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“Dedicated to the ones who supported me throughout this endeavour.”

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Abstract

One of the most critical issues in the worldwide shipping industry that has been in the point of interest of the ship owners is the vessels' flag selection process and the ship registry.

This research paper aims to determine the meaning of the “Flag of Convenience”, its particular characteristics and its role in the global shipping market. Specifically, it investigates whether the Flags of Convenience are more advantageous for a shipowner or not and identify their comparative advantage over National Flags.

Through a quantitative analysis, a comparison has been made between two of the most significant Flags of Convenience, the Maltese, and the Liberian flags. Firstly, the operational costs of the Containerships, the Bulk carrier vessels and the Tanker vessels of the Liberian and the Maltese flags, for the fiscal year 2018, have been analysed. Following, the individual elements of the operating expenses were recorded in order to go deeper into the analysis. More specifically, the relevant crew costs, the stores and lubricants, the repair and maintenance, the insurance and administration costs have been recorded for the three aforementioned vessel categories for the Liberian and Maltese flags for the year 2018, from data received through the Maritime Moore Index.

The results produced from the analysis of this research suggest that for the year 2018, it would be more beneficial for a shipowner whose fleet consists of Container vessels and Tanker vessels fleet to register the vessels under a Liberian flag, while for shipowners with Bulk Carrier vessels to register their vessels under the Maltese flag. These results, partly explain why shipowners end up registering their vessels under a specific flag.

1. Introduction

One of the most critical issues in the worldwide shipping industry that has been in the point of interest of shipowners is the vessels' flag selection process and the ship registry. Numerous studies have already pointed out significant issues regarding the registry policy of the different states in global maritime transportation.

There are several reasons, other than the finances of a vessel, for which a ship-owner may proceed with the selection of a specific flag (Stopford, 1988). Political, institutional, and legal reasons, to name only some of them, as well as ones imposed by insurers, environmental protectionists, bankers and others, have played as a whole or even separately, a vital role when choosing a flag either opposing or in favour of one. According to Stopford (1988), this constitutes an issue since the sixteenth century. Consequently, the above seeming contradiction is the profound significance of flying a flag. In this research, the following structure is investigated to show some preliminary results regarding the different flags and the choice of registrations of the states.

Firstly, it is mandatory for all commercial vessels sailing on the high seas to fly a National Flag. This flag represents the legal jurisdiction in which the vessel operates when it sails in international waters (Watterson, Osborne, and Grant, 2020).

The nationality of a vessel, according to the Greek Shipping Law (Goulielmos, 1998), is represented globally by a flag. More specifically, as it will be further analyzed in the following chapters, two factors are absolutely necessary for a vessel to gain Greek nationality and to be recognized as Greek: the first one is that the vessel must be owned by Greek nationals or a Greek legal body in a ratio more than fifty per cent, and the second one is that it must be registered with a Greek ship registry.

Nevertheless, an emerging phenomenon, starting already from the mid-20th Century, is that ship owners choose to sail their vessels under the so-called flags of "open registries". This imposes little, if any, nationality restrictions. Worldwide, it is estimated that around thirty states are currently operating in an open registry, mostly as a source of revenue. It is obvious that by reducing the regulatory burdens, lowering registration costs, and expediting the certification time, they try to compete with one another for international clients (Watterson, Osborne, Grant, 2020).

The phenomenon "Flag of Convenience" was born during the practice of international shipping in the middle of 1940. Panama, Malta, and Liberia, are some of the countries that began to grant their National Flag to any foreign merchant vessel in exchange for a specified payment, limiting themselves to simply registering it (Egiyan, 1990). As a result, a new situation was created where the flag, the right to which was confirmed by respective documents specifying the nationality of the ship, reflected only the lower connection of the vessel with the respective State. The aforementioned vessels are the ones known as "vessels under a Flag of Convenience". The countries that trade in their

flag, are the so-called “open registration countries” or “Flag of Convenience countries” (Egiyan, 1990).

However, many have argued and opposed this movement. The seafarers' unions, for example, were concerned about the reported low standards aboard these boats, as well as the loss of work prospects for seamen from traditional maritime countries. Governments have supported their ship-owners in certain European countries. They regarded this activity as a source of significant competition, particularly because of the almost tax-free advantages granted to owners of Flags of Convenience vessels (Osieke, 2017).

Traditional maritime states tend to relax fiscal and other regulations as the Flag of Convenience fleet grow in both absolute and relative terms. The fleet now accounts for about thirty per cent of global tonnage; in order to make tonnage registered under their flag competitive compared to the Flags of Convenience units, to participate in the main maritime markets (Metaxas, 1981).

For this reason, the non-competitive states will gradually try to alternate their registries into quasi-Flags of Convenience. These actions can easily deceive and lead to the erroneous belief that traditional flags, for example the Greek flag, is, in fact, a Flag of Convenience. It should be highlighted that, as the years pass, the worldwide fleet flying a Flag of Convenience will be expanded for as long as the application of the device constitutes a significant cost minimizing or revenue-maximizing factor to the maritime firm. Consequently, the significance of the topic under-study can only be comprehended if it is properly described in economic terms, that is, in terms of its influence on the planet's resources (Metaxas, 1981).

In the present research, the phenomenon of Flag of Convenience and its individual elements are analyzed further. More specifically, the second chapter of this research consists of the Literature Review, where significant information is provided regarding Flags of Convenience and how they have been examined in previous scientific studies. The third chapter constitutes the Methodology part where the followed steps are analytically recorded, as well as the source of information used for this analysis. The fourth chapter of this work constitutes the Analysis part. In this chapter, following a quantitative analysis, a comparison is made between the operational costs for two Flags of Convenience, the Liberian, and the Maltese, for three types of vessels: Containers, Bulk Carriers and Tankers for the fiscal year 2018. In addition, to expand into the analysis, a comparison takes place between the individual elements of the Opex which are the crew costs, the stores, the repair and maintenance, the insurance, and the administration costs for the two flags, the Liberian and the Maltese. Finally, in the last part of the analysis, a comparison is made in the Time Charter Equivalent for the two flags in 2018. The analysis leads to the realization of the desired conclusions which also constitutes the last chapter of this work.

2. Literature Review

2.1 Ship's registration

According to Mitroussi and Argyrou (2016) the vessels' registration, constitutes a significant and vital element for the maritime business policy and strategy, for at least the past six decades. Each state, according to the terms which have been settled down by the 1958 High Seas Convention, has the opportunity to decide its own conditions of registry by choosing the country under which flag it will be registered (Kasoulides, 1998).

Consequently, even though the vessel's registration initially started as a simple legal requirement, it has been evolved into a complex commercial choice. Vessel's registration affects a much broader system of stakeholders in the shipping industry, such as the national governments, port authorities, trade unions, international political and legislative bodies, and competing shipping companies, as well as national governments, port authorities, trade unions, international political and legislative bodies, and competing shipping companies (Mitroussi & Argyrou, 2016).

Several small countries, due to the absence of an international convention on the registration of merchant ships or the granting of nationality to merchant ships until 1986, were forced to build their own open-register or flag-of-convenience fleets, in order to attract substantial tonnage. However, these actions proceeded without sufficient administrative or governmental tools to monitor, control and enforce the standard requirements at sea (Metaxas, 1985).

The high importance of ship registration has been reflected in the maritime industry's philosophy and practice. An increasing variety of various ship registration options have arisen for ship owners. Several national and international laws have been created around the aspects of a vessel's register. Additionally, flag behavior has been the main issue of academic research on many different characteristics (Mitroussi & Argyrou, 2016).

Every vessel upon registration has to follow the regulations and laws of the respective flag state. Each flag consists of its special characteristics, however, regarding the regulations for environmental protection, the vessel's safety and the condition of employment are based on the regulations of the following maritime pillars: SOLAS, MARPOL, STCW and MLC, 2006 (Zhang and Drumm, 2020). The main distinction between flags has traditionally been between National Flags and open registers. Some of the other types of registers, such as the International or the so-called Secondary registers have tried to gain prominence at certain times. However, the growth of the open register system as a competing alternative to the registration of ships under National Flags has been a major concern (Mitroussi & Argyrou, 2016).

