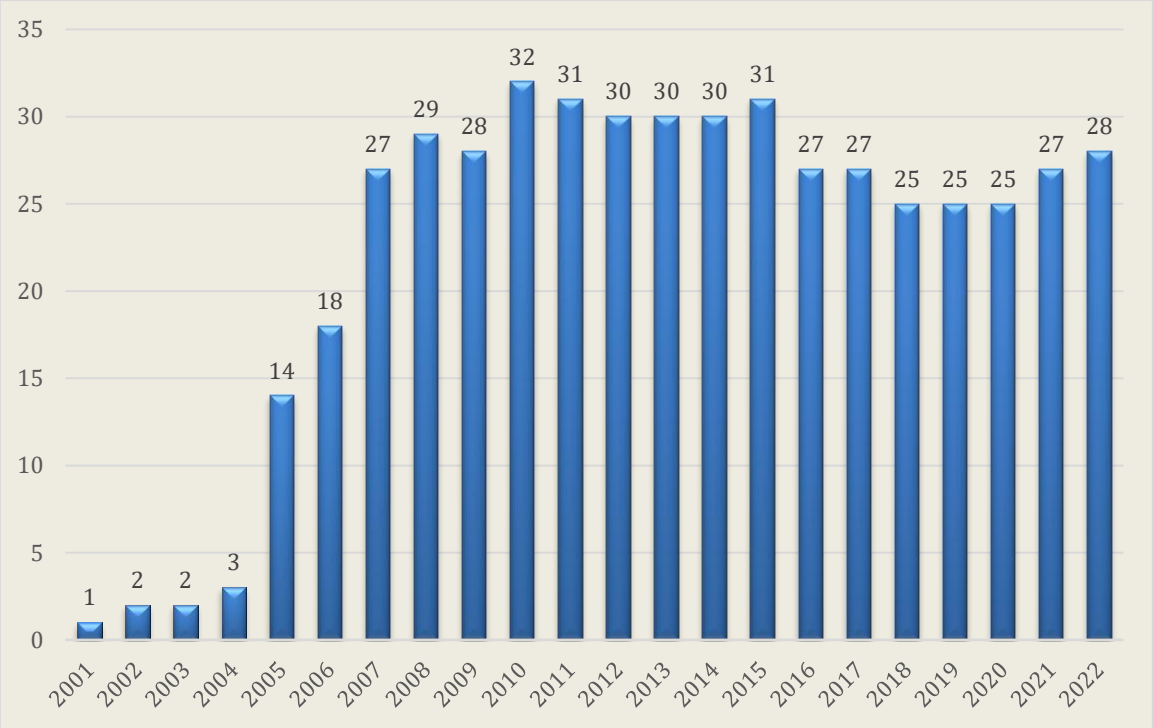


Diagram 12: Number of Greek Maritime Listed Companies (2001-2022)

In the above diagram (**Diagram 12**), it can be observed that after the boom of IPOs between 2005 and 2007, the number of the listed Greek maritime companies in international stock exchange markets tends to stabilize reaching its maximum value in 2010, with 32 listed companies.

NYSE New York Stock Exchange				
AEGEAN MARINE PETROLEUM NETWORK INC *(ANW)*, DEC 2006	BOX SHIPS *(TEU)*, APRIL 2011	COSTAMARE *(CMRE)*, NOV 2010	CRUDE CARRIERS CORP. *(CRU)*, MAR 2010[5]	DANAOS CORP *(DAC)*, OCT 2006
DIANA SHPPING INC. *(DSX)*, MAR 2005	DORIAN LPG *(LPG)*, MAY 2014	Dynagas LNG Partners LP *(DLNG)*, DEC 2014	EXCEL MARITIME CARRIERS *(EXM)*, SEP 2005	GASLOG LTD *(GLOG)*, MAR 2012
GENCO SHIPPING & TRADIN. *(GNK)*, JUL 2005	GENER8 *(GNRT)*, June 2015	GENERAL MARITIME CORP. *(GMR)*, JUN 2001[7]	GLOBAL SHIP LEASE INC., *(GSL)*, AUG 2008	NAVIOS MARITIME ACQ. *(NNA)*, JUL 2008
NAVIOS MARITIME PARTNERS *(NMM)*, NOV 2007	NAVIOS MIDSTREAM PARTNERS L.P. *(NAP)*, 2014	OCEANAUT INC. *(OKN)*, APR 2007[2]	PARAGON SHIPPING INC. *(PRGN)*, MARCH 2010	SAFE BULKERS INC *(SB)*, MAY 2008
STAR BULK CARRIERS CORP*(SEA)*, DEC 2005	TSAKOS ENERGY NAVIGATION *(TNP)*, MAR 2002			
NASDAQ				
ARIES MARITIME TRANSPORT *(RAMS)*, JUN 2005[1]	CAPITAL PRODUCT PARTNERS L.P. *(CPLP)*, APR 2007 [5]	CASTOR MARITIME, *(CTRM)*, SEP 2017	DIANA CONTAINERSHIPS, *(DCIX)*, JUNE 2011	DRY SHIPS INC. (DRYS), FEB 2005
EAGLE BULK (EAGLE), JUN 2005	EUROSEAS LTD *(ESEA)*, JAN 2007	EURODRY LTD. *(EDRY)*, JUN 2018	GENCO SHIPPING & TRADING *(GSTL)*, JUL 2005	FREESEAS INC *(FREE)*, DEC 2005
IMPERIAL PETROLEUM *(IMPP)*, DEC 2021	NAVIOS MARITIME HOLDINGS *(NM)*, NOV 2005	OCEAN FREIGHT INC.*(OCNF)*, APRIL 2007[4]	OCEANPAL *(OP)*, NOV 2021	OCEAN RIG (ORIG), OCTOBER 2011
OMEGA NAVIGATION ENT. *(ONAV50)*, APR 2006	PARAGON SHIPPING INC. *(PRGN)*, AUG 2007	PYXIS TANKERS *(PXS)*, OCT 2015	QUINTANA MARITIME LTD. *(QMAR)*, JUL2005[3]	SEANERGY MARITIME HOL *(SHIP)*, SEP 2007
STAR BULK CARRIERS CORP*(SBLK)*, DEC 2007	STEALTHGAS INC *(GASS)*, OCT 2005	TOP SHIPS*(TOPS)*, AUG 2004	TORO CORP. *(TORO)*, MAR 2023	UNITED MARITIME CORP. *(USEA)*, JAN 2022
London Stock Exchange				
GLOBUS MARITIME LTD. *(GLBS)*, JUN 2007	GOLDENPORT HOLDING INC. *(GPRT)*, APR 2006	HELLENIC CARRIERS LTD *(HCL)*, NOV 2007		
SGX SINGAPORE EXCHANGE				
OMEGA NAVIGATION ENT. *(ONAV50)*, APR 2006[6]				

Table 2: Greek Maritime Listed Enterprises for the period 2001-2022

Notes	Significant Developments (Chronological Order)
Quintana Maritime	On April 15, 2008, Quintana Maritime Limited (QMAR) was merged into **Excel Maritime.**
Oceanaut	As of April 6, 2009, Oceanaut, Inc. went out of business *(Note 2).*
Aries Maritime Transport Limited	As of December 21, 2009 Company was renamed **'New Lead Holdings Ltd'** and trades Under the symbol 'NEWL'.
OceanFreight	On November 3, 2011: OceanFreight became a wholly-owned subsidiary of **DryShips**.
Capital Product Partners LP	On 30th September of 2011, Capital Product Partners completed the acquisition of **Crude Carriers Corp**. in a unit-for-share transaction, whereby Crude became a wholly-owned subsidiary of CPLP.
Omega Navigation	The Nasdaq Stock Market, Inc. has determined to remove from listing the common stock of Omega Navigation Enterprises, Inc. (the Company), effective at the opening of the trading session on October 17, 2011.
General Maritime	The company filed for chapter 11 bankruptcy protection on 17 November 2011, after oversupply in the shipping industry caused it to lose money for at least eight quarters. In April 2012 General Maritime came out of bankruptcy as a result of investment from Oaktree Capital Management.
Genco	The company due to financial difficulties, filled for voluntary petition of debt relief, consequently the trade of the company's stock in NYSE, stopped on June 17, 2014. After the re-emergence of Genco from bankruptcy, it acquired its subsidiary Baltic Trade and started trading again on July 20, 2015 on NYSE.
Navios Midstream Partners	On November 18, 2014, Navios Midstream Partners completed an Initial Public Offering ("IPO") of its common units, increasing the Navios family members to 4 companies.
Eagle Bulk Shipping	The company stops being under Greek ownership effectively on March 9, 2015.
New Lead	On July 25, 2019, New Lead Holdings Ltd. received revoke notice of its registration.
FreeSeas	On August 18, 2022, FreeSeas Inc. received revoke notice of its registration.

Table: 3 Significant Developments 2001-2022

From **Table 4** we note that almost half of the shipping companies got listed in the Stock Exchanges within 2005. In these 22 years we notice 7 mergers & acquisitions (Quintana was merged to Excel Maritime-2008, OceanFreight was acquired by Dryships-2011, Capital Product Partners acquired Crude Carriers-2011, OceanBulk acquired by Starbulk-2014, Genco acquired Baltic Trading-2015, Gener8 was merged to Euronav-2018 and Ocean Rig merged with Transocean-2018) and 7 companies which got delisted from the Stock Exchanges (Oceanaut-2009, Omega Navigation-2011, General Maritime-2012, Genco-2014, Paragon-2016, New Lead-2019 and Freeseas Inc.-2022).

Year	Number of IPOs	Mergers & Acquisitions	Delisted
2001	1		
2002	1		
2003	0		
2004	1		
2005	11		
2006	4		
2007	8		
2008	2	1	
2009	1		1
2010	2		
2011	2	2	1
2012	2		1
2013			
2014	2	1	1
2015	2	1	
2016	0		1
2017	0		
2018	0	2	
2019	0		1
2020	0		
2021	2		
2022	1		1
Total	*42*	*7*	*7*

Table 4: IPOs, Mergers & Acquisitions; & De-listings of Maritime Companies

2.2 Variables analysed

The study examined the following variables for the period 2001-2022:

Board Member age was captured by recording the date of birth of directors and calculating their age for the year ended 31.12.22.

Age of the Chairpersons and the CEOs was captured by recording their date of birth and calculating their age by the end of each year for the period 2001-2022 Furthermore, this variable was classified as:

-Age of sole Chairpersons who served **only** in that position

-Age of sole CEOs who served **only** in that position

-Age in case of duality (The Chairman and the CEO is the same individual)

Foreign Nationals were counted by looking at the surnames' origin.

The gender of Chairpersons and CEOs was identified by their full names.

Total Board Memberships was captured **for the whole sample** by the number of all directorships through the years. This particular variable captures the number of positions/seats that Boards have, rather than the number of persons (individual directors) that occupy them.

Total Male Board Memberships (for the whole population and all years) was captured by the absolute number of male directorships that existed within the Boards through the years. The exact number was ascertained by examining both their names and surnames. Further, we calculated the **total male board members** by excluding any cross directorships or/and mobility.

Total Female Board Memberships (for the whole population and all years) was captured by the absolute number of female directorships that existed within the Boards through the years. The exact number was ascertained by examining their names and surnames. Additionally, we calculated the **total female board members** by excluding any cross directorships or/and mobility.

Board Size was measured by capturing the number of serving directors of each company as of December of each year.

Average Board Size was measured by calculating the average of each company's board size throughout the years.

Total Board Members: was calculated by excluding any mobility and/or cross directorships from the total board memberships. This variable captures the absolute number of directors that serve as board members in one or more companies.

Average Tenure of the Board members (in months) was measured by calculating the sum of the serving period (in months) of all directors (including Chairman and CEO) divided by their total number for each company.

Average Tenure of Board Members (in Months excluding Chairperson and CEO) was measured as the "Average Tenure of the Board" but excluding the Chairperson(s) and the CEO(s).

Average Tenure of Chairpersons and Average Tenure of CEOs was measured by calculating the sum of the serving period (in months) for each company's Chairpersons or CEOs divided by the total number of Chairpersons or CEOs that served in each of the companies throughout the years.

