

The Strategies Applied, since 1850, and the Growth Achieved, since 1950, by the Owners of the Greek Ships

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Abstract

We showed the position that the Greek-owned shipping industry possessed in the EU and in the World in 2018 (in dwt). We also showed the value of its vessels in 2018-2019. Greeks owned 4221 ships of 354m dwt in March 2025, of an estimated value of about \$100b, or 39% of country's GDP₂₀₂₄. Greeks preferred, by 85%, among Europeans, to manage "oil tankers" (36%) and "dry cargo bulk carriers" (46%). The shipping industry, after the 2003-2008 boom, had to face a "global financial crisis" (2009-2018), a "Pandemic" (2019-2021) and two "local wars" (2022-). The Russia-Ukraine war changed the route-distances of a certain type of vessels. These four serious developments, moreover, caused shipowners to *reduce* their orders of new ships by more than 40%, since 2008, with the result that the world fleet was not renewed and the world shipbuilding did not expand as fast as it could. We also showed the 14 long-term strategies followed by Greek shipowners since 1850, applying practices like "Perfect Timing", "the economies of lower age", and the "economies of scale", in both their new buildings and the 2nd hand purchases. Moreover, Greeks very early realized that "forecasting" maritime markets was impossible. The main contribution of this work is the calculation of the growth rates of the Greek-owned fleet, since 1950, from y to y , and also of its statistical "typical" growth rate for the last 74 or so years. Greek shipping only during the first 28 years showed serious growth rates starting in 1950. The fleet's growth rate was restricted by the various depressions, which all Greek shipowners have not succeeded in facing efficiently and effectively, with very few exceptions. We also showed the way to calculate the "Cash Flow" of a shipping company using data from an existing shipping company, between 1985 and 1992, and we demonstrated how to apply this tool of the nonlinear management. Cash-flow management was and is the "weak point" of the Greek shipowners.

Keywords

The Greek-Owned Shipping in the EU, and in the World—2018, The Growth Rates of the Greek-Owned Shipping Achieved since 1950, The Strategies Applied since 1850, The Shipping Business Environment since 2008, Forecasting the Maritime Markets: The Impossibility Theorem, The Economies of Scale in the New Buildings and the 2nd Hand Ships, The Nonlinear Cash-Flow Management

1. Introduction

Greek shipowners have managed to *grow by reaching the top worldwide position and the question is how. The Greeks—as this is known—came from a small agricultural country with a small, <11m population. Nevertheless, their growth in shipping was continuous, since, at least, 1950 (to 2025: 75 years; Appendix 1) (Goulielmos, 2017a)*. In many of our scientific works, we wondered further about what specific *strategies* the Greek shipowners followed, and why (Goulielmos, 2017b). We are going to answer the above two important questions in what it follows.

2. The Structure of This Work

This is done in 8 parts, after a literature review: Part I, dealt with the 4 recent successes achieved by the Greek-owned¹ shipping; Part II, dealt with the shipping business environment since 2008; Part III, dealt with the Greek shipowners' Strategies since 1850; Part IV, dealt with the inability of the shipowners to predict the future freight rates; Part V, dealt with the history of the *growth* of the Greek-owned shipping, 1950-2025; Part VI, dealt with what ship size a shipowner to build and what ship size is better, economically, to buy; Part VII, dealt with companies' Cash Flow and how to manage it properly. Finally, we concluded.

3. Literature Review

Lorange² (2001) argued that he expects a change in the way one approaches so far a “successful” management of a shipping company, i.e. to try to see how it builds a relevant shipping know-how or software? The major point for him is rather the ability of a shipping company to manage according to a portfolio with 4 acronyms: “pioneer-rapid expansion-restructure-defend/dominate”, meaning balanced, tailored, software, along with ships, and entrepreneurs and a *networked organizational approach and learning*. The hardware is there to entail the use of more sophisticated decision support tools regarding, par excellence, the *timing*³ of the market-driven actions. The companies have to avoid the compartmentalized king-

¹Ships owned by Greeks no matter their flag.

²He was a Professor & a shipowner.

³Goulielmos (2021a).

doms⁴, and focus on the key-human resource functions. On seeing opportunities, the secret of business is to know something that nobody else knows (Onassis). None of us is as smart as all of us (a Japanese proverb).

Stopford (2009), from the 1430 Greek international shipping entrepreneurs in 2020, located in Greece, decided to mention only 3 in his book: Onassis, Niarchos and Stelios Haji-Ioannou. The last one was the founder of the “Stelmar Tankers” & the “Easyjet” in 1992, who received a \$30m from his father. He also welcomed the 2003-2008 shipping boom, we believe. He, however, was, moreover, an example of finance from an internally generated equity, and family ownership, being a common form for finance in Greece, and elsewhere in countries having a seagoing tradition.

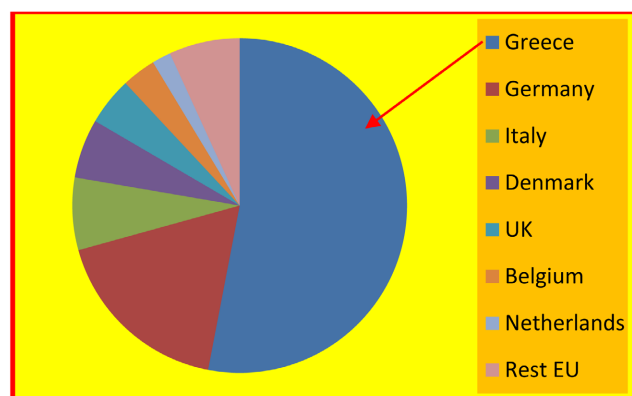
Onassis has been known to make a very good profit of almost \$80m, when the shipping cycle turned down in 1956, and he had his tankers available (laid-up). Then, on 25/07/1956 Egypt nationalized the Suez Canal, and in October, Israel, UK and France invaded it. Oil had then to be shipped the longer route around the Cape of Good Hope. Demand’s strong coefficient, i.e. distances, caused the tanker rates to increase 15 plus times per ton...

Shipowners as a rule were unable to foresee the coming of a local war. In addition, the usual routes of the main type of ships, and par excellence those of the tankers, have been disturbed nowadays as a result of the Russia-Ukraine War.

4. Part I: The Recent 4 Successes Achieved by the Greek-Owned Shipping

4.1. The Greek-Owned Shipping in EU (2018)

The Greek-owned shipping achieved the 1st top position among the EU member-states with a ~53% share in 2018 (in dwt) (**Figure 1**).



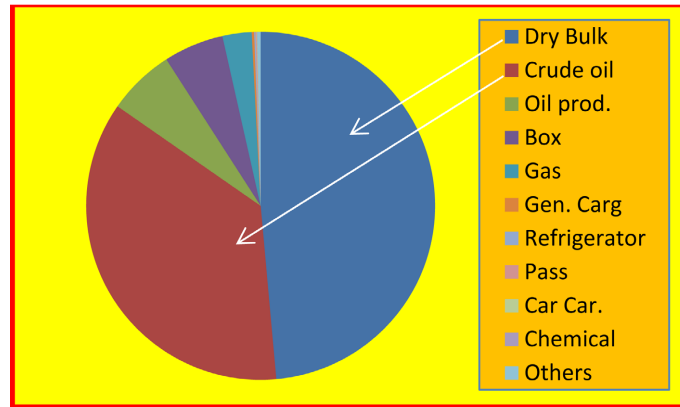
Source: Author; data from EU Commission.