According to Ready (1998), registration is “the entry of a matter into the public records. Registration is, in most cases, not only a prerequisite but also a litmus test for, a vessel's nationality”. It is also claimed that the assignment of a vessel to a certain state and its subjection to a single authority for the purposes of, for example, safety rules, crewing, and on-board discipline is included in the “public law duties of registration”. The privilege to fly the National Flag as well as diplomatic protection and consular aid from the flag state is conferred. In the case of war, there is the right to engage in specific activities inside the flag State's territorial waters, such as coastal fishing or commerce between the flag State's ports (cabotage), to determine the application of war laws and neutrality to a vessel (Guasi & Aquilina 2018).

2.2 Types of vessel’s registration

The shipping companies have the obligation to choose a flag registration for their vessels under certain categories, each one has unique characteristics and there are numerous significant differences between them. The categorization made by the European Parliament (2001) and accepted in the shipping industry includes the following possibilities:

- Traditional national (closed) registers
- Open registers (Flags of Convenience or convenience flags)
- International or secondary registers

- Traditional national (closed) registers:

According to Manaadiar (2018), “traditional registrations are national ship registries managed by particular countries for the registration of their own ships flying their own flag, owned, operated, and staffed by nationals of that country. In a conventional register, the ship's owner must be a citizen of the nation of registration, and the ship's business must be located there as well.”

Countries such as the UK, Greece, Germany, Norway and the Netherlands can be characterized as a “national register”. Under UNCLOS Art. 91, there must be a “genuine link” between the vessel and the country of registration. In the lack of a specific definition of “genuine connection”, neither the nationality of the ship owner, the location of the shipyard where the ship was built, nor the nationality of the crew can determine the country of registration (Zhang & Drumm, 2020).

- Traditional open registers:

The open registers allow the registration of ships, regardless of the nationality of the owner. A registry is called “open” if more than ninety per cent of its fleet is not tied to

the country in question. Countries that commonly use this practice are Panama, Liberia or Cyprus (Zhang & Drumm, 2020).

In contrast to the national-flags registries, the open registries provide ship-owners with much more operating flexibility and lower operating costs. Specifically, open registers provide favourable operating conditions, including firstly the ability to move vessels in and out at will, secondly, no income tax and no crew requirements are imposed and finally, ships can be built or repaired anywhere in the world. Moreover, there are no regulatory safety inspections of ships since the classification society and insurance firms are responsible for their safety (Stopford, 2009).

More succinctly, during the United Nations Conference on the Registration of Ships (1984), the concept of “open registration of ships” was defined as a *Country of open registration* appears to mean any State that does not necessitate its citizens to be the owners or charterers of a vessel without a crew or otherwise, either directly or through share participation in the capital of any joint-stock society. This highlights one of the most important characteristics of the vessel’s open registration which is the complete absence of the right of ownership to the vessel and, consequently, the absence of any control over and responsibility for the operation of ships on the part of the flag State (Egiyan, 1990).

The “open registers” firstly appeared in the 1920s when Panama opened its ship register to U.S. owned ships (Zhang & Drumm, 2020). U.S. owners were able to circumvent the prohibition laws in America for their passenger ships and their profits were exempt from taxation in Panama (Winchester, 2002).

After World War II, other “open registers” emerged, for example in Liberia, Malta and Cyprus. The number of foreign-flagged ships increased steadily between 1950 and 1972 (Zhang & Drumm, 2020).

Table 2.1 The top ten registrations with more DWT sailing under their flag than the flag state owns

Flag	Share of global fleet by DWT sailing under flag (%)	Share of global fleet by DWT owned by flag state (%)	Difference in share of fleet vs ownership by DWT (%)
Panama	18.4	0.09	18.31
Liberia	11.66	0.01	11.65
Marshall Islands	11.62	0.08	11.54
Malta	5.43	0.13	5.30

Flag	Share of global fleet by DWT sailing under flag (%)	Share of global fleet by DWT owned by flag state (%)	Difference in share of fleet vs ownership by DWT (%)
Hong Kong	9.32	5.04	4.28
Bahamas	4.29	0.05	4.24
Cyprus	1.81	0.55	1.26
Singapore	6.67	5.59	1.08
Portugal	0.82	0.05	0.77
Antigua Barbuda	0.54	0.02	0.52
Total	70.56	11.61	58.95

Source: “Maritime Profiles,” United Nations Conference on Trade and Development, 2017, viewer 27 September 2019, <https://unctadstat.unctad.org/CountryProfile/en-GB/index.html>.

- International or secondary registers:

The international registries, which are also known as “offshore registries” or “second registries”, has been established by some of the traditional maritime countries such as Denmark, Norway or Germany in the 1980s, in an attempt to limit the ever-growing movement of the open registries, which virtually have no restrictions, by imposing certain requirements and by offering economic incentives (Zhang & Drumm, 2020). Second registries have also received attention from many researchers. Goulielmos (1998), proposed in his research a new Second Register for increasing the competitiveness of Greek ships, but not only as a flag issue but also as a management issue. Management must train the crew to achieve higher productivity on board, as this has been the competitive advantage of Greek Shipping in the past.

The registration procedure, according to Alexopoulou and Fournaraki (2015) has properties derived from both public and private international law:

Following the law of the land,

- 1) associating the ship with a particular state and putting it under that State's jurisdiction for maritime safety, environmental protection, and manning regulations with appropriate manning regulations people, etc.
- 2) establishment of the right to raise the state flag.
- 3) protection of diplomats and ships, as well as consular assistance.

4) granting of additional rights, such as access cargo, research and development, and territorial fishing inland waters, coastal trade, and so on, and

5) in times of war, determining the application of relevant rules and/or the ship's neutrality.

According to private law,

1) the registered (registered owner's) title is protected, and

2) the securities of other people who have security interests on board, such as mortgages, are protected.

2.3 Genuine Link

Each vessel's registration and nationality is symbolized by the National Flag it flies. International law examines flag State cases to ensure compliance with the rules governing the exercise of the right to freedom of the seas (Alexopoulou & Fournaraki 2015). According to Article 5(1) of the Geneva Convention on the High Seas (1958), there must be a genuine link between the State and the ship. The State must have jurisdiction and control over administrative, technical, and social matters on board ships flying its flag (Alexopoulou & Fournaraki 2015).

Based on the United Nations Convention (1986) regarding the Registration of Ships, the most important criteria for establishing a genuine link are first the national participation in the vessel's ownership, the participation in the vessel's crew, the presence of the ship owning company on the territory of the state of registration, and additionally the national participation in the management of suckers (Egygan, 1990). For the flag state to provide effective jurisdiction and control over vessels, specified conditions must be met, which are nothing but the vital aspects of a genuine link that allows the flag state to exercise jurisdiction and control. As a result, the essence of the genuine link principle is the establishment of conditions for ship registration that stipulates the existence of a close legal link between the ship and the flag state in economic, technical, administrative, and social matters, allowing that state to effectively exercise its jurisdiction and control in the enumerated domains (Egygan, 1988).

The nationality of the vessels and the genuine link between the vessel and the flag state have been examined by several researchers. Gausi and Aquilina (2018) also recorded the consequences of granting the nationality of the vessel to a foreign flag State, according to the Convention's articles. First, the vessel must abide by "the conditions for the grant of its nationality to ships' which conditions are laid down by the State Party" (Article 91(1)). Secondly, the flag state has the right to regulate the conditions

“for the registration of ships in its territory” (Article 91(1)). The flag state can further impose those conditions it deems fit upon a ship to be able to enjoy “the right to fly its flag” (Article 91(1)) and it also “shall issue to ships to which it has granted the right to fly its flag documents to that effect” (Article 91(2)). Additionally, it is mentioned that a vessel can maintain “its nationality although it has become a pirate ship” (Article 104). Each country’s law can determine the retention or loss of nationality (Article 104). A government that has wrongly detained a ship on suspicion of piracy is responsible to “the State whose nationality the vessel has for any loss or damage caused by the seizure” (Article 106). If it is considered that “the ship is without nationality”, a warship may use its power of visitation (Article 110(1)(d)). It also has the right of visit where “the ship is, in actuality, of the same nationality as the warship, although flying a foreign flag or refusing to reveal its flag” (Article 110(1)(e)). It can also have “external markings differentiating such ships of its country” on it (Article 29).