Average tenure of sole Chairpersons and sole CEOs was measured by calculating the sum of the serving period (in months), divided by the total number of sole Chairpersons or sole CEOs that

served in each of the companies throughout the years.

The number of Chairpersons and CEOs was calculated by counting the absolute number of Chairpersons and CEO's respectively for each company through the years.

The number of the sole Chairpersons and CEOs was calculated by counting the absolute number of sole Chairpersons and sole CEO's respectively through the years.

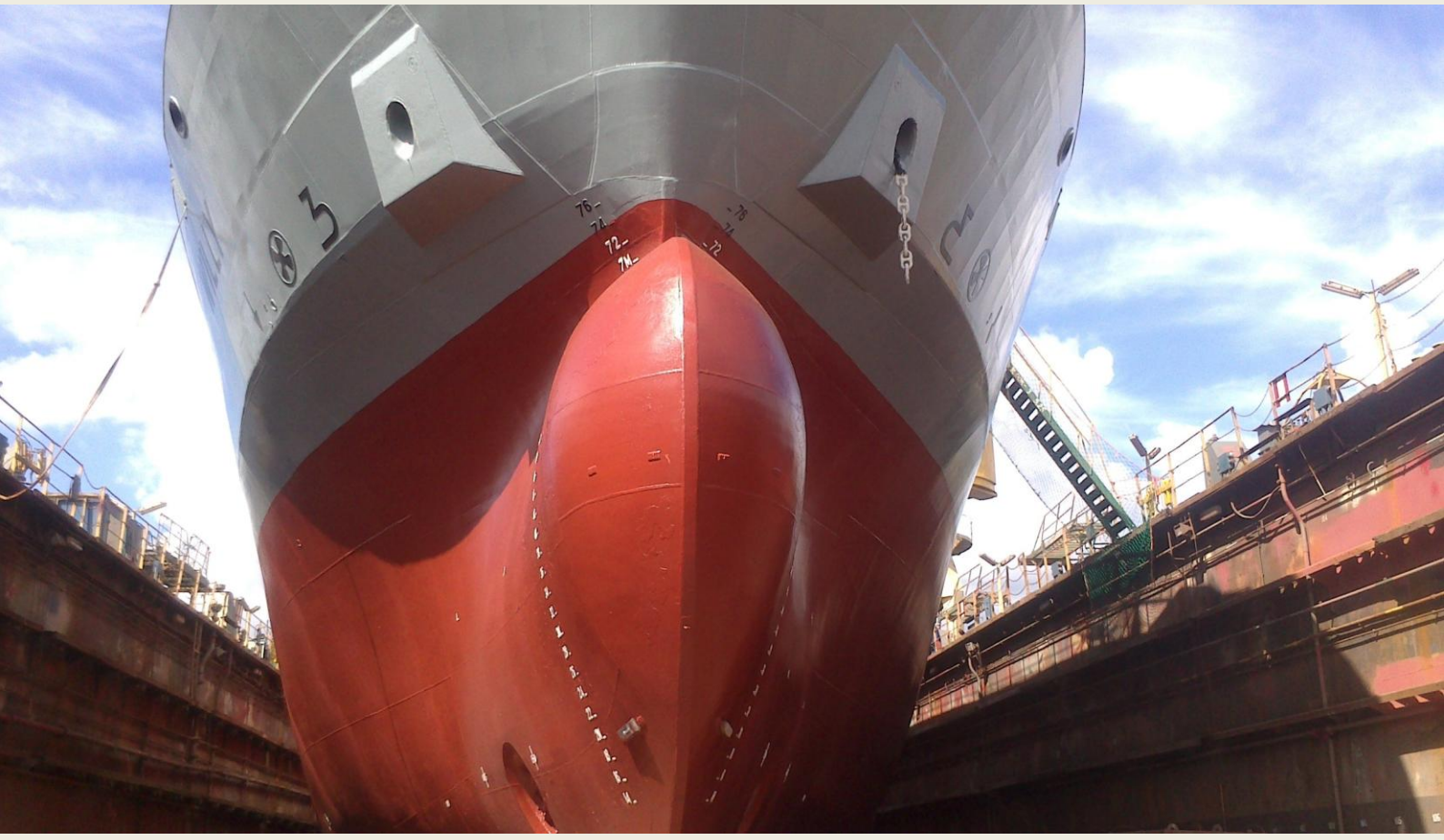
CEO Duality, as of December 31st of each year, was captured by examining whether the CEO was also the Chairperson or whether the two positions were separate.

Cross Directorships: the directors that were serving in more than one board simultaneously have been identified and recorded along with the corresponding companies.

Non-Executive (External/Independent Directors): A variable in our study that was measured by calculating the sum of all Independent Directors that served in the Boards of the Companies.

Education Level: A variable in our study that was captured by recording directors' educational status: 1. College Degree, 2. Bachelor Degree 3. Master Degree or 4. PHD

Committees: We counted the number of committees each year for each company.



3. Findings

3.1 Board demographics

a) Age

Undoubtedly, age is a significant variable of board composition and academic research has been conducted to determine how the age diversity of a Board of Directors as well as the age of CEO and Chairman can affect the revenue and the profitability of a company.

Some of the findings depict a positive relationship between board members' average age and corporate performance. Simultaneously it has been supported that by expanding the age diversity between the board members, the board's aggregated human and social capital can be maximised.

The average age of the board members follows an upward trend since 2005, when the average age of the board members was 50.77 years, the lowest value for the whole period. On the contrary, the highest average age for the Board members was back in 2021, with 59.07 years (**Diagram 13**). The upward trend can be explained from the fact that most of the Greek companies in the maritime industry are operated by a closed group of people, as most of them are family owned.

In 2015 and 2017 that upward trend stops and a decrease in the average age of the board members is observed, which could signify a change in the composition of the boards (retirements of elder directors, new companies etc).

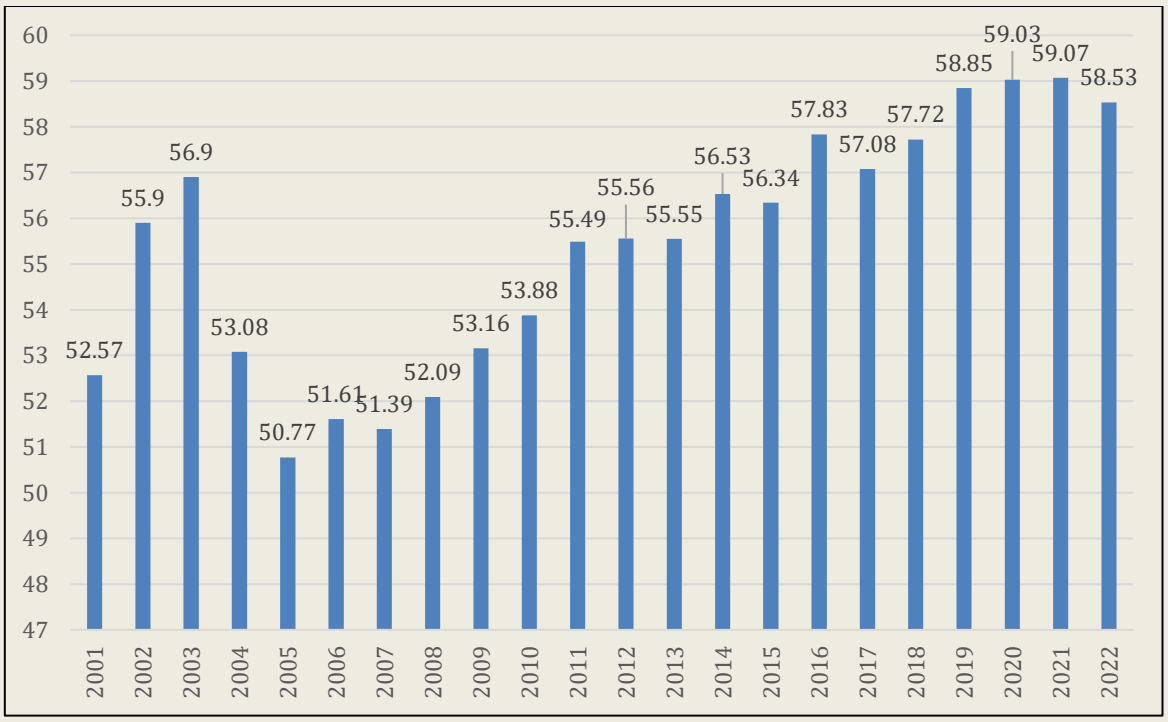


Diagram 13: Average Age of the Board Members

ISSN 1759-0108

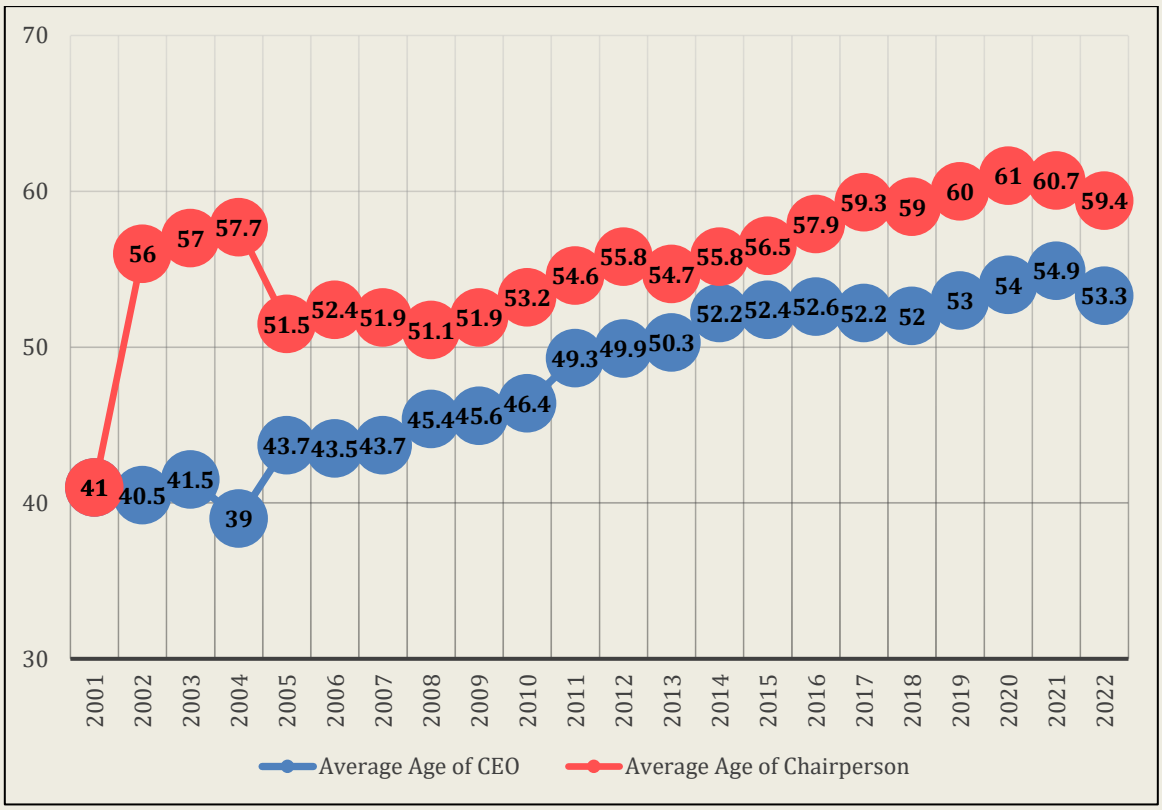


Diagram 14: Average Age of CEOs and Chairpersons

The same upward trend observed in the average age of the board members can be observed also in the average age of the CEOs and the Chairpersons. In 2001, the average age of the CEOs and the Chairpersons was 41 years, when in 2022 the average age of CEOs was 53.3 years and that of the Chairpersons 59.4 years (**Diagram 14**). Moreover, a convergence between the average ages of the CEOs and Chairpersons after 2005 could be observed.

b) Foreign Nationals (Non-Greeks) in the Board

In Europe and USA the number of foreigners appointed to Board of Directors has increased significantly over the past decade. At the same time, an increasing number of companies around the world include foreign nationals in their Boards in an attempt to expand from a domestic-oriented focus to a more international mind-set.