Figure 1. The fleets of the main member-states of the EU, plus UK, in dwt %, (for ships > 1000 GT), in 2018.

⁴Lorange means here correctly that the 18 or so departments, in a large shipping company, have to support company’s overall strategy, and not to try to apply their own, as it usually happens. The Greek shipping companies start with a Manager—usually an ex Captain, a secretary, and a Sup. Engineer, before growing in many departments.

4.2. The Many Types of Ships Managed by the Greek-Owned Shipping and Their Focus (2018)

One may wonder if the “secret strategy” of the above success of the Greek ship-owners among EU member-states can be found in the fact that Greeks served *many* shipping sectors, thus spreading the risks out. Greeks were dominant, however, par excellence, in the management of the “dry” and “liquid” cargo ships (**Figure 2**).



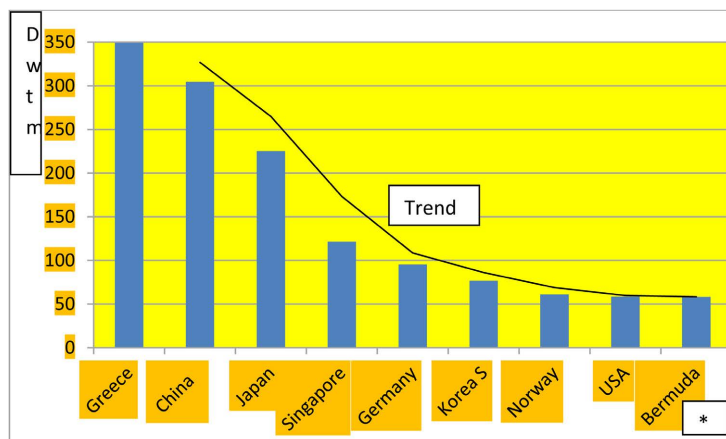
Source: Author; data from IHS Markit, 2019.

Figure 2. The structure of the Greek-owned fleet over 11 ship types, in dwt %, (for ships > 1000 GT), 2018.

As shown, Greeks focused, in 2018, by 85%, on only 2 types of ships (in dwt for ships greater than 1000 GT): the “dry cargo bulk carriers” ~49% and the “crude oil” tankers (~36%).

4.3. The Position of the Greek Shipping in the World (2018)

Moreover, Greek shipowners were top 1st also in the World Shipping (**Figure 3**).



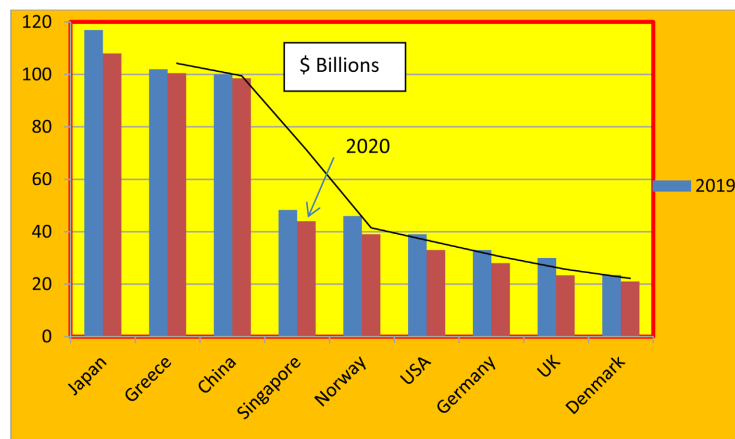
Source: Author; data from UNCTAD; [*] a flag of convenience.

Figure 3. The dwt owned in millions by the top 9 world nations (for ships > 1000 GT), 2018.

As shown, Greece owned, in 2018, ~349m dwt, or ~18% of the world shipping, followed by China with 15.5%, Japan 11.5%, Singapore 6.2%, Germany 4.9%, Korea S 3.9%, Norway 3.1%, Bermuda 3.05% and USA 3% (=~69%) (=1.35b dwt). In addition, Greece owned 4221 ships (> 1000 GT), in March 2025, of ~354m dwt (~84,000 dwt av. size) (Goulielmos, 2021b). These 9 nations owned 27,700 vessels.

4.4. The Value of the Ships in US\$ of the 9 Top World Fleets (2019-2020)

Interesting is also to present the value of the fleets, in billion US\$, of the top 9 shipping nations in 2019 and in 2020 (Figure 4).



Source: Author; data from “VesselsValue”.

Figure 4. Fleet’s value in US \$b for the top 9 shipping nations, 2019-2020.

As shown, the top 9 shipping nations in the world owned \$539b worth of ships in 2019, and only ~\$495b in 2020. Japan took the first worldwide position with a more valuable fleet. Worth noting, however, is the value which has been *lost*⁵ by the world shipping in 2020 of ~\$44b in one year... due to the reduced prices for certain of their ships. The Greek-owned fleet had a total value of ~\$100b (~\$24m av. value per ship) meaning ~39% of country’s GDP₂₀₂₄ of \$257 billion.

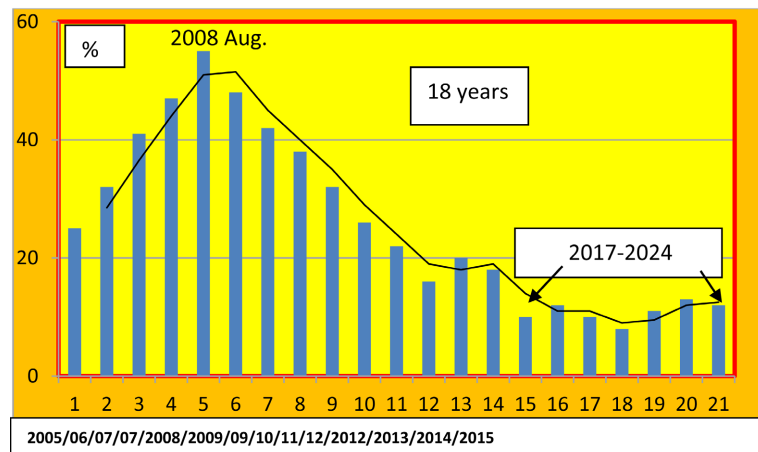
Let us present next the global shipping business environment during the last 17 years (2008-2025).

5. Part II: The Global Shipping Business Environment since 2008

The years, after 2008, were not the best ones for Greek-owned shipping, and for the world shipping, due to the fact that a “world financial crisis” took place, along with a “Pandemic” and “2 local wars”... as mentioned. To show, however, the impact of the above 4 major events, which have characterized our present maritime business environment, we plotted the “world ship orders as a % share of the active

⁵This is due to the fact that the prices of tankers etc. fell.

fleet” between 2005 and 2024 (**Figure 5**).



Source: Author; data from UNCTAD, 2024.

Figure 5. The Global shipowners’ orders for newbuildings as a % of their existing fleet, 2005-2024.

As shown, the global shipowners reduced *drastically*, and gradually, their % of “orders for newbuildings” on their existing fleet to 1/5 of that in summer 2008. This was the result of the financial crisis, which started in 2009 (-2018), the Pandemic, which emerged in 2019 (-2021) and the local wars broken-out in Ukraine and Gaza (2022-)... The resulted uncertainty, apparently, affected shipowners’ inducement to invest.

The “% of the ships on order on their existing fleet”, indicates well, we believe, the trend among shipowners towards their new investment. This may be taken also as a sign of their optimism, where the top record achieved *only* in 2008 (August).