Continuing to follow Egygan’s (1988) reasoning, it should be first pointed out that a genuine link cannot be limited to the simple fact of a ship's registration, which is insufficient for the flag state to exercise effective control and jurisdiction over ships. Secondly, the author also mentions that contrary to the views of representatives of Flags of Convenience countries and countries that use their services, the right of states to set conditions for the registration of their ships should be viewed as a duty rather than a right. Thirdly, those conditions must make sure that there is a genuine, rather than a fake, link between the vessel and the state of registration. Only, in that case, a state can with the aforementioned powers, effectively exercise jurisdiction and control over its ships, ensuring due legal order at sea.

As it is concluded from the above, it is clear why UNCTAD concluded that it was totally necessary to regulate ship registration. According to a resolution passed at a UNCTAD Committee on Shipping special session in 1981, it was critical to draft the basic principles of ship registration, which would include first and foremost the management of ship owning companies and ships, secondly the identification and accountability of shipowners and operators of vessels, and thirdly the equity participation of the state of registration (Egiyan, 1988).

2.4 Flag of Convenience (FOC)

According to Watterson, Osborne and Grant (2020) “in the shipping world, Flags of Convenience is one of the most significant phenomenon of our time”. A Flag of Convenience is a legal identity for a vessel, oil drilling platform, marine launching ramp, or other offshore ocean property that may be readily registered for a price in a jurisdiction where it does not belong to receive economic or tax benefits (van Fosen, 2016). According to Egiyan (1990) and Metaxas (1974), the Flag of Convenience is a National Flag of countries where the shipowners register their vessels to gain financial benefits and to avoid the obligations and conditions of navigation they would receive if their vessels were registered in their own country. Moreover, a vessel's flag is one of

the most important issues in shipping, as it determines most of the taxation's laws, safety and licensing, inspection, working rules and management. However, several times conflicts with port state laws may exist, which sometimes take precedence (van Fosen, 2016). Maritime flags reflect this relationship; when a vessel enters a foreign port, it flies both the port state's commercial flag and its own.

Finally, a ship is considered to be “flying a Flag of Convenience” if it is owned by virtue of title by the legal subjects of one State but is registered in another for the purpose of obtaining an economic or legal advantage (Egiyan, 1990).

Examining the research of Metaxas (1974) and Egiyan (1990), they have both pointed out the common characteristics of the Flags of Convenience as mentioned in Rochdale's report:

- i. The State in which the flag is registered permits the ownership and control of its merchant's vessels by non-citizens.
- ii. One of the most important characteristics is the easy access to the register and the fact that a ship can normally be registered at a consulate abroad. Additionally, there are no restrictions on transferring from the register at the owner's option.
- iii. The only charged fees are generally a registry fee and a yearly fee depending on tonnage, and there may also be a guarantee or accepted agreement of future tax exemption.
- iv. The registered state is a small power that, in no foreseeable circumstances, has a national need for all registered shipping, but the revenue from very small fees on a large tonnage may have a significant effect on its national income and balance of payments.
- v. The selection of foreigners to staff the vessels' crew is permitted without any restriction.
- vi. The State in which the ship is registered does not have the authority or the administrative machinery to enforce government in the right way or the international regulations. Moreover, the country does not have the desire or ability to control the companies themselves.

The above features remain till now, the principal features of the open registration (Egiyan, 1990).

Table 2.2 List of Flag of Convenience States

Antigua and Barbuda	Liberia
Bahamas	Malta
Barbados	Madeira

Belize	Marshall Islands (USA)
Bermuda (UK)	Mauritius
Bolivia	Moldova
Cambodia	Mongolia
Cayman Islands	Myanmar
Comoros	Netherlands Antilles
Cyprus	North Korea
Equatorial Guinea	Panama
Faroe Islands (FAS)	Sao Tome and Príncipe
French International Ship Register (FIS)	St Vincent
German International Ship Register (GIS)	Sri Lanka
Georgia	Tonga
Gibraltar (UK)	Vanuatu
Honduras	
Jamaica	
Lebanon	

Source: The International Transport Workers' Federation.

2.5 From an economic perspective

In recent decades, it is obvious that the maritime system of a National Flag has been replaced to a great extent from the Flags of Convenience's shipping system, which encourages global capitalist growth on a laissez-faire basis (van Fossen, 2016).

In general, there are many Soviet reports which reveal the economic essence of open vessels' registration based on a detailed analysis. A vessel's registration under a FOC is a form of capital export, or the placement of capital abroad and the flow of increased value to the real owner's country (Egiyan, 1990). FOCs limit national governments' ability to tax, own, and regulate property, control competition, set wage rates and working conditions, and protect the environment (van Fossen, 2016). A ship's registration under a "convenience" flag is more than a formal act that changes the ship's national affiliation. Due to the fact that the vast majority of maritime transit is commercial by nature, vessel owners and operators are under pressure to cut costs, including flagging (Watterson, Osborne, Grant, 2020).

Three dimensions must be considered when developing definitions that allow us to assess the economic impact of the Flag of Convenience phenomenon. The first one is the company's motivation to make use of the device, the second is the political and

economic realities that led to the device's creation and the third is the changing of the institution's own nature (Metaxas, 1981).

Following such registration, the shipowner follows the typical procedure of the Flag of Convenience state which means that the national taxation and the level of earnings of the crew, the social insurance, and technical requirements for the fleet (which means the lowest taxes), are practically non-existent (Egiyan,1990). Cost savings are also achieved by allowing foreign crews to work with much lower wages in contrast with the National Flags, enforcing following lower standards regarding the vessel's safety to reduce maintenance and upkeep costs, and minimizing registration fees and local tax liabilities, all of which reduce net operating expenditures (Watterson, Osborne, Grant, 2020). Additionally, according to Ready (1998), the economic factors influencing the vessel's flag selection process by the shipowner is the cost of taxes on earnings and the yearly taxes, operational costs, the initial registration fees, and capital market accessing impacts reduced. The author also discusses the following considerations when deciding between open registries: ownership limitations, government stability, trade limits, labor issues, crew nationality restrictions, manning and certification, prices, accessibility, and reputation are all factors to consider. Hartley (1998), in his research, proposed a taxonomy of shipping registry selection criteria, which includes six major factors such as the control and the operation, the financing and taxation, fees, and maritime offices.

A 2010 survey found that United States vessels sailing under a FOC paid only thirty-seven per cent (37%) of the daily average operating costs of an equivalent vessel that sails under the closed United States' flag, according to Watterson et al. (2020). As a result, sailing under the flag of an open registry has repeatedly been related to cheaper freight costs in studies.

Moreover, the cost-effectiveness of sailing under the flag of an open registry provides unique advantages for sanctions evasion. Sanctioned companies typically trade at lower margins in international markets to compensate for the risk buyers/sellers take when trading illegally - arrest, seizure of cargo, designation by sanctioning authorities, etc. (Watterson, Osborne, Grant, 2020).

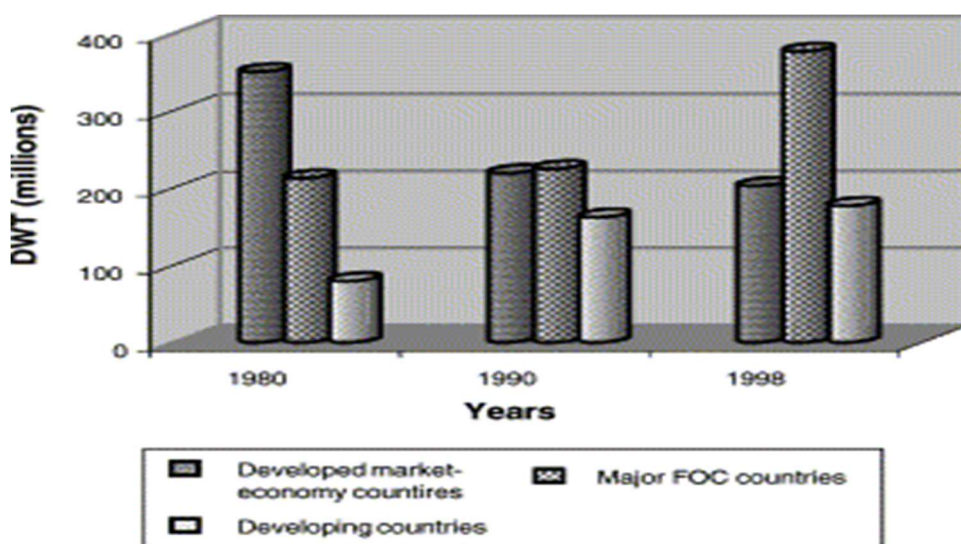
More constraints influence the shipowner's registry selecting process. The international regulations and the commercial issues, operational requirements, stakeholder expectations, to mention only some of them. Assessment systems for shipping registry selection can be constructed consistently following a thorough study of the major impact variables influencing shipping registry selection decisions and ship owners' preferences (Kandakoglu, Celik, Angun, 2009).