During these 22 years, 531 directors served in the 52 firms and 237 members out of these were Non-Greek Directors.

We should notice that every Board had at least one foreign national as a director, while the maximum number of foreigners identified, in one company, was 16. Moreover, half of the companies (56.82%) had up to 4 foreign nationals in their boards (**Diagram 15**).

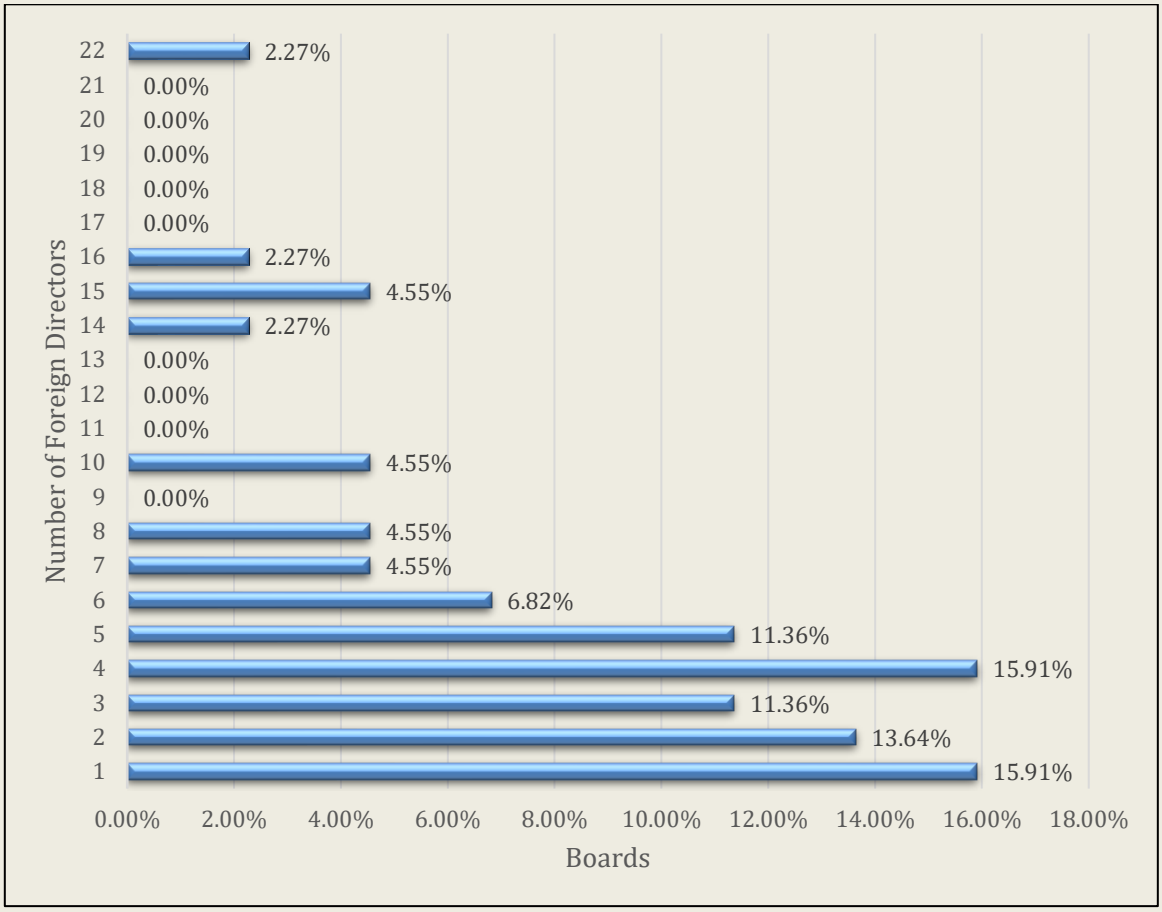


Diagram 15: Number of Foreign Nationals in Greek Maritime Boards (n=52)

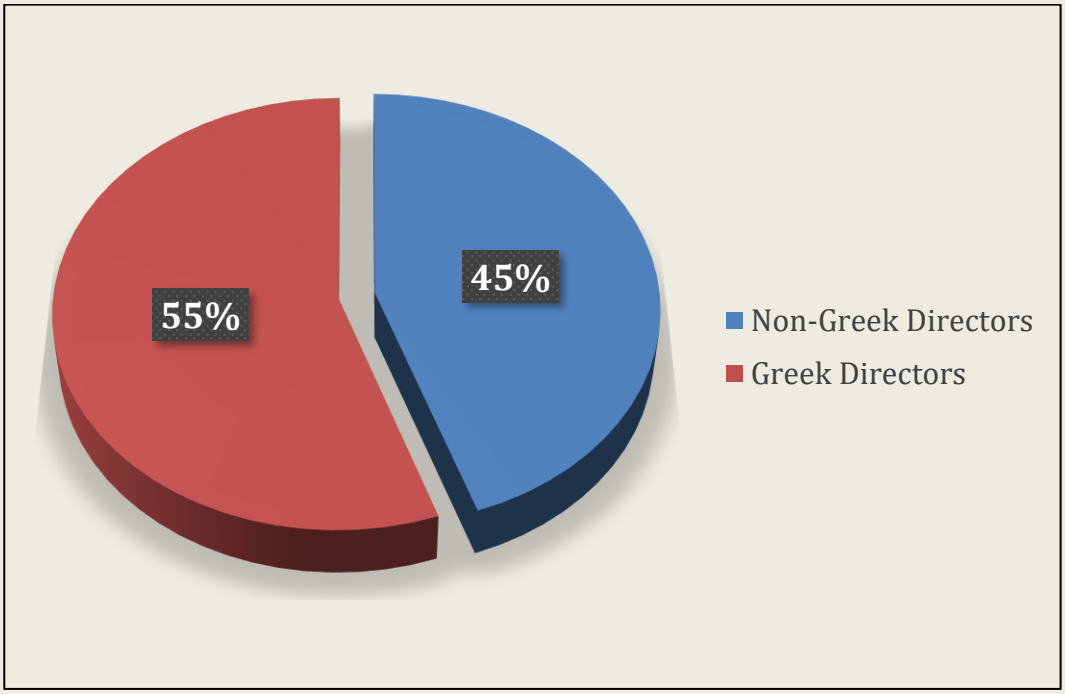


Diagram 16: Non-Greek Directors on the Board

In total 55% of the Board members during 2001-2022 were Greek nationals and a striking 45% were non-Greek, signifying the ethnic diversity that exists in Greek maritime companies' boards **(Diagram 16)**.

c) Gender

Regarding the gender issue, there is a growing body of scholars who support that the appointment of female directors can improve a company's performance and that companies with more women on their boards outperform those with fewer or no female directors. Even though there is a slight increase of women on boards, seats are still barely filled by women. There is no doubt that diverse boards are more able to consider issues in a holistic way and be involved in effective decision making. Female directors enhance board independence and contribute substantially to corporate governance due to their "power sharing" style. Women utilizing their different experiences and knowledge, comparing to their male colleagues, they bring different cognitive frames to a board (Post & Byron 2015). Gender role theory, dictates that men and women have distinct behavioural patterns based on their gender, not only guiding their behaviour, but also affecting the perception and evaluation of other individuals for them (Smith et al, 2013).

In the 52 companies examined in the period **2001-2022**, 488 out of 531 directorships (BOD positions) were held by men, with an average of 9.96 per company.

Respectively, there were only 43 directorships held by women in with an average of 0.88. Consequently, there is a striking discrepancy in the board composition between men and women, which is depicted in **Table 5.**

	Total Directorships	Male Directorships	Female Directorships
MEAN	10.84	9.96	0.88
STD.DEV	5.18	4.74	1.29
MIN	3. 00	3.00	0.00
MAX	24.00	22.00	7.00
SUM	531	488	43

Table 5: Total Memberships, Men and Women served in Boards (n=52)

The total number of directors was 531 Out of these, 488 (92%) were men; while there were only 43 female directors (8%).

Only one woman, Mrs. Angeliki Frangou, was simultaneously the Chairman and the CEO of four different maritime companies (Navios Maritime Holdings, Navios Maritime Partners, Navios Acquisition and Navios Midstream Partners), which preferred the duality structure for their governance. Besides, Mrs. Foteini Karamanlis was the CEO of Hellenic Carriers.

More specifically, **Table 6** presents the names of the 35 women who are serving in the BOD of Greek Maritime Listed Companies.

FIRST NAME	LAST NAME	POSITION/COMPANY	EDUCATION
Angeliki	**Frangou**	CHAIRMAN, CEO NAVIOS MP CHAIRMAN, CEO NAVIOS MH CHAIRMAN, CEO NAVIOS ACQUISITION CHAIRMAN, CEO NAVIOS MIDSTREM PARTNERS	Bachelor's degree in mechanical engineering from Fairleigh Dickinson University and a master's degree in mechanical engineering from Columbia University
Charlotte	**Stratos**	DIRECTOR, COSTAMARE DIRECTOR, HELLENIC CARRIERS DIRECTOR, OKEANIS ECO TANKERS	Not Available
Anna	**Kalathakis**	DIRECTOR, NAVIOS ACQUISITION	MBA from European University at Brussels (1992) and a Juris doctor from Tulane Law School (1995).
Brigitte	**Noury**	DIRECTOR, NAVIOS ACQUISITION	Master of Economic Sciences degree and a Diploma in Business Administration from the University of Dijon.
Chryssoula	**Kandylidis**	DIRECTOR, DRYSHIPS DIRECTOR, OCEAN RIG	Graduated from Pierce College in Athens and from the Institut Francais d' Athenes. She is also a Graduate of the University of Geneva holding a degree in Economics.
Milena	**Pappas**	DIRECTOR, STARBULK	Graduated from Cornell University, N.Y. and in 2007 she received a Master of Science (MSc) in Shipping, Trade and Finance degree from Cass University, London.
Fotini	**Karamanlis**	CEO, HELLENIC CARRIERS	Law degree from the University of Athens and a Master's Degree (LLM) from the University of Cambridge.
Elpida	**Kyriakopoulou**	CFO HELLENIC CARRIERS	Degree in Maritime Studies from the University of Piraeus, Greece and is a Member of the Greek Association of Certified Accountants.
Christina	**Anagnostara**	DIRECTOR, SEANERGY	Studied Economics in Athens and has been a Certified Chartered Accountant since 2002.
Vasiliki	**Papaefthymiou**	DIRECTOR, NAVIOS MH	Received her undergraduate degree from the Law School of the University of Athens and a Master's degree in Maritime Law from Southampton University in the UK.
Miranda	**Xafa**	DIRECTOR, STEALTHGAS INC.	Holds both a Masters degree and a Ph.D. in economics from the University of Pennsylvania
Maria	**Vassalou**	DIRECTOR, TSAKOS ENERGY NAVIGATION	Received a Bachelor of Arts in Economics from the University of Athens and holds a Ph.D. in Financial Economics from London Business School.
Christina	**Tan**	DIRECTOR, DORIAN LPG	Not Available
Emily	**Stephens**	DIRECTOR, STARBULK CARRIERS CORP.	Graduated with a B.A. degree in Government cum laude from Dartmouth College
Semiramis	**Paliou**	DIRECTOR, DIANA SHIPPING INC. CHAIRPERSON, DIRECTOR, OCEANPAL	Obtained her BSc in Mechanical Engineering from Imperial College, London and her MSc in Naval Architecture from University College, London.
Rene	**Kemp**	DIRECTOR, STARBULK CARRIERS CORP.	Received aFirst Class Bachelor of Laws degree with Honours from James Cook University in Queensland.
Jennifer	**Box**	DIRECTOR, STARBULK CARRIERS CORP.	Graduated summa cum laude with a B.S. degree in Economics and a minor in Mathematics from Duke University
Orthodoxia	**Zisimatou**	DIRECTOR, NAVIOS MP	Holds a bachelor's degree in Law from the faculty of Law of the University of Athens.
Eleni	**Warren**	DIRECTOR, NAVIOS ACQUISITION	Holds a bachelor's degree in Law from the Faculty of Law of the University of Athens and a bachelor's degree in Political Science from the Panteion University.