The more recent period, i.e. the one of 2017-2024, as shown, was indeed disappointing, achieving a low % of orders, varying from 10% to 13% only. This may be compared with the top one achieved in 2008 of 55%... The %, at the same time, indicates a *strong trend for fleets’ renewal* using new tonnage, we believe. As a result the world fleet has become older and less efficient after 2017 with perhaps more marine accidents, which of course we do not wish.

We turn now to present the *strategies* applied by Greek shipowners since 1850.

6. Part III: The Greek Shipowners’ Strategies since 1850

In fact, we succeeded in finding-out 14 strategies so far (**Table 1**). We will mention them first, and then we will try to analyze as many as possible of them, given the space we shall have.

As shown, the above table presented synoptically the information derived from the above 9 papers appeared already in the Modern Economy. Let us call the above first 2 strategies as the ones of the “generalized economies of scale”. This is so because we saw that the economies of scale sought after by Greeks, were not only in their newbuildings, but also in their 2nd hand acquisitions... “Economies of

scale”, of course, in the newbuildings is something always to be expected⁶, or demanded, by the shipowners. The risks, however, are different in the two cases, being much higher in the case of the new-buildings.

Table 1. The strategies followed by the Greek shipowners, 1850-2025.

To buy ships <i>greater</i> than the ones decided to be sold ⁷	To <i>build</i> ships <i>larger</i> than the ones owned hitherto	To buy ships <i>younger</i> than the ones planned to be sold; to prefer buying ships of 5 or 10 years of age	To place company's purchases, chronologically, so that to coincide with <i>rock bottom</i> prices
To place company's sales, chronologically, so that to coincide with <i>top prices</i>	To secure a time charter first, from a 1st class charterer, covering, if possible, the whole life of the vessel (in case of newbuildings) (Onassis & others)	To manage properly company's Cash Flow	To prepare wives for their owner's ... premature death
To prepare owners for a split off of their partners	To be a shipowning company for a long time by obtaining 3 at least sons	To be in the market for at least three generations—by considering shipowning/shipmanagement as a “way of life” and not as a profession	To survive out from a shipping depression
To be prepared to overcome the effects of a serious marine accident	To use other people's money (deposited in the banks & in the insurance companies) (when building ships) (Onassis)		

Source: author; Goulielmos, 2025a, 2025b, 2025c, 2025d, 2025e, 2025f, 2025g, 2025h.

Let us call the 3rd strategy as the one dealing with the “economies of lower age”. Let us call the next 2 strategies as the ones carried-out by the companies, when they are applying a “perfect timing” to their at least sell and buy decisions.

In order for one to justify the above strategies, however, he/she must understand the business environment of the global maritime transport. An important recognition is to admit—as Greeks have done—*that almost all freight rate markets are unpredictable*. We turn next to this issue.

7. Part IV: The Inability of the Shipowners to Predict the Future Freight Rates

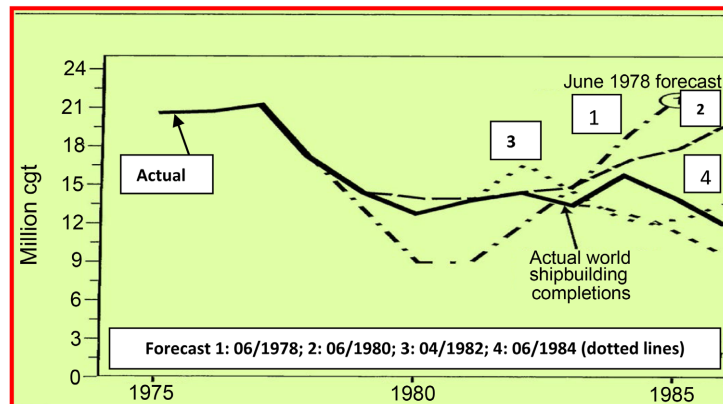
The Greek shipowners started their businesses with the acceptance, and rightly so, that no one has ever been able to forecast the freight rates (Goulielmos, 2017c). Moreover, Stopford (2009) (p. 697) wrote that to be realistic, maritime forecasting has a poor reputation, and the sense that (the shipping) forecasts are usually

⁶Greeks first buy and then sell. The proper is first to sell and then to buy.

⁷Certain Greek shipowners, especially ex Engineers, have also made improvements making suggestions to shipbuilders on matters of design of their ships based on their previous sea experience. As it is known the one improvement is the placing of ship's bridge at the end.

wrong, is too widely held to take it slightly.

In **Figure 6**, four forecasts—made from June 1978 to June 1984 (dotted curves)—about the “completions of ships by the world shipbuilding”, all have widely deviated from the actual ones (black heavy curve, 1975-1986).



Source: Author; modified from that in Stopford, p. 698.

Figure 6. Actual & forecast completions by the world shipbuilding, 1975-1986.

As shown, the forecasts of the “demand for new ships”, produced between 1978 and 1984, have all widely deviated from their actual figures. E.g. in 1980, the demand predicted 50% higher for 1986, vis-à-vis its 1982 prediction, being also too optimistic.

As **Drucker (1977)** argued, we must start out with the premise that forecasting is not a respectable human activity, and not worthwhile, beyond the shortest of the periods.

Well-known is also Onassis’ failure to foresee the time of the Suez Canal opening, in April 1957, i.e. within a few months since its 1956 closure, though he derived a profit of about \$80m out of this situation, as mentioned. His aide, Gratsos C, secretly chartered 12 tankers to “Esso” for 39 months by assuming that the Canal will open very soon, as it did.

Let us now turn to the “history of the growth of the Greek-owned Shipping” since 1949-1950.

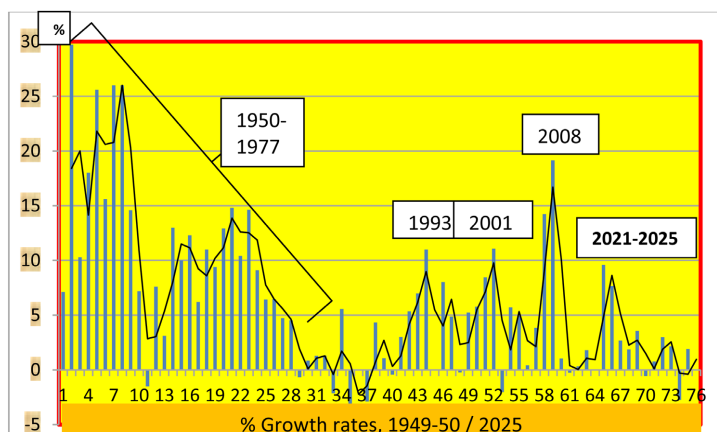
8. Part V: The History of the Growth of the Greek-Owned Shipping, 1949-1950-2025

The Greek-owned shipping passed 5 different periods of expansion during its 75 past years, 1950-2025 (**Figure 7**).

As shown, after 1978, as well as, and par excellence, after 1958, (i.e. after 20 years, 1958-1978), the Greek-owned fleet showed signs of fatigue towards expanding, and also an inability to grow anymore by as fast as 30%, from one year to the next, as it did in 1951, meaning to add then ~800,000 GRT in one year.

But the above conclusion is misleading, because between 2007 and 2008 the Greek-owned fleet added a total of 43m dwt, meaning a 20% yearly growth rate...

This means that as the fleet grows, we have to expect that the % of growth will fall...



Source: Author; data from the Journal of “Naftica Chronica” in GRT, 1949-1973; in 1985, the size of ships changed; in 1994, the source was GSCC⁸ in GRT till 2000; for 2001-2025, the source was the GSCC, in GT this time; the growth rate is calculated as follows: $F_t - F_{t+1}/F_t$ times 100; see Appendix 1.