2.6 Flagging Out

2.6.1 Flagging Out Evolution under a Worldwide Perspective

The Flag of Convenience institution was first used in 1922 when the United States took the initiative to allow American ships to be registered in Panama. Nowadays, the majority of the world's merchant fleet is registered under Flags of Convenience due to fact that the crewing costs are lower, the great tax exemptions and minimal bureaucracy. At the beginning of the fiscal year 2000, approximately 12.996 merchant ships (in total 442.1 million dwt) or 61,8 per cent of the total world's tonnage, were registered in flags other than their National Flag (Haralambides & Yang, 2003).

Figure 2.1. The world's fleet division into categories based on registration nations.



Source – “ Review of Maritime Transport -1999 ”

According to Haralambides and Yang (2003), since 1980, the proportion of tonnage beneficially owned by developing nations has risen gradually, reaching one-third of Flags of Convenience cargo in 1998. The major developing maritime countries, according to UNCTAD, and territories, such as China and Hong Kong, the Republic of Korea and Saudi Arabia, the UAE, as well as other countries, have registered their vessels in a high percentage under foreign flags.

2.6.2 General Information for the flagging-out

On the industry side, the term flagging-out (leakage from the National Flag) is frequently used, which means that a shipowner who disagrees with his/her state's maritime policy, particularly in matters of taxes and other charges imposed on his/her

ships, authorizes the registration of his/her ships to be controlled by foreigners (Alexopoulou & Fournaraki, 2015). Flagging out is the act of cancelling or terminating a vessel's National Flag registration and re-registering it under a FOC (Goulielmos, 1998). According to Haralambides (1997) flagging out is a financial conscious choice by certain shipowners to align operating expenses with those in competitive third nations.

This is purely a commercial reason for removing their ships from the national register. The Organization for Economic Cooperation and Development used some criteria established by the British Commission for Research on Merchant Shipping to distinguish the Flag of Convenience from tax havens (1970). The criteria are presented below: 1) foreigners are permitted to own and/or control ships registered in the state of registration, 2) getting into the register is a breeze, 3) the income taxes on vessels are collected either locally or are extremely low, 4) the registration state is not a traditional maritime flag and has no national requirement for registered fleets, 5) foreigners are permitted to crew ships without restriction, 6) the State of registration shall not have the authority or power to effectively enforce any national or international rules, nor shall it have the desire or authority to control maritime undertakings (Alexopoulou & Fournaraki, 2015).

Giannopoulos (1988) argued that resource allocation between the National Flags and the Flag of Convenience (open registries) is influenced by differences in the effectiveness of productive activities and the true cost of the crew faced by shipowners. It is of high importance to point out that, according to Goulielmos (1998) the flagging out may also result in the relocation of management activities for vessels that have been flagged out. Many researchers have connected flagging out with the Flag of Convenience. However, the second registers should not be excluded. The literature review also shows that safety issues, environmental difficulties and other shareholders' interests have put external pressure on both shipping corporations as decision-makers and shipping registry authorities as alternatives, in addition to the strategic reasons in ship registration from the standpoint of ship owners (Kandaglu, Celik and Akgun, 2009).

2.6.3 Reasons for Flagging out

As mentioned in Zhang and Drumm research (2020), several parameters influence the flag selection process. These parameters are the vessel's type and the trade pattern, as well as the individual business strategies. According to Celik and Topcu (2013), three basic factors influence the decision-making process:

- The first one is the social factor which is related to the different crew requirements and the availability of qualified personnel, safety standards and requirements.
- The second factor is political concerns, which include the flag state's reputation and bureaucracy, as well as environmental consciousness.

- Thirdly, economic factors are equally significant since those are the main force in the decision-making process. These factors include the differences in tax, financial, and manning expenditures.

From the shipowners' point of view, the open registry system should significantly reduce operating and labor costs with the following main characteristics (DeSombre, 2006):

1. It permits foreign nationals to possess or operate ships under their flag
2. The processes for registering and deregistering are basic and straightforward
3. Shipping profits are taxed at low or zero rates
4. The tonnage tax and registration costs are also extremely inexpensive
5. It is permitted for vessels to be manned by seafarers of any nationality
6. Regulations governing workplace safety and labor standards are not strict
7. The flag state lacks the resources and motivation to check ships carrying its flag
8. The host government is prohibited from using the registered tonnage for its own purposes

In terms of ship's characteristics, factors such as age, size, type of trade, vessel type, or geographical area of operation, may influence the flagging-out decision (Bergantino and Marlow, 2006). It has been observed that few companies with the same nationality decide to flag out and the decision of flagging out may have an impact on the entire or a portion of the same shipping company's fleet.

Bergantino and Marlow (2006) pointed out that, until recently, flagging-out appeared to be relegated to sectors with low freight rates, such as bulk carriers, and low-quality standards, but as time passes this phenomenon seems to be changing. Containers on the other side, are at the beginning of making up a sizable and growing proportion of flagged-out fleets, highlighting the importance of understanding the motivations at the heart of the decision-making process. Moreover, while acknowledging that a vessel is a highly mobile asset, it is possible to have a serious impact on the flag's selection process even in the area of trade, if identifiable.

Systematic studies methodologies and models were proposed for preventing the flagging-out problem in traditional maritime countries such as Greece (Goulielmos, 1998), Germany (Zhang and Drumm, 2020) and China (Haralambides and Yang, 2003).

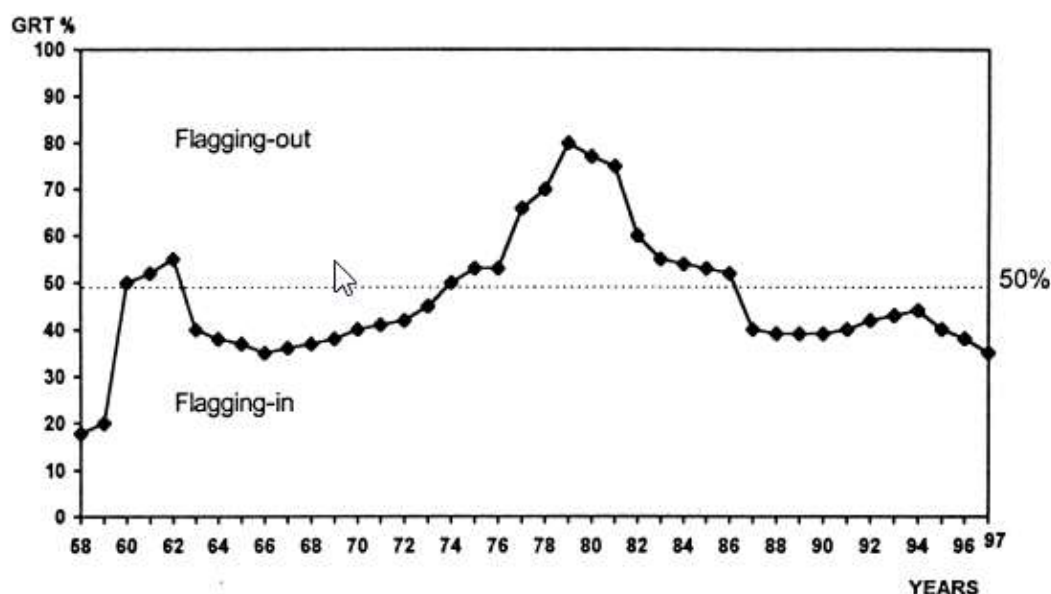
2.6.4 Greek Flagging – Out

According to Goulielmos (1998), the Greek flag was never flown with Greeks controlling/owning 100 per cent of the tonnage (GRT or later GT). The flag achieved its greatest success in 1980 when it represented nearly eighty per cent of all Greek-owned tonnage. According to the author, before and after the war, the most preferred flags by Greek shipowners were the Liberian and Panamanian ones which accounted for roughly forty-five per cent of the Greek fleet, forty-three per cent of which was

flying a Panamanian flag. The most important reason for flagging-out during the period 1949–1954, was that shipowners' decision-making process was primarily affected by the Greek State's inaccurate involvement in industry affairs. Goulielmos (2018) also outlines that, if a sector, such as Greek-owned, is to be successful, it must be adaptive and flexible to changing market conditions.