Table 6a: Women Served in Boards

FIRST NAME	LAST NAME	POSITION/COMPANY	EDUCATION
Karen	**Purnell**	DIRECTOR, TSAKOS ENERGY NAVIGATION	Holds PhD in Chemical Physics from the University of West England
Dawna	**Men**	DIRECTOR, STARBULK CARRIERS CORP	Received a B.S. degree in economics magna cum laude from The Wharton School, University of Pennsylvania.
Katherine	**Ralph**	DIRECTOR, STARBULK CARRIERS CORP	Holds both a B.A. (hons) degree from the University of Cambridge, and graduated cum laude with an LL.M. in banking, corporate and finance law from Fordham University.
Eleni	**Vrettou**	DIRECTOR, STARBULK CARRIERS CORP	Holds a BSc in Economics from the Wharton School, University of Pennsylvania.
Eleni	**Tsoukala**	DIRECTOR, CAPITAL PRODUCT PARTNERS L.P.	Not Available
Kathleen	**Haines**	DIRECTOR, GENCO SHIPPING AND TRADING LTD	Holds a BA in Accounting from Texas Tech University and is a controllership graduate from the University of Wisconsin, School of Bank Administration.
Karin	**Orsel**	DIRECTOR, GENCO SHIPPING AND TRADING LTD	Holds a BA in Economic & Administrative Education from Winschoter College in the Netherlands.
Aliki	**Paliou**	CHAIRMAN, DIRECTOR, PERFORMANCE SHIPPING	Studied Theatre Studies at the University of Kent in Canterbury, UK and obtained an M.A. in Scenography at Central Saint Martins School of Art and Design in London, UK. In 2005 she graduated with honors from the Greek School of Fine Art in Athens, Greece.
Loïsa	**Ranunkel**	DIRECTOR, PERFORMANCE SHIPPING	Holds a MBA from the IAE, Paris Sorbonne
Kristin	**Holth**	DIRECTOR, GAS LOG DIRECTOR, GAS LOG PARTNERS	Holds a Bachelor in Economics and Business Administration from BINorwegian Business School.
Randee	**Day**	DIRECTOR, EAGLE BULK SHIPPING	Holds a B.A. degree from the School of International Relations at the University of Southern California
Pamela	**Gibson**	DIRECTOR, GAS LOG PARTNERS	Received a Bachelor of Arts degree, with distinction, from York University in 1974, a Bachelor of Laws degree from Osgoode Hall Law School in 1977 and a Master of Laws degree from New York University in 1984.
Christian	**Donohue**	DIRECTOR, EURODRY LTD.	Not Available
Ulrike	**Helfer**	DIRECTOR, GLOBAL SHIP LEASE INC.	Not Available
Styliani	**Sougioultzoglou**	DIRECTOR, OCEANPAL	Graduated from the London School of Economics and Political Science with a degree in International Relations & History.
Christina	**Anagnostara**	DIRECTOR, UNITED MARITIME CORPORATION	Studied Economics in Athens and is a Certified Chartered Accountant.

Table 6b: Women Served in Boards (2/2)

d) Directors' Education

Boards need to deal effectively with the complexity of today's regulatory and business environment. Therefore, highly educated Board Members are of paramount importance in today's business landscape. **Diagram 17** portrays the educational level of board members based on the available data.

A very small percentage (3%) of the Directors that serve in the Boards of the Greek Maritime firms has college or higher institution education. Almost one third of the population has received a B.Sc. (32%) and most them have been awarded an M.Sc. (42%). Furthermore, a small percentage of them have achieved to become Doctor of Philosophy in their research areas.

Finally, the most common degrees are in Mechanical Engineering, Finance/economics, Maritime Law, Transportation Management, Naval Architect and Business Administration.

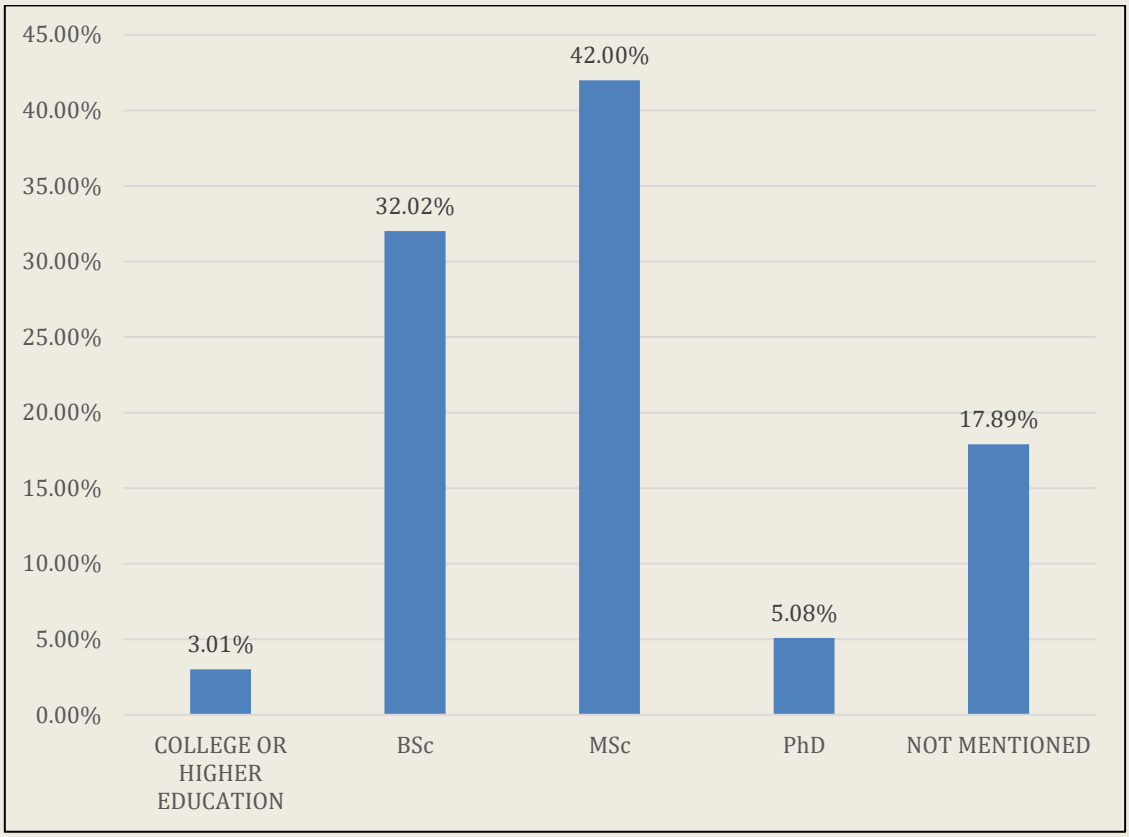


Diagram 17: Educational level of Directors

3.2 Board size

Research has focused on the optimal size of the board but findings in this area are still inconclusive. Smaller boards tend to be more flexible in the decision-making process and more effective in monitoring Top Managers. However, other researchers argue that larger boards have more problem-solving capabilities and could improve the performance of the organization. First of all, larger

boards tend to represent a higher degree of external stakeholders. From that angle, although corporate directors' main obligation is to monitor management in alignment with the owners' interests, they may fulfil their duties having in their mind their personal relationships. In that case, the consensus required for the board to take a decision is harder to be achieved, due to the fact that a compromise of a larger number of personal interests must be reached.

Diagram 18 illustrates the average Board size for the period 2001-2022. It can be observed that, excluding the years 2001-2004, where the variable takes its highest values, the average board size fluctuates between 6.2 and 6.9 directors.

The highest value is observed in 2002 and 2003 with the average number of Directors in the Boards rising to 8, whilst the smaller Boards could be observed in 2013 with an average size of 6.17 members. It can be said that throughout the examined period there is not very big fluctuation in the average size of the Boards.

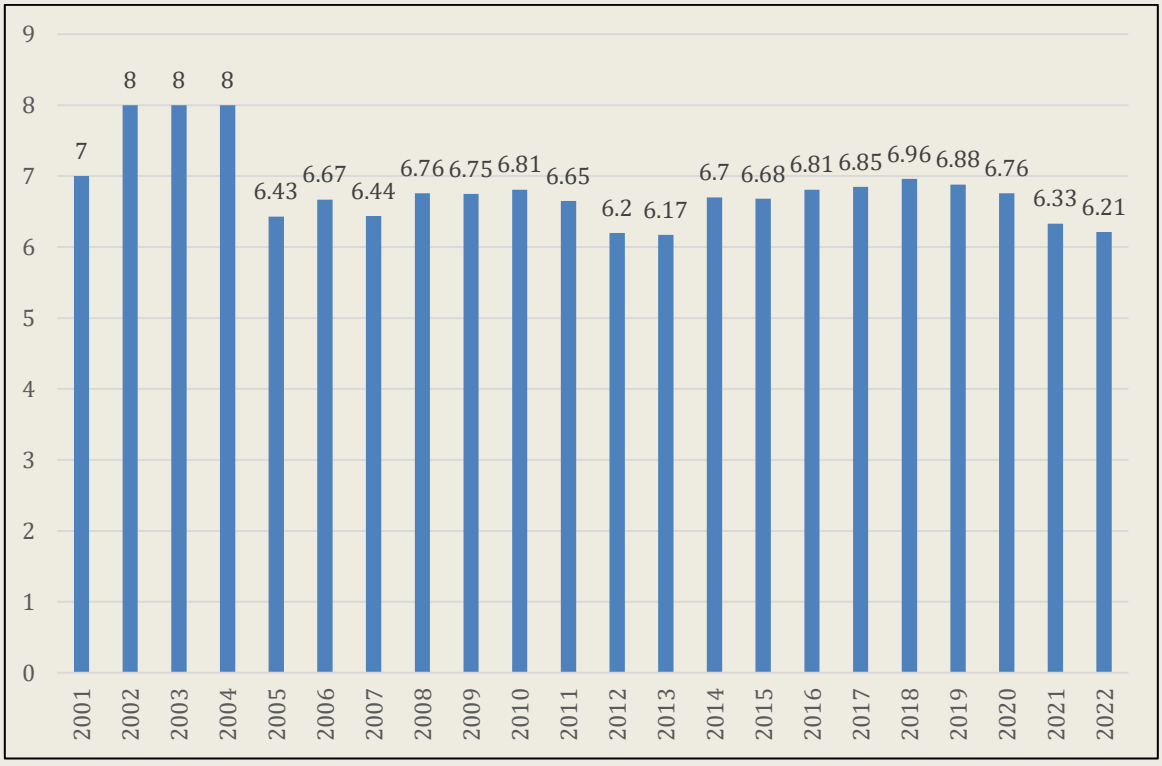


Diagram 18: Average Board Size For the period 2001-2022

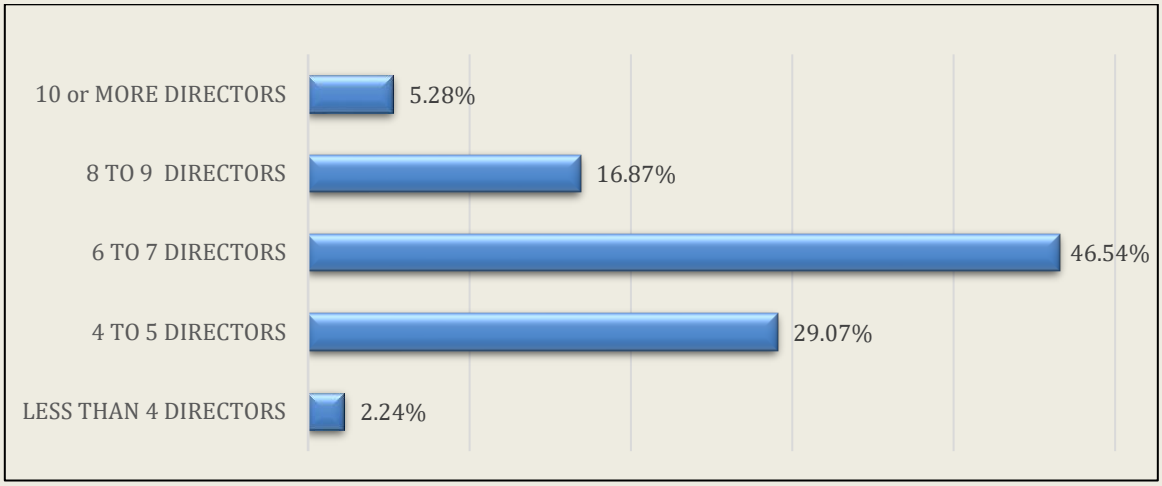


Diagram 19: Classification of the Boards according to their size

Most the companies (46.54%) have six or seven Directors in their Board, whilst 29.07% of the companies have 4 or 5 directors. Moreover, 8 to 9 Directors have 16.87% of the companies and only 5.28% (notably Tsakos Energy Navigation, Seaenergy Maritime and Starbulk Carriers Corporation) of the companies have more than 10 Directors (**Diagram 19**).