Figure 7. Growth rates of the Greek-owned fleet, 1949-1950-2025.

True is that in the *first* period of the 10, post war, years, i.e. since 1950 (to 1959), the Greek-owned shipping industry had *very high growth rates*, from year to year, (in GRT), *varying from 7% to 30%*. This, no doubt, was something to be expected after the end of the 2nd WW, in 1945, where fleets started from very low levels. The high growth rates of this 1st period were, however, *never again* achieved (till 2025).

This period, i.e. that of 1950-1977 (numbers 1 - 28), was indeed very good, with the exception of year 1960, (number 11), when the fleet had its first small fall of 1%, *due to the 1957-1969 shipping cycle*⁹.

In the *second* period, i.e. from 1961 to 1977 (17 years; numbers 12 - 28), the growth rates were low, *not exceeding* the 15% mark, due to the 2 *shipping cycles* 1970-1978 (1970-1972 & 1973-1978). During the *third* period, i.e. from 1978 to 1987 (10 years; numbers 29-38), the growth rates were *very low again*, or even *negative*, due to the 1979-1987 *shipping depression* (1979-1981_{2nd sem.}-1987_{1st sem.}). This depression hit both the bulk carriers (1981) and the tankers (1979) for the first time, with the exception of the years 1983 & 1987. Many Greek-owned shipping companies reduced their tonnage or left the market. The impact on ship-building and especially that of Japan was fatal.

During the 4th period, i.e. from 1988 to 2000 (13 years; numbers 39 - 51), the growth rates *did not exceed* a low 11% mark (1993) with *negative* ones in 1989 and in 1997. Fleet's performance was *bad* indeed due to the 1988-2007 (1988-2002 & 2003-2007) two *maritime cycles*. The 5th *and recent* period, i.e. between 2001

⁸GSCC = Greek shipping co-operation committee is the Greek shipowners union in London.

⁹For “shipping cycles” see Stopford, 2009.

and 2025, (25 years; numbers 52 - 76), was one where the fleet in no year grew *by more than 20%*, as exceptionally did in 2008, and for 2013-2025, there were no year exceeded the 10% p.a. mark (ships in GT).

8.1. The “Typical” Growth Rate Calculated as the “Mode” of the Expansion Distribution of the Greek-Owned Shipping, 1949-1950-2025

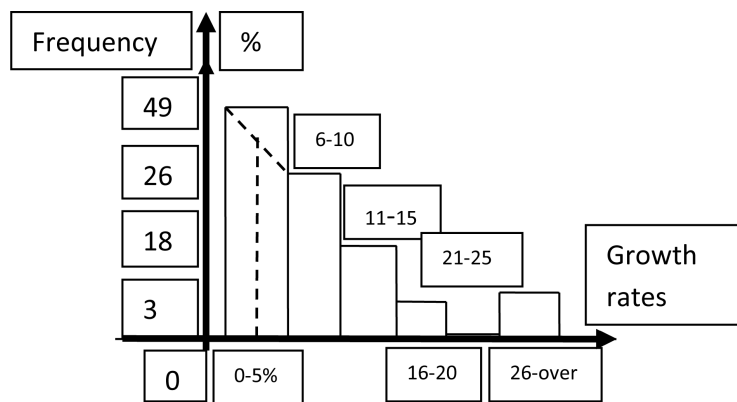
One may now ask: what is the *frequent* growth rate in the distribution of the growth rates of the Greek-owned fleet over its last 74 years? Statisticians recommend the Mode, which gives the “best representative” of all items, i.e. the “usual” or “typical” one. The Mode = Mean - 3Mean + 3Median. The relevant distribution is shown in **Table 2 (Graph 1)**. The mean (average) growth rate was 6.6%.

Table 2. Distribution of the Growth rates of the Greek-owned shipping, 1950-2025.

Growth: from minus to 5%	36 cases	48.65%
From 6 to 10	19	25.68
From 11 to 15	13	17.57
From 16 to 20	2	2.70
From 21 to 25	0	0
From 26 and over	4	5.40
Total	74	100

Source: Author; data from Appendix 1.

As shown, the ~92% of the growth rates, from year to year, was below 15%, and about half of them were below the 5% mark (= ~49%).



Source: Author; data from Appendix 1.

Graph 1. The histogram of the Growth rates of the Greek-owned shipping, 1950-2025.

As shown, the “typical” growth rate of the Greek-owned shipping fleet between 1950 and 2025 was, diagrammatically, 2.5%, being apparently a very low %, re-

sulting, however, from a large population. This low % means, however, almost 9m dwt from y to y on the 2025 fleet. In 1950-2000 the mode was 6.5% according to our previous calculations.

Time reduces growth rates as this has been confirmed by [Keynes \(1936\)](#). [Keynes \(1936\)](#) (pp. 219-221) was right to argue that “investment opportunities” diminish as time goes-by and society’s wealth rises, this being the bigger problem of the wealthier societies... It seems, however, that this is also a problem *of the fast progressive industries*, like the maritime transport...

The entrepreneurs have indeed—in capitalist societies—to find out ways to spend the money accumulated mainly by Saving and Depreciation/Retained Profits, so that to achieve growth and welfare (given also a falling consumption). Thus, one may ask how helpful will be the AI by having to mobilize enormous funds? Or, how important is to produce energy the way this is done by the Sun? We read in the Press that China is another country to pursue such a research, as expected, along with USA and EU for cheap clean energy.

We believe that all the saved money it would be better to be devoted to practical innovations dealing with improving the life of the citizens and reduce their cost of living. Governments have to care about improving not the welfare of the numbers, but the welfare of their people. The future rests with the innovative minds, or the new start-ups, especially in the rare earths and the clean energy. Keynes failed to see the importance resting with the “applied research” for a better life, but also for a higher marginal efficiency of capital/money above the lending rate of interest.

Shipping companies use their accumulated depreciation and their retained earnings to build new capital (ships). They also establish benevolent foundations for people to remember them after death (e.g. the “Stavros Niarchos Foundation” and “the Onassis Foundation”).

[Keynes \(1936\)](#) argued (p. 220), in a rather sarcastic manner, we reckon, that “in so far as millionaires find their satisfaction in building mighty mansions to contain their bodies when alive, and pyramids to shelter them after death, or, (in) repenting of their sins, they erect cathedrals and endow monasteries, or foreign missions, the day when abundance of capital will interfere with abundance of output may be postponed...”

The above analysis perhaps compels us to redefine Economics as a Science from the one destined to see “how to satisfy uncountable needs with countable means” to the one of “the science trying to find opportunities for investment, where the Marginal efficiency of capital exceeds the lending rate of interest...”

8.2. Why Shipowners Build Ships?

Shipowners build new ships because they have to scrap the old ones (so that to replace them/the so called “replacement demand”) and also they build ships because they wish to grow (the “expansion demand”) by so doing.