The Greek flag was regarded as a quasi-flag, rather than a convenience flag. Metaxas (1978) contended that a vessel that is registered under a Greek flag (implying also under law 2687), is owned by a foreign company and is regarded as “foreign capital” by the Greek State.

Figure 2.2 Greek Flag Flagging in & out for the period 1957–1997.



Source: M. Goulielmos “Transport Policy 5 (1998) 115–125”

There are different reasons for flagging in which is more difficult to understand than these of flagging out. Flagging out is stimulated and accelerated by low freight rates in contrast to daily costs under the National Flag, creating a situation in which the ship's viability is jeopardized (Goulielmos, 1998). Regarding Greece, the flagging in phenomenon has occurred firstly due to the unpredictable political situation in “open registries” being used by Greek ship owners such as Cyprus, Malta, Liberia, and others, secondly the favorable political situation in Greece, in other words, the political stability, and thirdly the several embargoes that showed up in the world in countries like China, Cuba, Persian Gulf and others, which behaved positively or sometimes negatively for the national registries (Goulielmos, 1997). The operating cost (crew costs, stores & lubricants, insurance etc) of the vessel in relation to the freight rates prevailing in the market, cause Greek flagging-out, which is referred to as “Greek vessel competitiveness”. According to Goulielmos (1996), the competitiveness of a Greek

vessel is equal to the cost of wages for a Greek crew (number of Greeks, level of their wages).

Greeks decided to flag out and use the “Flag of Convenience” for several reasons. According to Georgantopoulos (1980), both owners and financial institutions were seeking to decrease risks connected with political instability and labor union activity in a turbulent postwar political environment. Furthermore, a relatively high manning cost among European fleets in the 1950s had contributed further to this tendency. Nonetheless, until the middle 1970s, many Greek-owned vessels continued to swell the ranks of Flag of Convenience (Thanopoulou, 1998). Greek-owned ships, using these registries not to reclaim their lost comparative advantage, but to achieve a cost differential that allowed them to gain a larger profit margin, that Greek flags did not offer.

Two of the most important open registries that Greek ship-owners register their vessels are Liberia and Panama. According to Article 2 of the Liberian Maritime Code of 1948, foreigners can gain the right to fly a Liberian Flag. The procedure for registering ships was later tightened (Egiyan, 1990). The Liberian code of laws in 1956 (amended in 1986), contains a severe clause mentioning that vessels with a registered tonnage exceeding 1.600 may only be registered in Liberia if their owners are Liberian nationals or firms and corporations founded and registered in Liberia. The law, however, makes no requirements for Liberian citizens to own stock in such shipping companies. As a result, compliance with the “genuine link” element, for example, as a prerequisite of awarding nationality to a vessel, national involvement in vessel’s ownership or share capital in maritime firms is not needed. The aforementioned nations' legislation does not impose any strict criteria for manning the ships by their nationals. Particularly in Liberia, there are no citizenship restrictions for the ship's crew (Egiyan, 1990).

The access to a Flag of Convenience is simple. Regarding the Panamanian registry, for example, the relevant registration fee is based only on tonnage, there is no other charge and non-nationals are welcome to crew ships. The advantages for a ship-owner include firstly avoiding taxation in the nation where they are based and cheaper crewing expenses, anonymity, especially when it comes to the ship owning company's capital (Piniella, Alcaide and Diaz, 2017). Panamanian ships' revenues from international maritime commerce are not subject to income tax, and taxes and levies are solely paid based on tonnage under a highly competitive tariff regime. A ship owner may utilize a crew of any nationality under international labor rules (Piniella, Alcaide and Diaz, 2017). As a result, many shipowners throughout the world found the Panamanian government's attempts to create a tax haven and a no-questions-asked system intriguing.

Onassis was the first Greek ship-owner who discovered the advantages of being registered under a Panamanian flag. Between the years 1932 - 1941, twenty-four (24) Greek vessels abandoned the Greek, British and Dutch flags to be registered under the Panamanian one (Llacer, 2003).

As discussed above, the benefits of the “freedom” of using foreign labor and low taxes have been critical pillars for the choice of a flag. Moreover, the crew costs, which will be analyzed in the following sections, are some of the most significant components for the shipping industry, accounting for a significant portion of total operating costs. However, the situation is currently changing, and safety concerns are and will continue to be the cornerstone of registers soon (Llacer, 2003).

The literature review indicates that several reasons are influencing the decision-making process of the shipowner regarding the choice of flag. The Flags of Convenience have prevailed, in many cases, over the traditional flag. The following sections of this paper present an analytical decision-making process, showing how the ship-owner proceeds with the flag selection.

3. Methodology

3.1 Methodology and data

This research deep-dives into the selection of Flags of Convenience by shipowners. More specifically it analyzes the most significant definitions and comparisons regarding the Flag of Convenience and how this concept influences shipowners’ decision on which flag they will register their vessels on.

In this work a quantitative methodology has been followed. Using the quantitative method, it has been possible to collect and analyze numerical data and to have a direct comparison of results, which is the subject of this work.

The data of this research is based on the Moore Maritime Index. Moore Maritime Index (MMI) offers unique data and insightful perspectives on the maritime sector. This platform is comprehensive, unique, and practical, and it is meant to give a wide range of maritime-related information. It offers limitless access to unshared features, charts, and the ability to customize the platform's content using a variety of filters to focus on specific information. MMI includes a statistics and analytics solution for over 1.500 vessels’ operational expenses and revenues.

Data is gathered from shipowning businesses' financial accounts audited by Moore Global member firms, as well as from reliable independent submissions from around the world. It also includes data on important marine sectors such as dry bulk, tanker, container, and specialized boats like gas carriers (LNG & LPG). Thanks to its unique design, users may gain insights into two key strategic elements that impact performance: income and operational expenditures. The following are the many types of shipping operational costs:

- Crew Costs which include the subcategories of Crew Wages, Provisions, Crew Other

- Stores including the Lubricants, Stores other
- R&M which include the Spares, Repairs and Maintenance
- Insurance which consists of H&M and other marine insurance, P&I insurance
- Administration which includes the Registration Costs, Management fees, Sundry Expenses

Relevant information regarding the vessel's dry-docking/special survey costs and net income are also provided by the MMI.

Each expense and income category's average value is presented in the Maritime Moore Index. MMI also provides numerous statistical indicators, such as lower and upper limits, median and average values, standard deviation, and coefficient of variation, all of which are intended to offer a more scientific interpretation of the data. Except for dry-docking readings, all MMI values are daily, and all figures are shown in US dollars.

As indicated above, Moore Maritime Index significant information will be selected to examine the flag decision-making process of a shipowner based on the different vessel's types and the different fiscal years. The methodology of this paper will be developed as per below.

A detailed reference will be made on the operational expenses and what it includes in general in this maritime category. Continuing the analysis, firstly the Operational Expenses for the Containerships, the Bulk Carriers, and the Tanker vessels, between the two flags the Liberian and the flag of Malta for the fiscal year of 2018 are recorded.

After reviewing the existing information on all vessel types, it has been possible to retrieve sufficient information and extract correct statistical data from the MMI only for the aforementioned vessel types.

In addition, as mentioned in the previous section, the flags included in the following analysis are the Liberian and the Maltese. For the same reason, the selection of the flags was based on the statistical data of the MMI so that there is as much accuracy as possible in the results.

At this point, it should be highlighted, that no data used in this research is perfect. The Moore Maritime Index data is based on a certain number of independent vessel submissions and not on a universal level. The analysis is based on the average Time Charter Equivalent and Operational expenses for the above types of vessels flying certain flags. After logging in to the Maritime Moore Index account, the certain vessels category was selected (Containerships, Bulk Carriers or Tankers) and the filters used were the selection of the fiscal year 2018 and the flag selection filter. The type of vessel filter (handysize, handymax, panama etc.), the built year filter and the filter of the country where the vessel was built have not been used in this paper.