3.3 Total Members Served

Another significant variable of our study is the total number of the board members who served the companies for the 22-year period. As we can observe from **Diagram 20** the majority of the companies had only 6 to 9 Directors, whilst the second largest category was that of 10 to 13 Directors (26.53%).

Only a 16.33% of the companies had a total number of 14 to 17 Directors and 6.12% of the 52 Maritime Firms employed 18 to 20 Directors through the years.

Finally, a small percentage of 4.08% has more than twenty Directors while 16.33% of the companies has only up to five Directors.

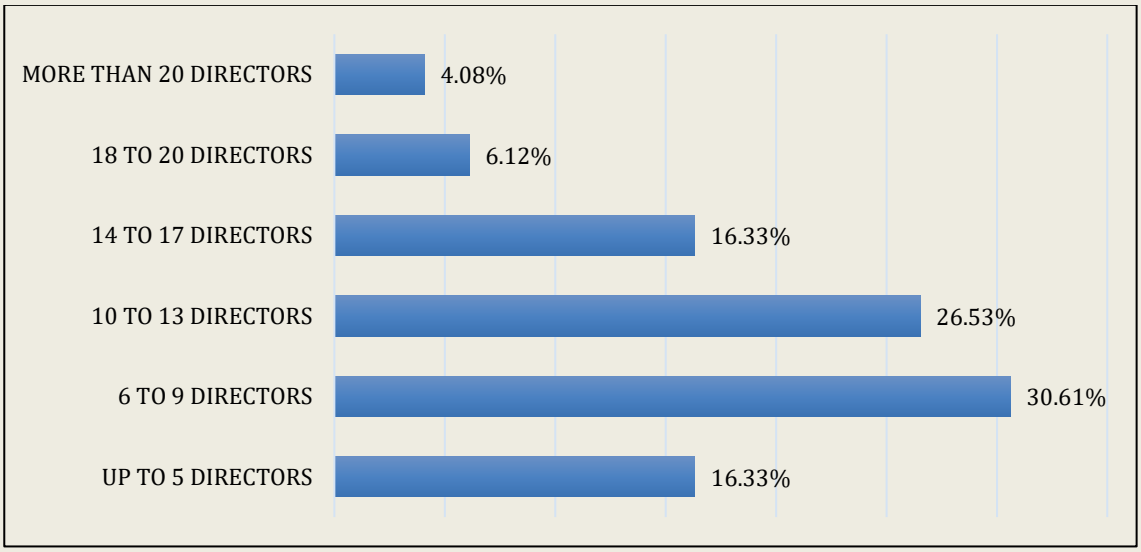


Diagram 20: Total Board Members served for the period 2001-2022

3.4 Board Tenure

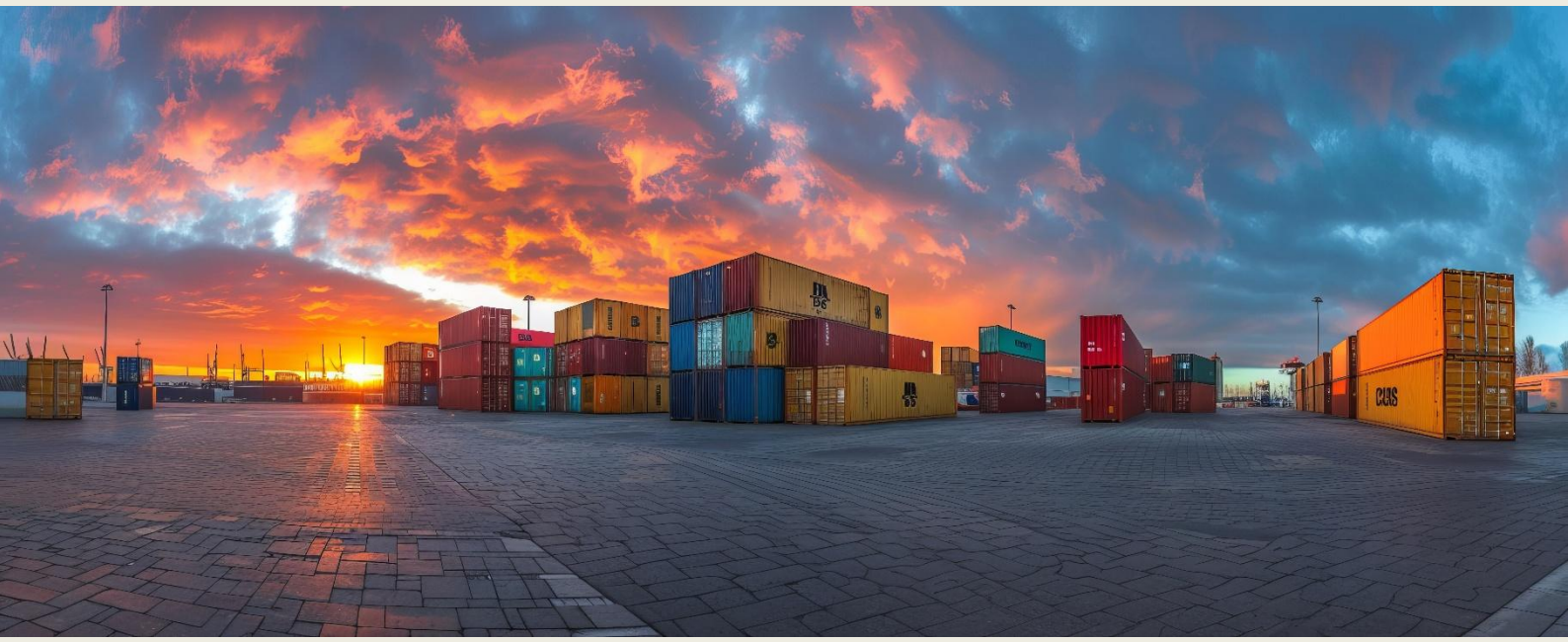
It is a common phenomenon for Boards to avoid defining a maximum period that a director may be appointed to a position; although some of them specify a maximum of either three or four three-year terms. In the past it was widespread for Board members to have long tenures and maintain their position until there was an important reason to depart, such as change in management or personal reasons.

Board members' tenure found itself in the eye of the storm by commentators and researchers, since the corporate and fraud scandals of the last decade increased the demand for specific expertise as well as scrutiny of the activities resulting from the disclosure of financial documents. Nowadays, it is an undeniable fact that there is a great need of experienced Directors who can keep abreast of changes to technology, strategy and finance. Tenure, director's serving time on a board, has been supported that constitutes a link for firm-specific knowledge and experience, when it is viewed as element of human capital.

Knowledge accumulation is stemming from the director's service in a board, creating not only organizational expertise and knowledge but also links with the stakeholders of the company (Johnson *et al*, 2012; Forbes & Miliken, 1999).

Between 2012 and 2022, 50 new appointments on the boards of the Greek Maritime companies were documented. Especially, in 2021 and 2022, these numbers were 17 respectively, because 2 new companies, United Maritime Corporation and Toro Corp. made their IPOs.

On the contrary, the board departures were fewer, reaching 43 in 4 years' time (**Table 7 and Table 8**).



New Directors Appointments 2019				
Company	**Position**	**Name**	**Surname**	**Date**
Navios Maritime Partners L.P.	Director	Alexander	Kalafatides	01/02/2019
Genco Shipping and Trading	Director	Daniel	Han	01/03/2019
Gaslog Partners	Director	Michael	Gialouris	01/01/2019
New Directors Appointments 2020				
Company	**Position**	**Name**	**Surname**	**Date**
Danaos Corp.	Director	Anthony	Kandylidis	01/06/2020
Starbulk Carriers Corp	Director	Brian	Laibow	01/02/2020
Starbulk Carriers Corp	Director	Dawna	Men	01/02/2020
Starbulk Carriers Corp	Director	Katherine	Ralph	01/10/2020
Starbulk Carriers Corp	Director	Eleni	Vrettou	01/10/2020
Performance Shipping	CEO, Director	Andreas	Michalopoulos	01/02/2020
Performance Shipping	Chairperson , Director	Aliki	Paliou	01/02/2020
Performance Shipping	Director	Christos	Glavanis	01/02/2020
Gas Log	Director	Kristin	Holth	01/09/2020
Gas Log	Director	James	Berner	01/09/2020
Gas Log	Director	Eduard	Ruijs	01/09/2020
Gaslog Partners	Director	Julian	Metherell	01/08/2020
Gaslog Partners	CEO, Director	Paul	Wogan	01/08/2020
New Directors Appointments 2021				
Company	**Position**	**Name**	**Surname**	**Date**
Navios Maritime Holdings	Director	Michael	Pearson	01/04/2021
Starbulk Carriers Corp	Director	Sherman	Lau	01/05/2021
Genco Shipping and Trading	Director	Karin	Orsel	01/03/2021
Gaslog Partners	Director	Roland	Fisher	01/02/2021
Gaslog Partners	Director	Kristin	Holth	01/11/2021
Gaslog Partners	CEO, Director	Paolo	Enoizi	01/08/2021
Okeanis Eco Tankers	Director	Petros	Siakotos	01/10/2021
Imperial Petroleum	Chairman, CEO	Harry	Vafias	01/05/2021
Imperial Petroleum	Director	John	Kostoyannis	01/11/2021
Imperial Petroleum	Director	George	Xiradakis	01/11/2021
Oceanpal	Chairperson , Director	Semiramis	Paliou	01/04/2021
Oceanpal	CEO, Director	Eleftherios	Papatrifon	01/11/2021
Oceanpal	Director	Ioannis	Zafirakis	01/04/2021

Oceanpal	Director	Styliani Alexandra	Sougioultzoglou	01/11/2021
Oceanpal	Director	Grigorios-Filippos	Psaltis	01/11/2021
Oceanpal	Director	Nikolaos	Veraros	01/11/2021
Oceanpal	Director	Alexios	Chrysochoidis	01/11/2021
New Directors Appointments 2022				
Company	**Position**	**Name**	**Surname**	**Date**
Navios Maritime Partners L.P.	Vice-Chairman	Ted	Petrone	01/11/2022
Diana Shipping	Director	Simon	Morecroft	01/05/2022
Tsakos Energy Navigation	Director	Karen	Purnell	01/04/2022
Performance Shipping	Director	Loïsa	Ranunkel	01/02/2022
Performance Shipping	Director	Alex	Papageorgiou	01/02/2022
Performance Shipping	Director	Mihalis	Boutaris	01/02/2022
Gas Log	Director	Paolo	Enoizi	01/03/2022
Global Ship Lease Inc.	Director	Ulrike	Helfer	01/06/2022
Global Ship Lease Inc.	Director	Yoram (Rami)	Neugeborn	01/05/2022
United Maritime Corporation	Chairman, CEO	Stamatios	Tsantanis	01/06/2022
United Maritime Corporation	Director	Stavros	Gyftakis	01/06/2022
United Maritime Corporation	Director	Christina	Anagnostara	01/06/2022
United Maritime Corporation	Director	Ioannis	Kartsonas	01/06/2022
United Maritime Corporation	Director	Dimitrios	Kostopoulos	01/06/2022
Toro Corp.	Chairman, CEO, Director	Petros	Panagiotidis	01/01/2022
Toro Corp.	Director	Angelos Rounick	Platanias	01/01/2022
Toro Corp.	Director	Petros	Zavakopoulos	01/01/2022