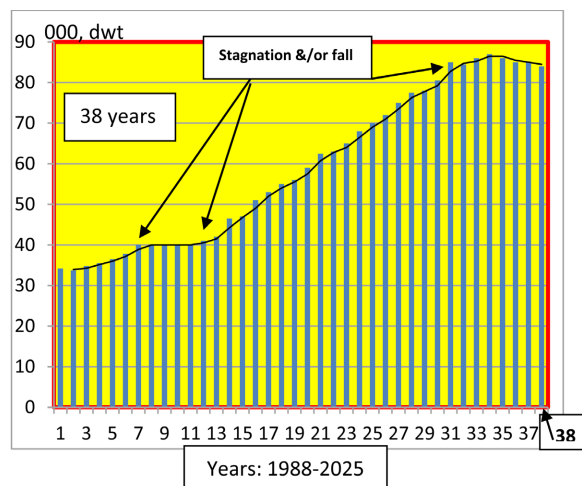
[Stopford \(2009\)](#) (p. 637) provided data where the “total shipbuilding demand”

by shipowners, i.e. for *expansion*, and for *replacement*—according to our calculations for 1990 to 2006—*never exceeded the 11.6%* top one achieved in 2000 on a then ~713m dwt world fleet (on 1/1 of the year). 59m dwt devoted to expand, or 8.3%, meaning that the *first care* of shipowners is to expand, and 24m dwt devoted to replacement, or 3.3%. Greeks exceeded this ~12% only in 2007 and in 2008, since 1972... Thus, Greeks fell behind their world colleagues.

Worth noting is, however, to stress the fact that the growth rate of the Greek-owned shipping p.a. diminished as time went by due to the fact, among the other facts mentioned above, that a large fleet *cannot support* substantial orders *analogous* to its growing size every year... An increasing size does not allow high % growth rates. We come now to the economies of scale in Greek shipping.

9. Part VI: What Ship Size to Build and What Ship Size Is Better Economically to Buy?

We will start first with presenting the *average size* of the ships of the Greek-owned fleet, in dwt, since 1988, (for which data is available), i.e. over the last 38 years (**Figure 8**). Our purpose is to show whether the Greek-owned fleet has achieved “economies of scale” (Goulielmos, 2021a).



Source: Owner; data from GSCC (2025 March).

Figure 8. The average size of the Greek-owned ships, 1988-2025 in dwt.

In 2018, Greece had an average size of its fleet of 76,984 dwt; Japan: 58,896; China: 39,237; Singapore: 44,554; Germany: 35,741; S Korea: 46,569; Norway: 30,010; USA: 29,570; & Bermuda: 109,398 (a flag of convenience). Onassis has been recorded in the history of the Maritime Transport to be the first owner to pursue economies of scale, since 1938, by building the so called “super-tankers”.

As shown in **Figure 8**, the Greek-owned fleet started with an increase in its *average size* between 1988 and 1994, and then, par excellence, this grew faster, between 1999 and 2018 (19 years). The average size, in dwt, of the Greek-owned shipping, increased ~2.47 times over the last 38 years, i.e. from ~34,000 dwt in

1988 (March) to ~84,000 dwt in 2025 (March) (rounded), *confirming the strategy that Greeks pursued indeed economies of scale.*

The above is something not true for the rest of the champion-nations in World Shipping. We may consider it as Greek's nation *competitive advantage in maritime transport.* One, however, may observe that there were times where the above pursue stalled, like in the 7th-11th years (1994-1998) and in 2023-2024, or even it failed in 1989, 2022 and 2025. Worth noting is to say that the above bad times for the scale, coincided truly with a *negative* or a *stagnant growth rate* in the entire fleet. This means that in order to pursue economies of scale, the Greek owners, *had to have a growth in their fleet* first. This is a sensible decision, we believe, *meaning first to grow and then to see how.*

Economies of Scale through “Ships on Order”

More important is, however, to say that the average size of the *ships on order*, by Greek owners, *reveal better their true trend towards future economies of scale.* This means that the average size of an *existing* fleet reflects mainly the past, while the average size of ships on order reflects mainly the *future..*

The average size of the ships on order in 2025 (March) was almost 95,000 dwt (456 ships of 43.2m dwt = 94,737). We have to stress, however, that the “oil tankers” are the *protagonists* in having the larger sizes vis-à-vis the rest ship types. This means that certain ship types (e.g., the oil tankers ~145,000 dwt; the bulk carriers ~84,000 dwt) *are more suitable* to embody economies of scale than other types. For the *combination carriers* we noticed the end of the interest of the owners for them, as none has been ordered in 2025 by Greeks.

Still more correct is to see economies of scale per type of vessel (Table 3).

Table 3. Average size of the ships owned by Greeks—existing fleet—vis-à-vis the average size of those on order, 2025 (March) in dwt.

Dry Cargo ships, <i>existing</i> fleet av. size: 16,745	Dry Cargo ships on order: 19,940	Liquid gas existing: 58,742	Liquid gas on order: 68,701
Chemical & products ex.: 40,055	Chemical & products on order: 48,317	Oil tankers existing: 163,054	Oil tankers on order: 144,674 (*)
Ore bulk ex.: 85,038	Ore bulk on order: 84,038 (**)	Others ex.: 17,137	Others on order: 3121
Pure Containers ex.: 55,509	Pure containers on order: 97,295 (***)	total ~84,000 ex. rounded	total on order ~95,000 (an increased av. size overall rounded)

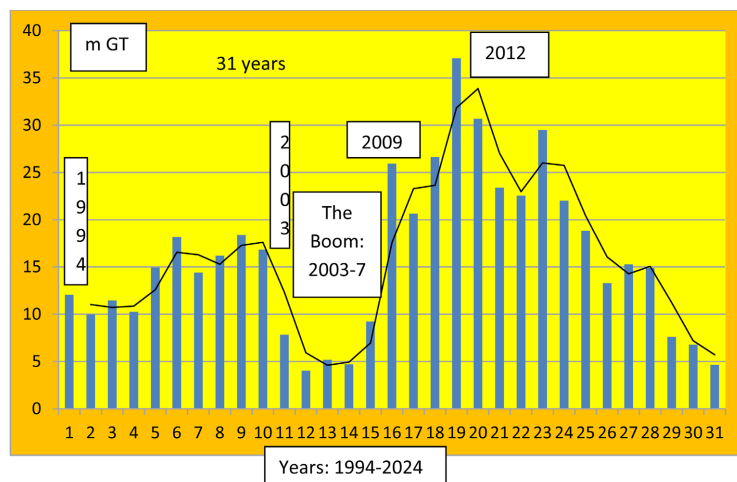
Source: Author; data from GSCC for ships over 1000 GT.

As shown, (*) the Oil tankers reduced their average size due to the influence of the Russia-Ukraine War, we believe, followed by (**) the ore bulks (an almost unchanged av. size) for the same reason; only the “pure containers on order” increased, par excellence, their average size 1.753 times (***), indicating a *serious growth in developing countries.*

Worth noting is that the oil tankers, the chemical & Product tankers, the other cargo ships and the passenger ones, “lost” in just 1 year, 5.6m dwt, due to the Russia-Ukraine war and that of the Red sea, plus the forthcoming regulatory requirements.

Stopford (2009) considered as responsible for economies of scale the continuous technological progress in ship technology in combination with the rising “costs of ageing” (notable after a 20 or 30¹⁰ years of operating life). Shipping, however, has adopted the main technological innovations with a rather strong resistance. It took e.g. 50 years for the Steamships to drive Sailing ships away from sea.

This is so that owners are reluctant, even for sentimental reasons, to scrap a vessel which for over 30 years untiringly and faithfully brought in her profits (Onassis) to the owner, demanding only a respectful maintenance... and par excellence so when markets were at their high like in 2003-2007.



Source: Owner; data from “LL Intelligence”.

Figure 9. World annual ship recycling, 1994-2024, in GT million.

As shown in **Figure 9**, the boom in 2003-2007 reduced drastically the tonnage which “visited” the scrapping yards, confirming our theory about the “relationship between freight rates and scrapping”. It seems that only the 4% - 5% of the world fleet (in dwt) is about to be scrapped in prosper years and the 10% - 37% in troubled/crisis ones. The low scrapping in 2021-2024 is perhaps due to the business world uncertainty.