First, for the operational expenses section, the number of independent vessels for the three types of vessels for the Maltese and Liberian flag is recorded, as indicated on the Maritime Moore Index. For better understanding, a data visualization table has been created in Excel, recording the corresponding number of vessels for each type of vessel and flag respectively. In the first column, the reader may find the vessel's type, in the second column the number of vessels of Malta in 2018, and in the third column the number of vessels for the flag of Liberia, as indicated by the Maritime Moore Index. Based on this table, the comparison between the relevant numbers will be easier. After that, in the same section, the average daily operating cost for the Containers, the Bulk Carriers and the Tanker vessels separately for each flag Maltese and Liberian are recorded.

For the differences between the operational expenses to be further analyzed and comprehended, the following subcategories of the Operational expenses have been recorded and compared: the crew costs, the stores and lubricants, the repair and maintenance, the insurance, and the administration costs.

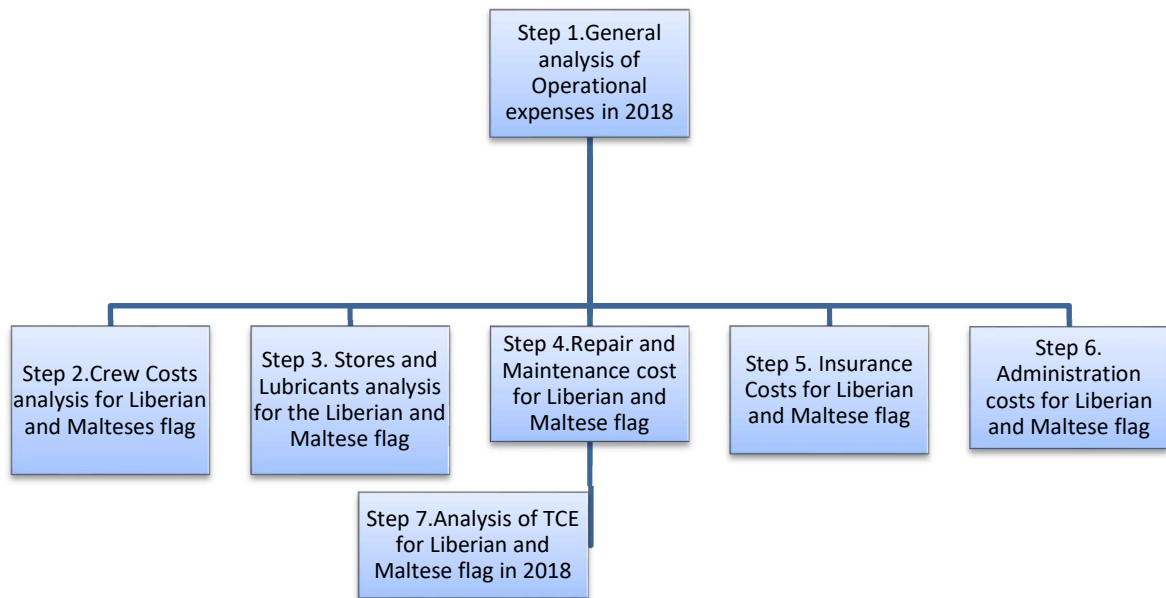
In the Crew costs section, the daily average crew cost for the three types of vessels for both flags are recorded. The process of collection of the information from the Maritime Moore Index regarding the Crew costs is the following. First, the specific vessels category (ex. Containership), the specific flag and the fiscal year are analyzed. Following, a table showing all the subcategories of the Operational Expenses on a daily basis is displayed on the same page of the MMI's site. By following this data collection process, a comparison took place between the relevant costs of the Maltese and the Liberian flags which will be accompanied by a scheme created in an Excel file. At this stage, the total percentage of the daily crew costs for each vessel's category which is included in the daily Operational Expenses is also recorded, together with the difference of the crew costs between the Liberian and Maltese flags. The previously mentioned percentages are calculated by simple mathematical operations.

Based on the data received from the analysis, two blueprints have been created. The blueprints show the operational cost structures for the Maltese and the Liberian flag respectively for the year 2018. More specifically it shows how the Crew, the Stores and Lubricant, the Repair and Maintenance, the Insurance and the Administration costs are distributed.

More analytically, in the next section, the daily average stores' and lubricants' costs for the fiscal year 2018 for both Liberian and Maltese flags are recorded. This information is received again from the Maritime Moore Index by choosing the vessel's type, the fiscal year and the relevant flags. In the relevant table, the stores' costs are displayed next to the crew costs. Furthermore, the percentage difference between the stores and lubricants cost for the two flags for the three vessel types is recorded. Moreover, the space that these costs take up in the total operational expenses compared to the crew costs is portrayed. Finally, an excel table showing the daily average stores' and lubricants' costs by vessel type for the year 2018 has also been created.

Following the same data entry method and the same mathematical methods, the next sections, namely the repair and maintenance, the insurance, and the administration costs, are analyzed.

Figure 3.1 Steps followed in the analysis



In the last section of the analysis, the Time Charter Equivalent is recorded. After recording some significant information regarding this term, the analysis that follows is based on the same method as the one used on the part of the operational costs. The data selection process which is followed for the TCE in the Maritime Moore Index is first of all the selection of vessel's type, secondly the flag selection and finally the fiscal year. After choosing the Updated Report option, the average daily Operational Expenses and the Time Charter Equivalent appear. This process is followed for all types of vessels for both flags.

At this stage, the relevant TCE for the Containers, the Bulk Carriers and the Tanker vessels in 2018 for both Liberian and Maltese flag is mentioned and the comparison between the TCE and the relevant Operational expenses is recorded. Furthermore, an Excel table showing the daily average TCE by vessel type in 2018 has also been created. Additionally, two figures which show the distribution of the TCE and the OpEx for the Liberian and Maltese flag for the three types of vessels have been created. This helps to get a visual picture of the percentages and the differences of the mentioned terms.

The above steps are included in the following analysis, helping to receive a clear picture of the expenses and the net income for the ship owners who choose to fly the specific Flag of Convenience in 2018. These data recordings play a significant role in the information collection and help to draw the desired conclusions. The desired conclusion from this analysis is to make clear in which of the two flags it is more beneficial for a ship owner to register his/her vessel for the fiscal year 2018 based on the operational expenses and the Time Charter Equivalent.

4. Analysis

4.1 Introduction

There are three major types of vessel costs: operating costs, voyage costs, and capital costs. Voyage (fuel and port charges) and capital costs for foreign-trading ships are generally unaffected by flag or registry because all must use the same ports and the vessels are purchased on the international market. Consequently, this analysis focuses on operating costs, or the costs associated with the ship's day-to-day operations. In the maritime industry, operating costs are typically defined as crew, stores and lubricants, maintenance and repair, insurance costs, and overhead costs (Stopford, 2009):

Operating Costs = Crew + Store/Lubes + Maintenance & Repair + Insurance + Overhead Costs

The last section of the analysis will focus on the Time Charter Equivalent between the three types of vessels (Containerships, Bulk Carriers and Tanker vessels). In calculating time charter equivalent yields, the annual operating income minus the direct voyage cost is divided by the total voyage duration, where first of all the operating income equals the annual hire/freight/pool income plus any ballast bonus and secondly the direct voyage cost equals the cost of bunkers consumed plus any other relevant expenses, such as commissions, port expenses, canal dues, and so on; and total voyage duration equals total voyage duration plus any ballast bonus if any.

4.2 Operating costs

For 2018, the Moore Maritime Index received results for the Operating Costs from 19 independent vessel submissions for the Containerships with Maltese flag and from 138 vessels for the Bulk Carriers vessels with Maltese flag. Respectively, for the Tanker vessels, the MMI received results from 83 independent vessels for the fiscal year 2018.

Regarding the Liberian flag, the Maritime Moore Index provides information for 22 independent vessels for the fiscal year 2018 for the Containerships and regarding the Bulk Carriers, the provided information is derived from 155 vessels. Additionally, for the year 2018, the MMI provided information from 207 vessels with the Liberian flag.