Table 7: Board Appointments 2019 – 2022

Departures of Directors 2019				
Company	**Position**	**Name**	**Surname**	**Date**
Navios Maritime Partners L.P.	Director	Lampros	Theodorou	31/01/2019
Stealthgas Inc.	DEPUTY CHAIRMAN, DIRECTOR	Lambros	Babilis	31/08/2019
Starbulk Carriers Corp	Director	Roger	Schmitz	31/08/2019
Gas Log	Director	William	Friedrich	05/11/2019
Gaslog Partners	Director	Anthony	Papadimitriou	01/01/2019
Departures of Directors 2020				
Company	**Position**	**Name**	**Surname**	**Date**
Diana Shipping	Director	Andreas	Michalopoulos	28/02/2020
Diana Shipping	Director	Christos	Glavanis	28/02/2020
Starbulk Carriers Corp	Director	Emily	Stephens	31/01/2020
Starbulk Carriers Corp	Director	Tom	Søfteland	31/10/2020
Genco Shipping and Trading	Director	Daniel	Han	31/03/2020
Performance Shipping	Director	Anastasios	Margaronis	28/02/2020
Performance Shipping	Director	Ioannis	Zafirakis	28/02/2020
Performance Shipping	Director	Nikolaos	Petmezas	28/02/2020
Gas Log	Director	Dennis M.	Houston	01/01/2020
Gas Log	Director	David	Conner	01/01/2020
Gas Log	Director	Graham	Westgarth	01/01/2020
Gaslog Partners	Director	Robert	Allardice III	01/01/2020
Gaslog Partners	Director	Pamela	Gibson	01/01/2020
Gaslog Partners	Director	Peter	Livanos	01/01/2020
Gaslog Partners	Director	Michael	Gialouris	01/01/2020
Departures of Directors 2021				
Company	**Position**	**Name**	**Surname**	**Date**
Euroseas Ltd.	Director	Christian	Donohue	01/01/2021
Starbulk Carriers Corp	Director	Dawna	Men	31/05/2021
Genco Shipping and Trading	Director	Kevin	Mahony	27/05/2021
Genco Shipping and Trading	Director	Arthur	Regan	30/04/2021
Genco Shipping and Trading	Director	Christoph	Majeske	01/01/2021
Gas Log	Director	Bruce	Blythe	01/01/2021
Gas Log	Director	Donald J.	Kintzer	01/01/2021

ISSN 1759-0108

Gas Log	Director	Kristin	Holth	01/01/2021
Gaslog Partners	Director	Daniel	Bradshaw	01/01/2021
Gaslog Partners	CEO, Director	Paul	Wogan	31/07/2021
Eurodry Ltd.	Director	Christian	Donohue	01/01/2021
Okeanis Eco Tankers	Director	George	Aronis	10/09/2021
Departures of Directors 2022				
Company	**Position**	**Name**	**Surname**	**Date**
Diana Shipping	Director	William (Bill)	Lawes	01/01/2022
Tsakos Energy Navigation	Director	Maria	Vassalou	31/03/2022
Danaos Corp.	Director	Anthony	Kandylidis	01/01/2022
Genco Shipping and Trading	Director	Bao D.	Truong	17/08/2022
Performance Shipping	Chairman, CEO	Symeon	Palios	31/01/2022
Performance Shipping	Director	Giannakis (John)	Evangelou	31/01/2022
Performance Shipping	Director	Antonios	Karavias	31/01/2022
Performance Shipping	Director	Reidar	Brekke	31/01/2022
Performance Shipping	Director	Christos	Glavanis	31/01/2022
Gas Log	CEO	Paul	Wogan	28/02/2022
Global Ship Lease Inc.	Director	Philippe	Lemonnier	30/04/2022

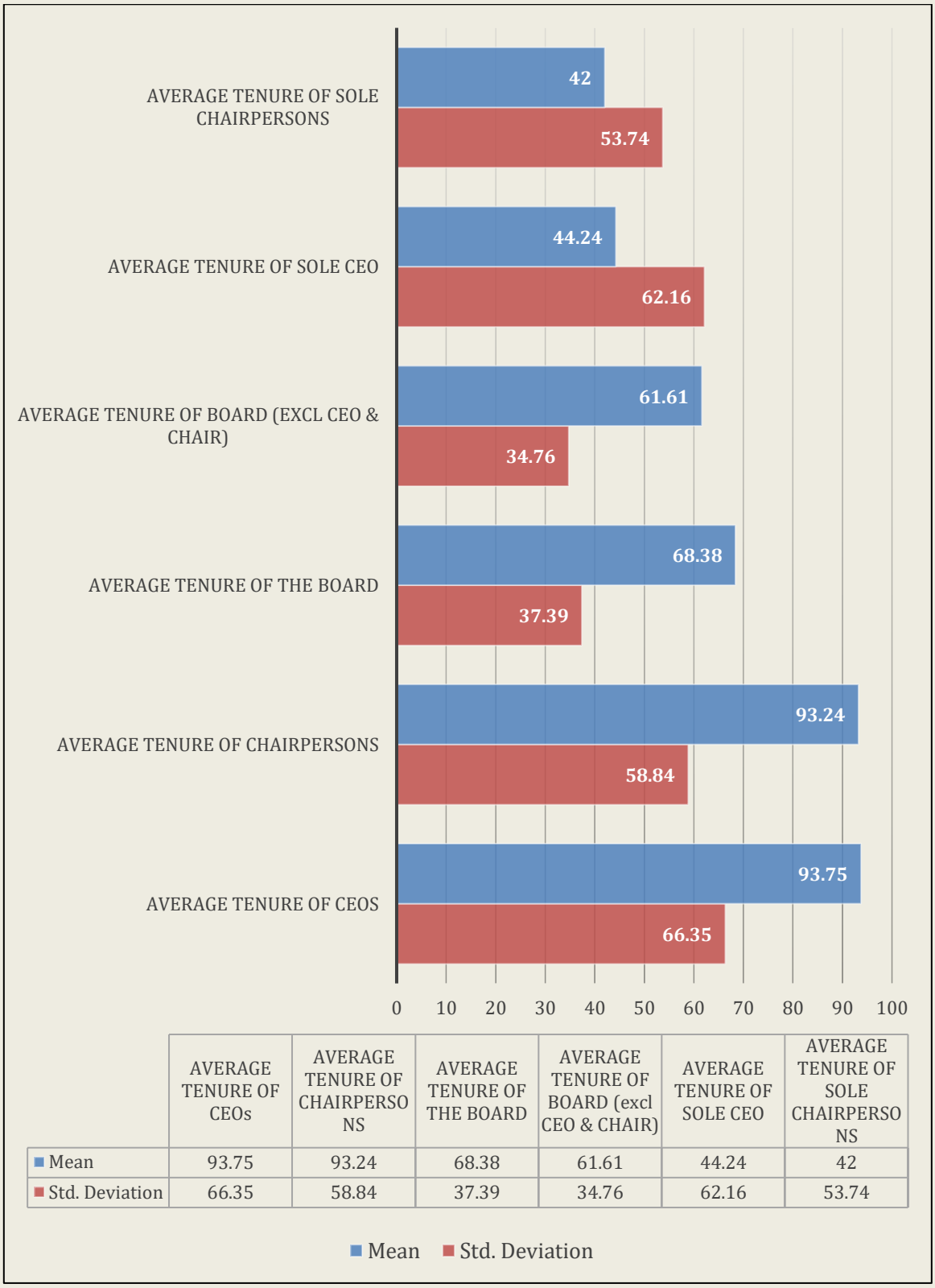
Table 8: Board Departures 2019 – 2022

The average tenure of the board members varies substantially from company to company, and this could be explained by the diversity that exists on the year that each company listed in a Stock Exchange. The average Tenure of the whole Board for the period 2001-2022 is 68.38 months with a standard deviation of 37.39.

Moreover, if we exclude the Chairperson and the CEO the average tenure of the Board reduces to 61.61 months with a standard deviation of 34.76 months.

Furthermore, the average tenure of a CEO is 93.75 months with a standard deviation of 66.35 months. However, if the individual occupies only the position of the CEO, the average tenure reduces almost to half, serving 44.24 months on average.

Similarly, the average tenure of the Chairpersons foe the period 2001-2022 is 93.24 months, which is reduced to 42 months if the individual chairs the Board (**Diagram 21**).



	AVERAGE TENURE OF CEOs	AVERAGE TENURE OF CHAIRPERSONS	AVERAGE TENURE OF THE BOARD	AVERAGE TENURE OF BOARD (excl CEO & CHAIR)	AVERAGE TENURE OF SOLE CEO	AVERAGE TENURE OF SOLE CHAIRPERSONS
Mean	93.75	93.24	68.38	61.61	44.24	42
Std. Deviation	66.35	58.84	37.39	34.76	62.16	53.74

Diagram 21: Average Tenures in Months

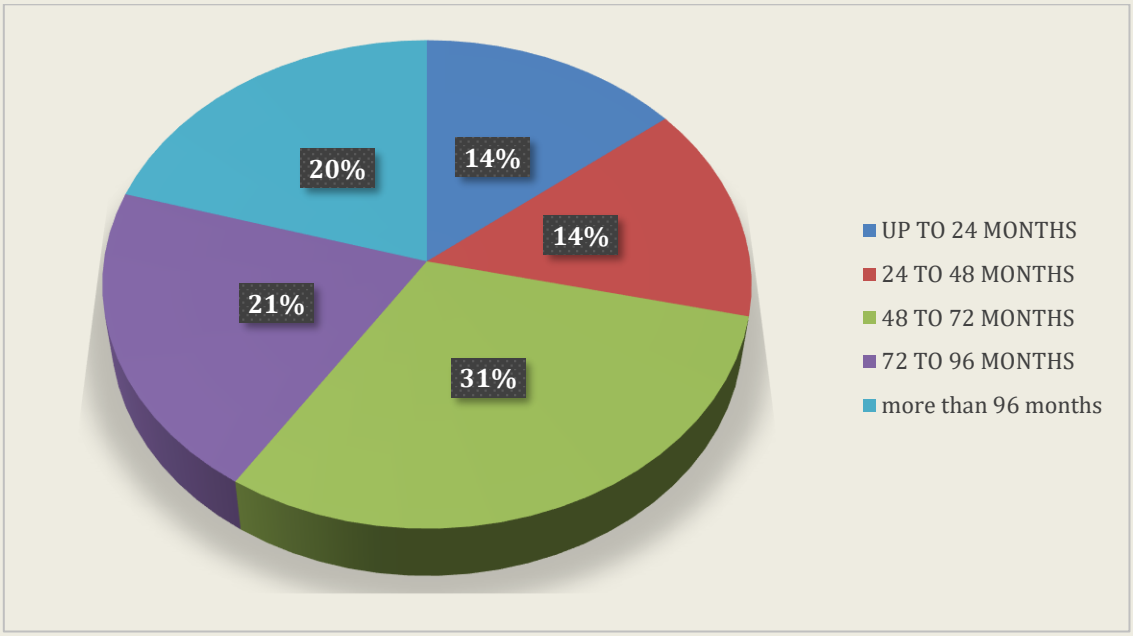


Diagram 22: Average Tenure of the Board in detail

According to **Diagram 22**, 14% of the Greek maritime listed companies have an average Board tenure between 24 to 48 months, thus 2 to 4 years.

However, more than the double percentage of companies has an average board tenure between 4 to 6 years. A 31% of the companies have an average board tenure of 4 to 6 years and a 21% of them have average board tenure from 6 to 8 years.

Finally, there are some companies (14%), probably some of the new listed companies (Toro Corp and United Maritime Corporation), with a maximum average board tenure of 24 months.