An economy of scale is a quite simple concept for shipowners, even for those uneducated like Onassis (Goulielmos, 2021d, 2021e). A VLCC e.g. of 280,000 dwt

¹⁰Stopford (2009) failed to see that the “average scrapping age” of the ships *varies* in accordance with the condition of the freight markets. The current age is either prolonged or shortened by say 6 years. This extended or shortened life of a ship is a matter of the technical maintenance and thus can be done. In very good markets, like the ones after 2004, it was decided to prolong the life of the existing ships so that to profit from them. Moreover, the demand for the 2nd hand vessels—readily available—is at its high as the uncertainty about the duration of the best markets is also high.

tons had the same number of crew as a 29,000 dwt product tanker, but she consumes 1/4 as much fuel (per dwt). A 30,000 dwt vessel had in 2005 \$191/dwt cost p.a. vis-à-vis a 170,000 dwt Cape, which had \$74/per dwt (39%). In 1968, an 80,000 dwt tanker had a cost 34% higher vis-à-vis a 200,000 dwt one for the same trip (Rotterdam-Kuwait).

Historically, from 1950 to 1970, each generation of tankers was bigger than the last one. The tanker size increased from 17,000 dwt in 1950 to the VLCCs in 1966 and the ULCCs in 1976. The demand per shipment, however, did not confirm the plans of the shipowners in 1970s and 1980s so that economies of scale from a good thing to become a fatal cause.

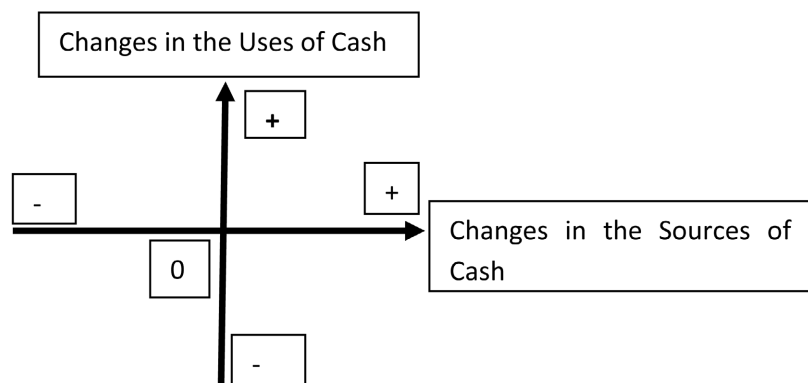
We will discuss next the importance of cash in maritime businesses as the most valuable asset to provide liquidity at times where no one else is prepared to help financially a shipping company in distress.

10. Part VII: The Proper Way to Manage a Company's Cash Flow

Worth noting is the fact that the Cash Flow—CF thereafter, is the only financial statement, which focus on changes. Thus, the CF is approached mainly by the changes in a company's Receipts and Disbursements from its main sources and uses of funds (Priesmeyer, 1992: p. 122; Goulielmos, 2018).

Our end in this part is to find out what increases or decreases the CF as experienced by a shipping company, *of course in one accounting period. The choice of this subject by the author has been influenced by the fact that certain generations of the Greek shipowners failed in their overall shipping endeavor by an erroneous management of their company's CF.*

The Nonlinear management suggests placing company's changes in the sources of funds on the horizontal axis, of a four-quadrant Descartes' diagram, and placing also the changes in the uses of funds on the vertical axis (**Graph 2**).

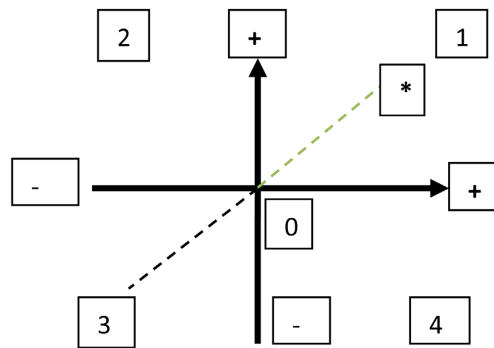


Source: Author.

Graph 2. A company's changes in its cash flow in a 4-quadrant Descartes diagram.

We can now read the messages derived from the above graph in accordance with company's specific location, (i.e. the number of quadrant), taken by its "tra-

jectory” concerning its changes in the uses and sources of funds (Graph 3). A trajectory presents the past and the present.



Source: Author; 45° degrees line *

Graph 3. The phase plane of a limit cycle of a company’s CF.

As shown, a company can be found in one out of the 4 quadrants, according to the changes it has experienced in its uses and its sources of funds. The meaning of each location is as follows (Table 4).

Table 4. The meaning for a company to be in one of the 4 quadrants of a Descartes diagram.

Quadrant 1	Quadrant 1, along 45° line	Quadrant 2	Quadrant 3	Quadrant 3, along 45° line
The amounts for the uses and from the sources, have both increased (in one year)	A proportional increase in both uses & sources of funds; the net CF is unchanged; a normal growth case; a recommendation: decrease the use of funds	Increase in uses of funds (by reducing the CF); an also decrease in sources of funds; Recommendation: selling vessels; cutting use of funds; here is an opportunity to increase company’s net worth by a new stock issue; be careful in using equity funds to finance operations with a poor CF; increase company’s liabilities	Decline in both uses & sources of funds; recommended: increase the sources of funds	No change in net CF; a proportional decrease in both uses & sources of funds
Quadrant 4	Quadrant 4	Quadrant 4	Quadrant 4	Quadrant 4
Increase in CF; increase in sources; reduction in uses	The best possible position; “a rapid increase in CF is also possible”	Recommendation: “buy earning ships”	Recommendation: “decrease liabilities (pay-off expensive debts) by repaying those with rates greater than company’s capital cost”	Recommendation: “reduce accumulated liquidity” e.g. depreciation & retained earnings

Source: Author; data from Priesmeyer, 1992: pp. 122-123.

To make our arguments more clear, we will take an example by using actual data from the case study of the Greek-owned shipping company CP between 1985 and 1990.

Table 5. The sources and the uses of funds of CP shipping Greek-owned company, 1985-1990.

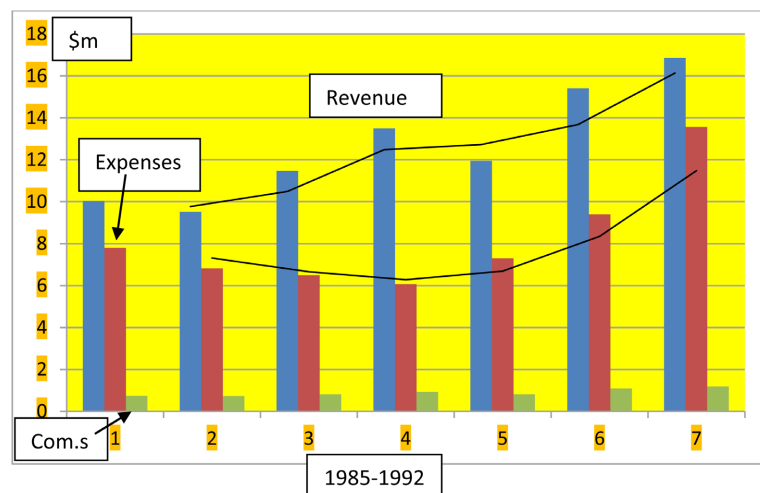
Source of funds, \$m, 01/07/1985-1986	Source of funds, \$m, 1987	Source of funds, \$m, 1988	Source of funds, \$m, 1989	Source of funds, \$m, 1990
Net profit (plus deferred charges amortized):	1.841 (*)	4.144	7.125	4.216
Total: 0.895	1.928	4.197	7.196	4.375
Share capital & capital surplus: 9.936 (**)	0	0	0.932	0
Shareholders additional contribution 1.440 (***)	0.282	0	0	0
Debt (bank etc.) 12.042 (49.53%)	0	1.011 from the Sale of vessels	0	0
		0.565 deficit	1.897 deficit	0
total sources 24.313	2.210	5.773	10.025	4.375
Application of funds				
	0	0.114 + on vessels' cost	0.019 + on vessels' cost	0.548 + on vessels' cost
Vessels bought 21.26m (****)		2.745 Paid to shareholders	Dividends 3.563 (*****)	4.202 div.
Office equipment 0.032	0.006	0.003	0.008	0.002
Debt reduced 2.012	1.969	1.95	1.842	0.678
Deferred charges 0.140	0	0.055	0.175	0.542
		0.718 paid to shareholders	2.751	0.052
Cash Flow 0.872/working capital	0.235	0.188	1.667	-1.649