A breakdown for reporting by vessel type and calendar year for the Liberian and Maltese flag is provided below:

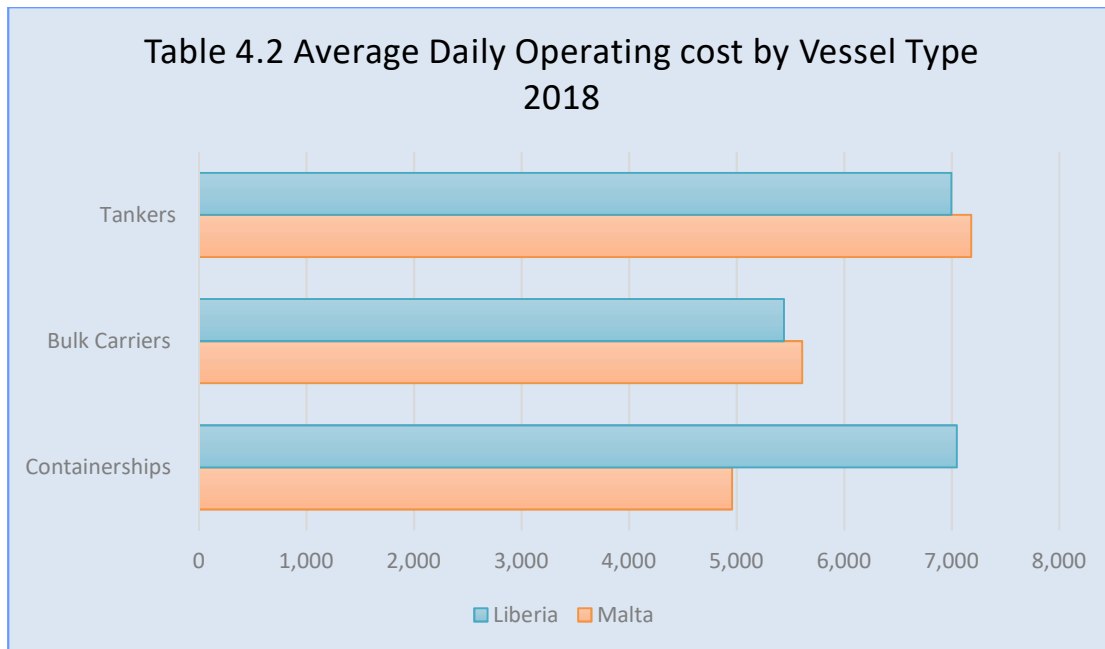
Table 4.1

	Malta	Liberia
	Fiscal Year	Fiscal Year
Vessel Type	2018	2018
Containership	19	22
Bulk Carrier	138	155
Tankers	83	207
Total	240	384

The following analysis focuses on the differences in the Opex between the different types of vessels for the fiscal year 2018.

The differences in operating costs between Maltese and Liberian among these categories will be determined primarily by ship type, age, trade route, and labor agreements. Furthermore, regardless of the flag, the physical condition of the vessel can have a significant impact on the overall operating cost. Within a fleet of similarly sized ships, for example, as a vessel ages, its operating costs rise in comparison to newer vessels.

Based on the cost data provided by the Moore Maritime Index by carriers of Containership vessels for 2018, the average daily operating for a Maltese flag vessel was \$4,957 while for the Liberian Flag it was \$7,047. By comparison, the daily average operating expenses for the Bulk Carriers with a Maltese flag was \$5,610 while for the Liberian Flag was \$5,441. For the Tanker vessels with Maltese flag, the approximate daily Opex was \$7,181 and for Tankers with Liberian flag for the year 2018 was \$6,996.



As shown in Figure 1, the operational expenses for the Tanker vessels using a Liberian flag are approximately 2.6% higher than the Opex of the Maltese flag for the fiscal year 2018. Respectively, for the Bulk Carriers, the average daily operating expenses of the Maltese flag are approximately 2.8 % higher than those of the Liberian flag. In addition, regarding the Containerships, for the fiscal year 2018, the daily Opex of the Liberian flag is approximately 30% higher than the Opex of the Maltese flag.

From the above data, it is concluded that there are significant differences between the Operational expenses of the two flags that can be further analyzed.

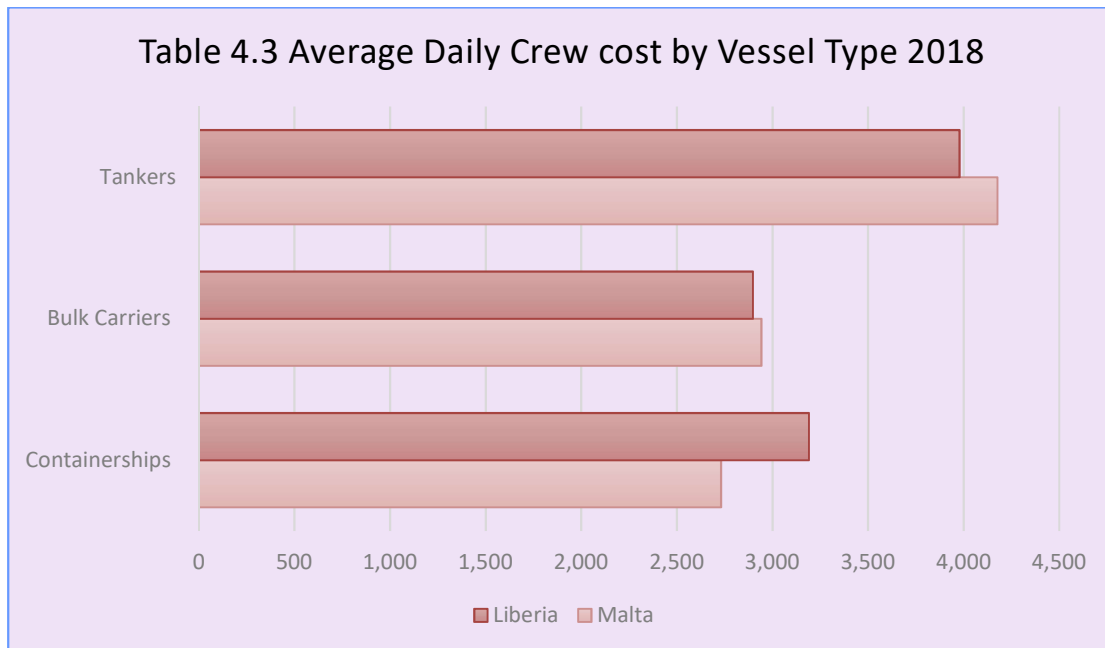
4.3 Crew costs

Going further to the analysis, it is worth investigating where the differences between the operational expenses of the different vessel types for the two flags derive from. Crew costs are frequently dictated by the size of the crew and the carrier's and flag state's employment policies. Carriers perceived the following as sources of higher crew costs, as identified in roundtable conversations and surveys:

- requirement for Citizen Crew
- work rules and personnel needs.

The crew costs are divided into subcategories, wages, provisions and other crew costs. The wages refer to the basic salaries, overtime, bonuses, leave pay and any other crew allowances that are included in the payroll. The provision is the victualing and the other crew costs refer to the crew agency charge, crew change, crew travel expenses, visas and work permits, crew medical expenses, crew life insurance, establishment costs,

holds cleaning, housekeeping, laundry, manning, representation, social contributions, training, union fees, watchman, working clothing.



Based on the data received from the Maritime Moore Index, the average daily crew costs for a Containership the fiscal year 2018 with a Maltese flag were \$2,731 and for Containership, with Liberian flag, the crew costs were calculated as \$3,191. So, the Maritime Moore Index’s internal analysis of operating costs data revealed that the Liberian’s flag crewing costs were roughly 14.3 % higher than the Maltese flag vessels in 2018. On average the crewing costs accounted for about 50.09 % of total Maltese operating costs in 2018. By comparison, crewing costs represented 45.28 % of the total Liberian Opex costs. For the Bulk Carrier vessels with Maltese flag, in 2018 the crewing costs were \$2,942 while respectively for the Liberian flag were \$2,898. It is noteworthy that the difference in the crewing costs between the two flags for the Bulk Carriers is only up to 1.5%. For this type of vessel, it is revealed that the crewing costs constitute 52.4 % of the total operating costs for the Maltese flag while 53.3% for the Liberian flag for the fiscal year 2018.

Deep diving further into the analysis, according to the Maritime Moore Index, the average daily crew costs for the Tanker vessels with Maltese flag were approximately \$4,176 and for the Tanker vessels with Liberian flag \$3,978. Therefore, it is revealed that for the Maltese flag the daily average crewing cost is approximately 5% higher than the crew costs on the Liberian flag. So, the total crew costs for the Tanker vessels constitute 58.15% of the total Operational Expenses for the Maltese flag fleet and 56.86% is the percentage of the crew cost on the total Opex for the Liberian flag fleet.