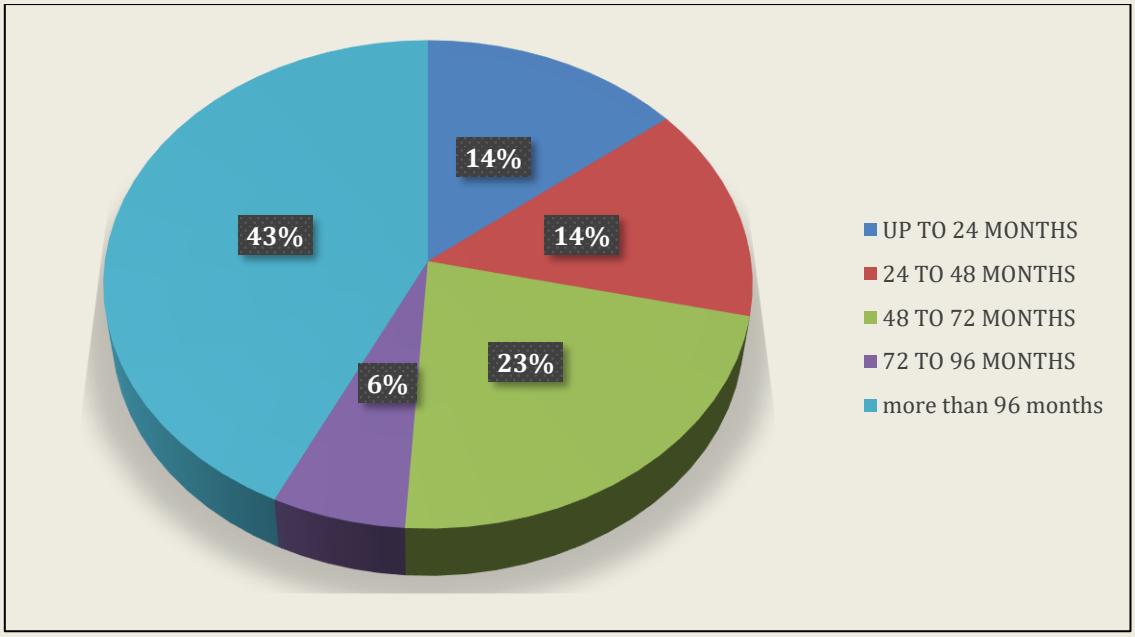


Diagram 23: Average Tenure of the CEO in detail

The majority of CEOs (43%) has an average tenure of more than 8 years, a fact that could be explained by the fact that the majority of the companies are family-owned enterprises (**Diagram 23**).

On the contrary, only 6% of the companies have an average CEO tenure between six to eight years. Almost one out four companies (23%) have a CEO tenure between 4 to 6 years. A slightly reduced percentage (14%) of the companies has an average CEO tenure between 2 to 4 years. The same percentage (14%) of the companies have an average CEO tenure up to 24 months.

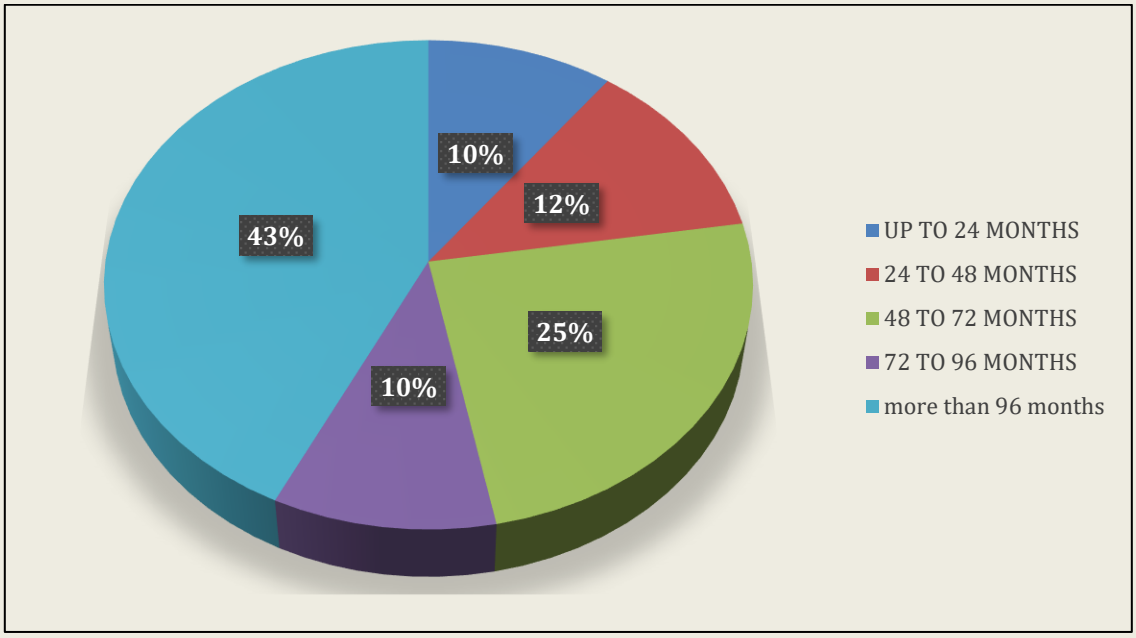


Diagram 24: Average Tenure of the Chairperson in detail

As **Diagram 24** illustrates, most of the companies (43%) have long serving Chairpersons, whose tenures exceed the 8 years. Again, this could be a result of family ownership. Moreover, only 10% of the companies have Chairpersons that have an average tenure between 6 to 8 years. The percentage of the companies with an average Chairperson tenure between 4 to 6 years reaches the 25%, which is almost double than that of the companies with an average Chairperson tenure of 2 to 4 years (12%). Finally, only 10% of the companies have an average Chairperson tenure up to 24 months.

3.5 CEO Duality

The corporate scandals of Enron, Worldcom and Tyco revived the discussions about splitting the roles of CEO and Chairperson. Advocates of agency theory argue that the positions of CEO and Chairman should be separate. A person who seats in both positions creates a conflict of interest that could negatively affect the interests of the shareholders and reduces the monitoring of the board.

On the other hand, there are supporters of CEO duality since it provides a clear

focus and unity of command at the top level. Moreover, some researchers argue that during a crisis the combined role of the Chairman and the CEO can enhance performance, when other academics believe that the duality structure is associated with higher percentages of firm bankruptcy.

In our study, the CEO duality/separation was examined as of December of each year for the period 2001-2022. It can be supported that the listed Greek Maritime firms have the tendency to follow the duality model, as the **Diagram 25** illustrates. In more detail, since 2002 the percentage of the companies following the duality structure, although it fluctuates, gradually increases, reaching its maximum value in 2017 with most of the CEOs being Chairpersons at the same time (64.3%). However, since 2017 a small increase in the separation structure can be observed, with 44.4% in 2021 and 42.9% in 2022 of the companies instead of 35.7% in 2017.

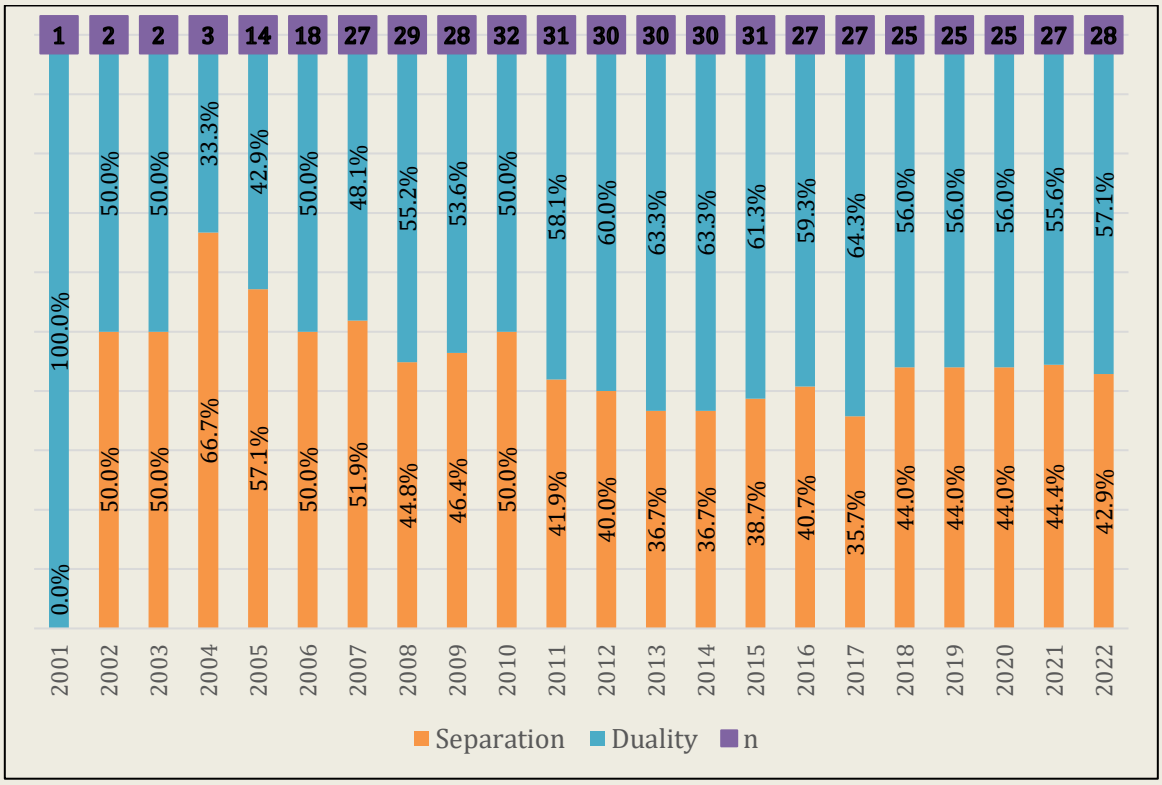


Diagram 25: Duality vs. Separation for the period 2001-2022

3.6 Non-Executive (Externals) Directors

To be successful every board needs the right blend of skills and expertise. The recruitment of external directors can bring to the organization specialists in the areas of accounting, finance and technology. Additionally, independent directors could act independently of the management interests, play the control role of boards most efficiently and be more aligned with outside investors' interests. Moreover, the regulatory authorities across the world have imposed specific ratios of independent directors in the boards.

The listed Greek Maritime companies, during the examined 22-year period prefer to choose independent directors in their boards (57.57%) over dependent directors (42.43%). An explanation could be that the increased number of independent directors gives to the board increased legitimacy in the markets and a wider access to resources (**Diagram 26**).