Source: Author archives; (*) The basic element in the "source of funds" is surely *net profit, on which companies have to focus. Here the CP Company achieved* a net profit of \$33.70m (37%) (1985-1990), consisting of the difference between total revenue of \$91.45m and total expenses of \$57.75m (63%). CP achieved a net profit of \$21.05m only from its vessels¹¹ over 1985-1992 with a loss in 1992 of 2.04m. This means that CP had a serious income (of \$12.65m) from other sources except from its vessels.

The course of company's net profit is shown indirectly in **Figure 10**. The Net profit depends on the condition of the market and the level of the freight rates determined by Supply and Demand for the particular type of ships owned by the company. Shipowners can withdraw from the market if it creates losses by a provisional laying-up of company's vessels. Certain Greek-owned shipping companies when in a depression decided to sell their best ships by enjoying higher prices. This means how important is a CF, *especially the forecast one*, because illiquidity has killed many shipping companies.

¹¹\$12.65m earned from activities not concerning company's ops of the vessels like insurance claims, interest, sale of vessels, etc.

During a depression, the above funds from shareholders and from the bank equal to the amount of \$23.42m will not be available to start with and the \$7.80m expenses will have to be paid from other sources... if the company wishes to continue. Certain managers for a number of reasons—one of which is to buy vessels in the years to come, as CP—planned to gather liquidity from their beginning by deciding a high % of depreciation and of retained earnings. CP had \$11.58m depreciation on \$30.43m worth of vessels at cost (39%) in 1985-1986... Another reason is to convince the bank to pay more than the usual 60% mark. This meant for CP an amount > \$18.3m, but the company borrowed \$12.04m only, so that to avoid to... work for the bank by majority.



Source: Author; data from the above text; **Table 5**.

Figure 10. CP income, commissions and expenses, 1985-1992.

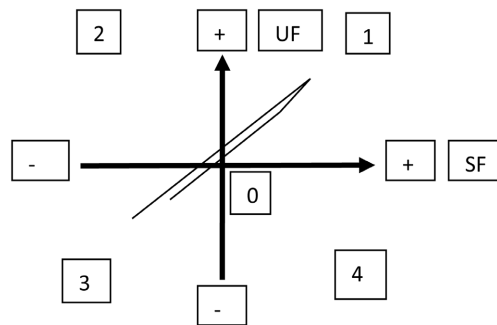
As shown, revenue was increasing in 1988-1992, perhaps also due to the high commissions paid to chartering brokers of \$6.29m as a result of the advanced age of most of company's fleet, we believe. These commissions had a 29% share on net profit... (**). The company **had to** buy a number of vessels on its start, in 1985 (07), priced at \$21.30m, financed partly by its shareholders paying a total of \$11.38m or ~53%, and \$12.04m derived from a bank loan (~57% = 110%) (***)). This means that the company borrowed 10% extra funds, i.e. \$2.12m, perhaps by planning to make some improvements on the vessels bought from the 2nd hand market.

(****) In 1989 shareholders received dividends for the first time since 31/12/1986. These amounts are considered by the author as rather high. In 1991 the company bought a number of vessels priced at \$29.20m by taking a loan of 30.60m with an extra amount of \$1.40m again. These vessels have been improved by an amount of ~\$1.50m in 1991 plus \$0.184m in 1992. The additional vessels caused an increase in company's administration expenses we believe, as shown in **Figure 10**.

Apparently, the company had a policy to expand—by 1991—reaching the value of \$53.60m (of vessels at cost) by following a generous depreciation policy (of \$14.64m accumulated: 1985-1990), by retaining profits of \$4.20m (1985-1990)

(and by delaying to pay dividends of \$10.72m) and by borrowing \$27.94m (plus the vessels sold and the insurance claims as well interest of \$6.82m).

We come now to company's phase plane of its CF (**Graph 4**).



Source: Author; data from **Table 5**.

Graph 4. The phase plane of a limit cycle of company's CF.

As shown in **Graph 4**, the company achieved a normal growth in 1988 and 1989 by visiting Q1. In 1987, (end of a shipping depression), the company visited Q3 with a fall in both its uses and sources of funds. In 1990, the company visited Q3 again, where both uses and sources of funds fell. The company failed to visit Q2 and Q4. For possible recommendations to be given to company's management following the above analysis, see **Table 4**.

11. Conclusion

The Greek shipowners were protagonists in 2018 by achieving a 53% share in EU fleet. They managed 11 ship types, but par excellence, they focused on the management of tankers and dry cargo ships by 85%. They had the 1st world position with an 18% share (in dwt) and the 2nd worldwide position in its value of ships with about \$100b in 2020 or 39% of country's GDP₂₀₂₄ behind Japan.

The years, after 2008, were not the best ones for the Greek-owned, and world shipping, due to the fact that a “world financial crisis” took place, along with a “Pandemic” and “2 local wars”... As a result, in the period 2021 to 2025, and par excellence in the period after 2008 (17 years), the Greek-owned shipping transport *was unable to grow by more than 10%* from y to y on its existing fleet (in dwt).

As shown by the level of the growth rates, presented and highlighted in Appendix 1, Greek shipowners were *unable* to win a shipping depression. Thus, recent times showed a rather sickly growth.

Forecasting the freight rates markets was and is a dream of all shipowners—Greeks and non-Greeks, but this dream never became true. In such an unpredictable, and also volatile, industry like shipping, Greeks found a win-win strategy that will be beneficial whatever course the market is going to take.

The last conclusion is to buy and build ships larger than those owned hitherto, and younger. These ships, by having a cost advantage from both the scale and the lower age, will compete with other owners in the market, provided that their tim-

ing of building and/or buying them was perfect. This strategy pre-requires to get rid of all ships smaller and older than the ones bought and built. This, however, is also an endeavor destined to be based on perfect timing.

Confirming our conclusions, the Greek shipowners in 2025-end acquired 126 dry cargo ships and sold 139 (data from Xclusiv). Greeks sold older ships of Supramax & Panamax type, aged 11 - 25 years. Greeks bought younger Handies, Ultramax, Kamsarmax, and 0 - 5 years' eco tonnage, mainly in 6 - 15 years of average age, by avoiding the newbuildings.

Moreover, trade showed positive signs, where the Chinese imports of iron ore increased by 7%, the grain trade resisted falling and the ton-miles increased, given the Russia-Ukraine war. Our **Figure 5** shows, however, the gradual fall in the orders by world shipowners for newbuildings on the existing fleet since 2008, from 55% to 13%, which is a sign of negative growth.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

- Drucker, P. (1977). *Management: Tasks, Responsibilities, Practices*. Harpers College Press.
- Goulielmos, A. M. (2017a). The Great Achievement of Greek-Owned Shipping (1946-2017) and Keynes' Animal Spirits. *Modern Economy*, 8, 1186-1210. <https://doi.org/10.4236/me.2017.810082>
- Goulielmos, A. M. (2017b). Strategies in "Shipping Business Management". *Modern Economy*, 8, 1211-1229. <https://doi.org/10.4236/me.2017.810083>
- Goulielmos, A. M. (2017c). The Myths about Forecasting, Business Cycles and Time Series, Which Prevent Economists to Forecast: With an Application to Shipping Industry. *Modern Economy*, 8, 1455-1477. <https://doi.org/10.4236/me.2017.812097>
- Goulielmos, A. M. (2018). Linear and Nonlinear Strategic Management with Applications to Shipping. *Modern Economy*, 9, 97-124.
- Goulielmos, A. M. (2021a). Why the Perfect Timing Achieved by the Managers of Shipping Companies Is So Important? *Modern Economy*, 12, 597-622. <https://doi.org/10.4236/me.2021.123031>
- Goulielmos, A. M. (2021b). When in Shipping, Do as Greeks Do: For a Successful Creation and Management of a Shipping Company Dealing with Tankers and/or Bulk Carriers. *Modern Economy*, 12, 1537-1562. <https://doi.org/10.4236/me.2021.1210078>
- Goulielmos, A. M. (2021c). Scale Economies: An Economic Blessing? Should We Build Still Larger Ships? *Modern Economy*, 12, 1296-1319. <https://doi.org/10.4236/me.2021.128068>
- Goulielmos, A. M. (2021d). Managing Shipping Companies the Way Their Pioneers Did: The Case-Studies of Vafias N Family and Aristotelis S. Onassis. *Modern Economy*, 11, 2156-2182.
- Goulielmos, A. M. (2021e). Managing Shipping Companies, the Way Their Pioneers Did: The Case-Studies of Aristotelis S. Onassis II and Angeliki Frangou. *Modern Economy*, 12, 247-273. <https://doi.org/10.4236/me.2021.121013>
- Goulielmos, A. M. (2025a). The History of the Main Business Patterns of 30 Greek-Owned Shipping Companies: What Explanations Can Be Given by Management? *Modern Econ-*

- omy*, 16, 1-21. <https://doi.org/10.4236/me.2025.161001>
- Goulielmos, A. M. (2025b). The Business Patterns of 20 Greek-Owned Shipping Companies: What Explanations Can Be Given by Management? *Modern Economy*, 16, 226-249. <https://doi.org/10.4236/me.2025.161010>
- Goulielmos, A. M. (2025c). The Business History of 22 Greek-Owned Shipping Companies: The Explanations Given by Management. *Modern Economy*, 16, 499-521. <https://doi.org/10.4236/me.2025.163024>
- Goulielmos, A. M. (2025d). The Business History of 23 Greek-Owned Shipping Companies: Evaluated by Management. *Modern Economy*, 16, 550-571. <https://doi.org/10.4236/me.2025.164026>
- Goulielmos, A. M. (2025e). The History of 13 Greek-Owned Shipping Companies, Evaluated by Management, plus a Case-Study. *Modern Economy*, 16, 780-810. <https://doi.org/10.4236/me.2025.165037>
- Goulielmos, A. M. (2025f). The Business History of 25 Greek-Owned Shipping Companies Evaluated by the Nonlinear Management plus Two Case-Studies. *Modern Economy*, 16, 976-999. <https://doi.org/10.4236/me.2025.166046>
- Goulielmos, A. M. (2025g). The Business History of Additional 10 Greek-Owned Shipping Companies Evaluated by Nonlinear Management. *Modern Economy*, 16, 1337-1359. <https://doi.org/10.4236/me.2025.168062>
- Goulielmos, A. M. (2025h). The Business History of 11 Greek-Owned Shipping Companies with an Introduction to Complexity Theory and Nonlinear Management. *Modern Economy*, 16, 1856-1881. <https://doi.org/10.4236/me.2025.1611086>
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Macmillan & Co. Ltd.
- Lorange, P. (2001). Strategic Re-Thinking in Shipping Companies. *Maritime Policy & Management*, 28, 23-32. <https://doi.org/10.1080/03088830117953>
- Priesmeyer, H. R. (1992). *Organizations and Chaos: Defining the Methods of Nonlinear Management*. Quorum Books.
- Stopford, M. (2009). *Maritime Economics* (3rd ed.). Routledge.

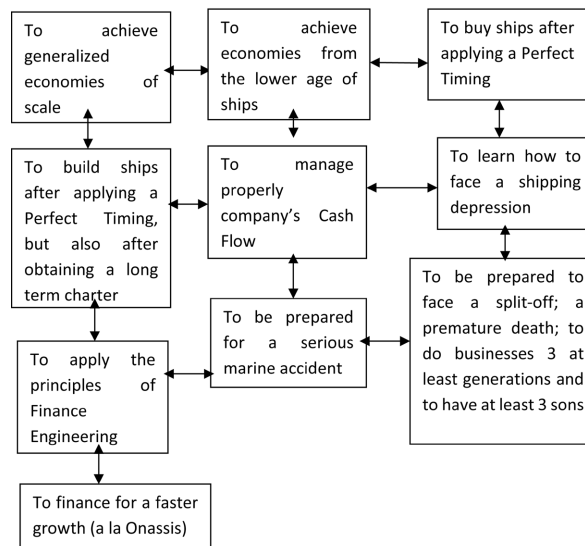
Appendix

Appendix 1. Greek-owned shipping growth rates %, from 1949-50 to 2025 (negative rates highlighted by yellow) (high growth rates highlighted by deep red).

1949-50	7.10	1951	29.72	1952	10.30	1953	18
1954	25.60	1955	15.60	1956	26.00	1957	26.00
1958	14.60	1959	7.20	1960	-1.50	1961	7.60
1962	3.10	1963	13.00	1964	10.00	1965	12.30
1966	6.20	1967	11.00	1968	9.40	1969	12.92
1970	14.80	1971	10.42	1972	14.62	1973	9.10
1974	6.43	1975	6.46	1976	4.73	1977	4.51
1978	-0.67	1979	0.84	1980	1.28	1981	1.29
1982	-2.14	1983	5.56	1984	-4.46	1985	Change
1986	-2.89	1987	4.34	1988	1.07	1989	-0.44
1990	3.00	1991	5.36	1992	6.98	1993	11.00
1994	Change	1995	8.03	1996	4.87	1997	-0.23
1998	5.23	1999	5.77	2000	8.47	2001	11.07
2002	-2.02	2003	5.71	2004	4.93	2005	0.41
2006	3.84	2007	14.23	2008	19.14	2009	1.04
2010	-0.26	2011	0.33	2012	1.80	2013	0.06
2014	9.60	2015	7.65	2016	2.67	2017	1.87
2018	3.56	2019	-0.57	2020	0.77	2021	2.98
2022	2.15	2023	-2.73	2024	1.91	2025	0.01

Source: Author; compiled from various sources mentioned at the foot of **Figure 7**.

Appendix 2. The 10 main strategies applied by Greek shipowner since 1850.



Source: Author and his 9 previous publications in modern economy.