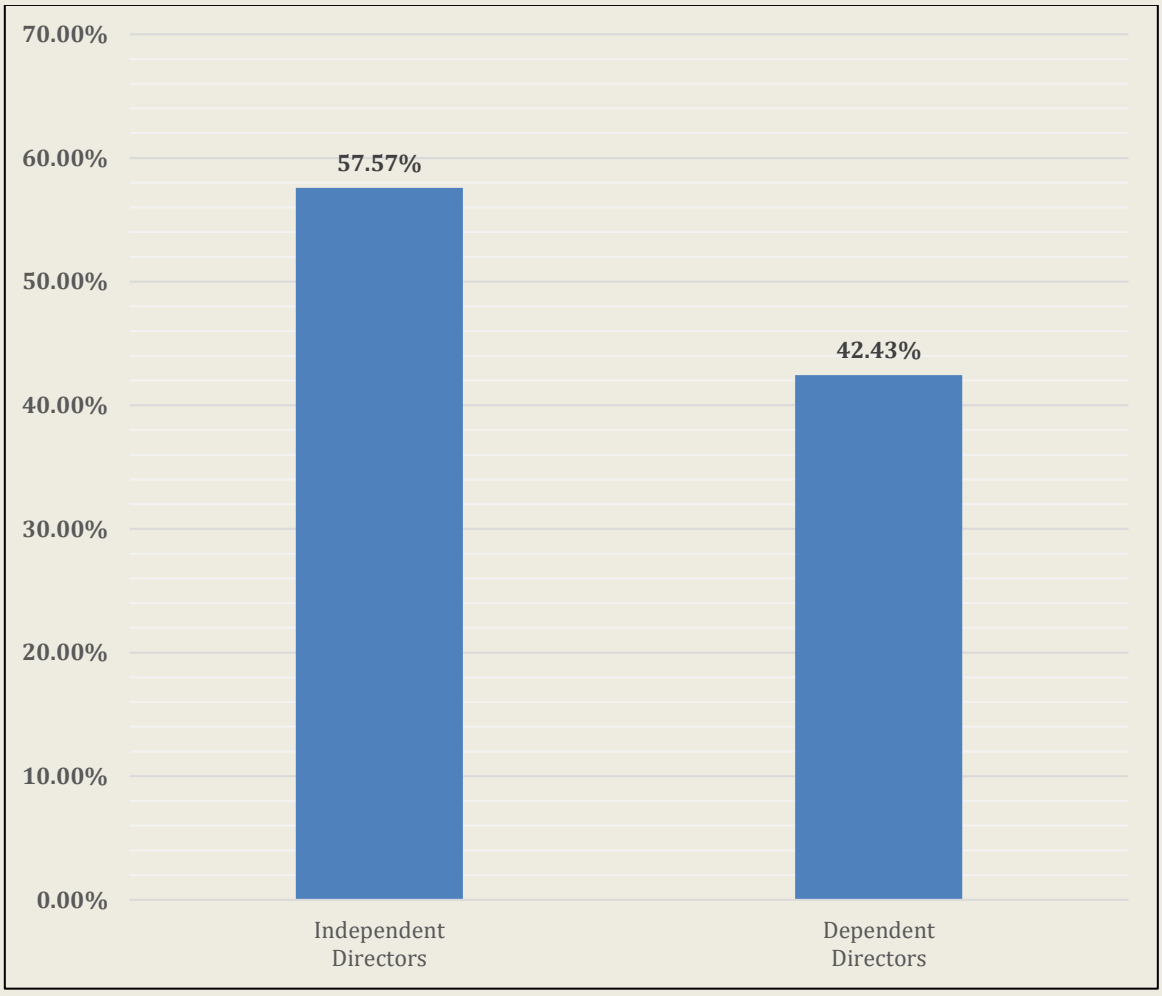


Diagram 26: Number of Independent and Dependent Directors 2001-2022

3.7 Committees

The composition of the board and its committees should be designed in a way that balances the skills, experience, independence and knowledge of the board members for them to fulfil their respective duties and responsibilities effectively, reports the Financial Regulatory Authority (2016) in the UK. Moreover, formal and rigorous assessment of the committees should take place yearly. Furthermore, due to the fact that important decisions are taken by committees shaping the future of a company, there is specific legislation that dictates the composition of the committees (number of independent directors) based on the size of the listed companies.

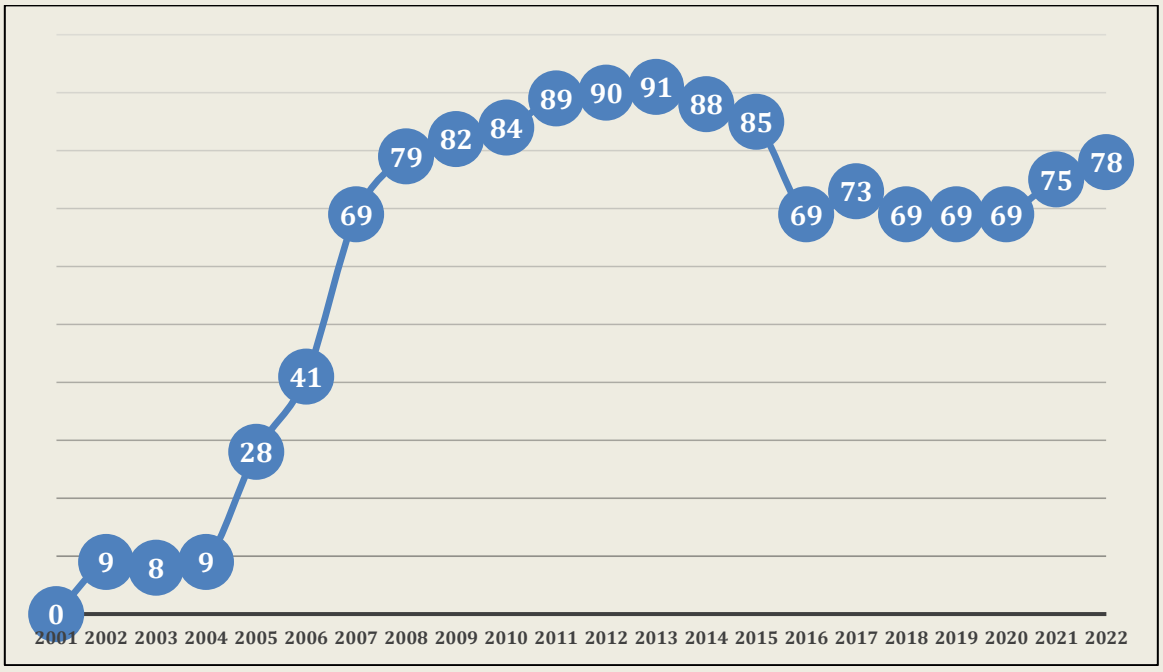


Diagram 27: Number of committees in Greek Maritime Firms between 2001 and 2022

As it can be seen from **Diagram 27**, the Greek maritime companies started to implement the enforced regulations regarding the introduction of board committees after 2001 and the big corporate scandal of Enron. In 2002, with only two listed companies the number of committees rose to 9, whilst the number of committees remained the same in 2004 with three listed firms. Between 2006 and 2007, the number of committees almost doubled from 41 to 69. For the period 2008-2013, an upward trend can be observed, with the maximum value of 91 committees in 2013. However, a decline followed from 2014 to 2016 with the number of committees stabilizing to 69 up to 2020. An upward trend is then reinstated in the last 2 years of the examined period with 78 committees being reported in 2022. Furthermore, all the companies have introduced an audit committee, the second most 'popular' committee is the compensation committee, whilst the third most commonly used committee is the nominating and governance committee. However, there is a wide variety of committees with different focus, ranging from the above mentioned to operational and environmental R & D committees.

4. Summary

The recent financial crisis is reshaping the maritime sector in ways that we are not able to predict or estimate. The exit of big financial institutions from the shipping financing created severe problems not only to many maritime firms with open ship orders, but also to companies specialised in bulk cargoes, which were hit by a prolonged period of low freights.

The findings presented in this report, portrayed a concrete picture of the synthesis of Boards in the Greek owned listed Maritime sector.

Summarising our findings, we can say that there has been a notable increase in the average age of board members in Greek-owned listed maritime companies. By 2022, the average age of board members was above 58 years, indicating a trend towards older, more experienced boards compared to the period before 2016. This trend is comparable to the period after the corporate scandals of 2002-2003.

On the other hand, the average board member age in 2005 was 50.46 years and in 2015 54.37, which signifies the fact that corporate Boards have refreshed their members with younger individuals.

In the aftermath of the financial crisis, 2011-2014, the average age of the board members is just above 56 years, a period that can only be compared with that after the corporate scandals of Enron in 2002-2003, where the average age was 55.90 and 56.90 years. The same can be said about the average age of the Chairpersons, which although on average they are getting older, the difference is five years between 2005 and 2015 and between 2015 and 2022. CEOs in 2015 are on average ten years older (52.15 years) than they used to be in 2005 (42.92), but less than 1 year older in 2022 (53.3) than in 2015.

The national diversity within these boards has remained significant, with a considerable presence of non-Greek members, contributing to a diverse range of perspectives and expertise. The national diversity is evented in the boards of the Greek maritime companies, where there is no board without a non-Greek member. Moreover, more than 4% of the boards have 7, 8, 10 and 15 foreigners in their composition. The majority (15.91%) of the boards have 1 and 4 non-Greek directors. In total, 45% of the directors throughout the examined period are foreigners.

Despite some progress, gender diversity remains limited. From 2001 to 2022, only a small percentage of board members were women. From 531 directors, between 2001 and 2022, only 8% of them are women, occupying 43 directorships positions. On the contrary, men occupy 488 directorships. It is also worth mentioning that three women held more than one chair, Ms Aggeliki

Frangou, Ms Charlotte Stratos and Ms Chryssoula Kandylidis.

The educational qualifications of board members have shown a high level of attainment, with a majority holding postgraduate degrees and a notable portion possessing PhDs. This trend highlights the emphasis on advanced education and specialized knowledge in the governance of the Greek-owned companies. The majority of the directors have been awarded an M.Sc. (42%), whereas almost 5% have managed to acquire a PhD. One third (32%) of the directors have completed their undergraduate studies and 3% of the directors have a degree from college or a higher institution.

Although the average board size during the examined period fluctuates between 6 and 8 members, after 2005 it remains very close to 6.5 members, having its lowest values in 2012 and 2013 with 6.2 and 6.17 members respectively. This means that the average board size remains almost the same for most of the years of the study. Most of the boards have 6 to 7 directors (46.54%), whereas 4 to 5 directors have the 29.07% of the boards.

Another very important variable, that of tenure, has been examined. The average tenure of the boards is 68.38 months. However, when we exclude the CEO and the Chairperson from our analysis, this number declines to 61.61 months. Furthermore, the average tenure of the CEOs and the Chairpersons is close to each other, with 93.75 and 93.24 months respectively.

Nevertheless, when the average tenure of sole Chairpersons and Sole CEOs was examined, their average tenure was more than two times less than the initial findings, which included the duality structure.

Notably, the Greek maritime companies prefer the duality structure over the separation. Moreover, it can be said that after 2010 there is a fairly stable duality model ranging from 63.3% in years 2013 and 2014 to 57.1% in 2022.

The regulatory authorities are particularly interested on the number of independent directors that serve in the boards, that is why they have enforced specific quotas. In the boards of the Greek shipping companies 57.57% of the directors are independent and 42.43% dependent, a fact that help them build their legitimacy in the financial markets. From the same point of view, every company has at least two committees.

Finally, the Greek maritime industry remains the most prominent in the world capitalising on its strengths. From the corporate governance point of view, although there are not any initiatives or corporate strategies related to that, the firms not only follow the enforced guidelines but also try to create an investor-friendly environment in their struggle to acquire higher levels of financing.

Conclusion & Outlook

What the Study Shows

Greek shipping companies listed abroad present a unique mix of long-standing family ownership and modern, globally focused operations. This dual character influences how they're governed, how they grow, and how they respond to the market.

- **Changing Governance** While family control remains strong, many companies are moving toward more independent, diverse, and professional boards.
- **Market Trends**
  - **IPOs** tend to align with strong market periods.
  - **Mergers and acquisitions** are used strategically to expand fleets and strengthen market position.
  - **Delistings** often reflect financial strain, regulatory challenges, or mergers.

What's Coming Next

Several forces are expected to shape the future of these companies:

- **Tighter Regulations** Stricter environmental and decarbonization rules will require major investment and thoughtful strategic planning.
- **Geopolitical Uncertainty** Changes in global trade routes and rising geopolitical tensions will add complexity, making flexible, well-governed companies more likely to thrive.
- **Rising Governance Standards** Investors and regulators are demanding more around ESG performance, board diversity, and ethical conduct—meaning transparency and accountability will be more important than ever.

What This Means for Stakeholders

For Companies

- Boards should reflect a wider range of backgrounds, experiences, and nationalities—not just gender diversity, but also global and professional perspectives.
- Transparency and strong internal controls are essential to stay listed and trusted.

For Investors & Analysts

- Evaluating these firms takes more than just financials—consider the family-business dynamic, market cycles, and how companies respond to governance pressures.
- Focus on long-term strategy and value creation.

For Regulators & Researchers

- Continued oversight is needed, especially in areas like board independence, succession planning, and the effectiveness of independent directors.
- Further research on how governance changes affect performance will help guide policy and practice.

Final Thought

Greek maritime firms are at a turning point. How well they adapt to global pressures, modernise governance, and balance tradition with innovation will define their future success on the world stage.

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