As a conclusion from the above, it is proven that the crewing costs constitute a high percentage of the total operational expenses for both vessels that fly a Maltese or a Liberian flag. However, according to Yannopoulos (1988), the cost of employing a seafarer under a Flag of Convenience vessel is much lower than the cost of labor of a seafarer under National Flags of a traditional maritime country. The payments for social security, pensions and the support of industry training schemes which are much lower under a Flag of Convenience are the parts that make the difference between the two sectors, even if the nominal wages are the same. Carriers explained that the greater standard of living and social advantages afforded to mariners lead to National Flag pay being much higher than the Flag of Convenience wages. Other factors that contribute to overall National Flag crewing costs, such as mariner education or training and union fees, may or may not apply to foreign-flag vessels. Thus, the flagging-out reduces the total labor costs per seafarer to the shipping operator (Yannopoulos, 1988). This reason is one of the most significant ones that push shipowners to flag out and register their vessels under a Flag of Convenience such as the Maltese and Liberian flags studied in this paper. Additionally, while the National Flags require hiring local citizens, carriers operating under a Flag of Convenience may be able to search around the world for the cheapest crew available, should they have the necessary skills.

Figure 4.1 & 4.2 below provide the cost structure of Maltese and Liberian flag vessels:

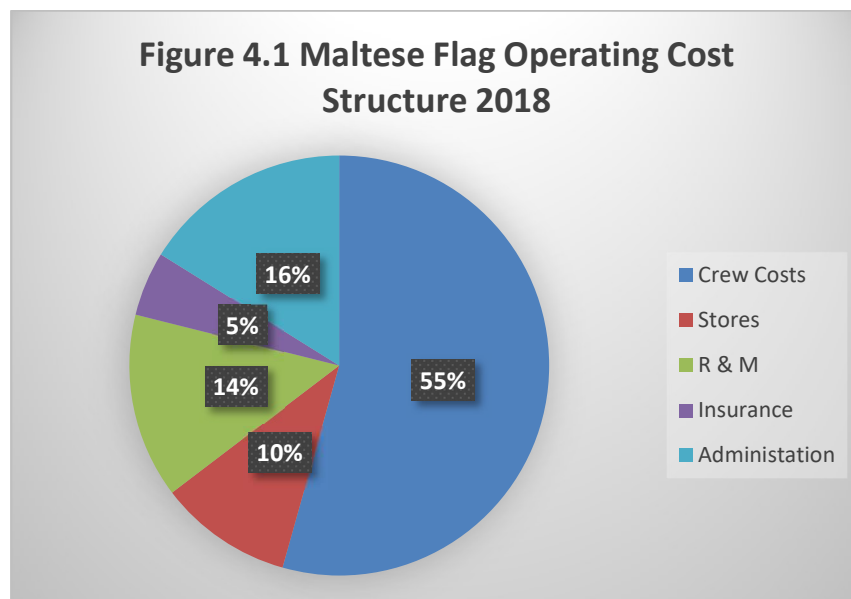
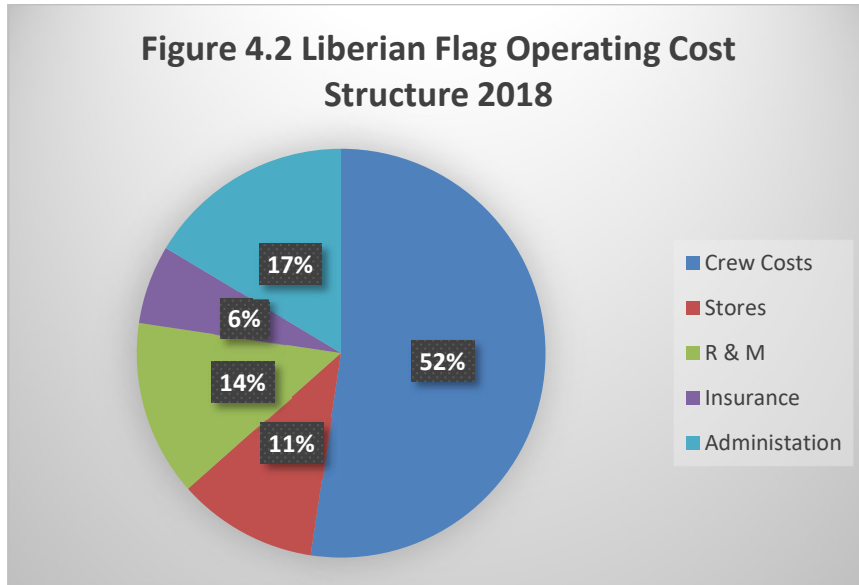


Figure 4.2 Liberian Flag Operating Cost Structure 2018

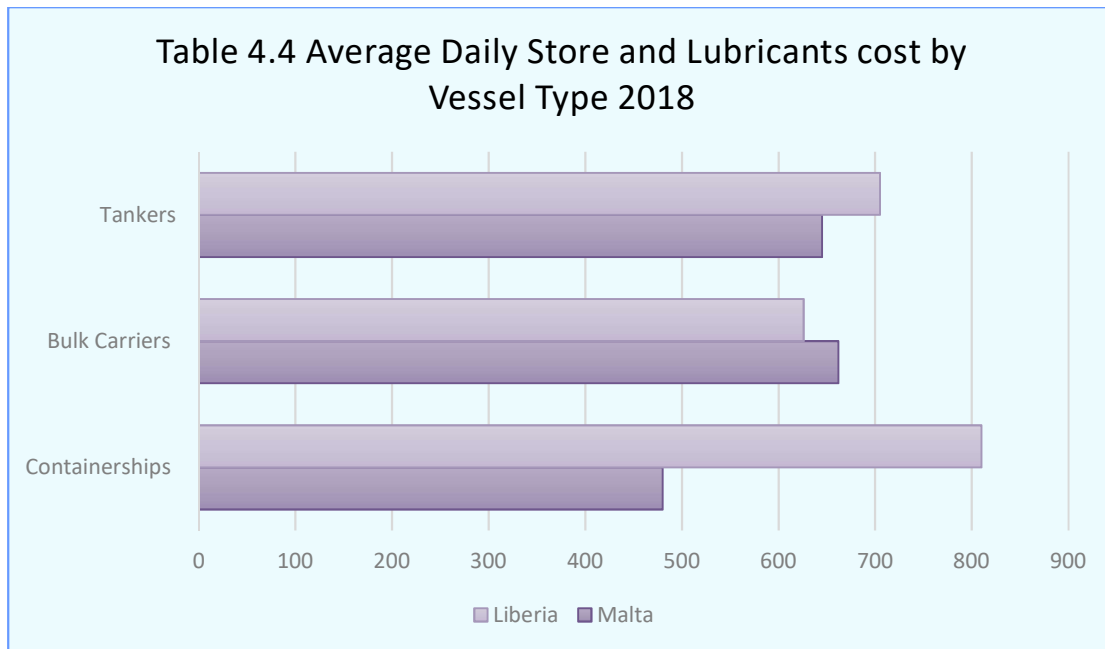


4.4 Stores and Lubricants

Another cost of operating a vessel that will be analyzed is stores and lubricants, which is divided into three categories and elements:

- 1) Paints, ropes, wires, tools, etc. are available at marine and deck stores.
- 2) Engine Room Stores - lubricants, greases, chemicals, washers, gaskets, and other items.
- 3) Cleaning supplies, galley supplies, laundry necessities, and so on.

Based on the data received from the Maritime Moore Index the daily stores and lubricants expenses for Container vessels with Maltese flag for the fiscal year 2018 were approximately \$480 which constitute 9.8% of the total Opex and for Containerships flying Liberian flag were around \$810 which constitute the 11.4% of the total Opex for the year 2018. It is noticed that the difference between the two flags is remarkable as it touches 68%.



By comparison, the daily stores and lubricants costs for the Bulk Carriers flying Maltese flag for the fiscal year 2018 were \$662, 11.8% of the aggregate Opex and respectively for the Bulk carriers with Liberian flag were \$626 which constitute 11.5% of the total Opex for this year. The difference between the two flags is approximately 6%.

Going further to the analysis, the information absorbed from the Maritime Moore Index shows that for the Tanker vessels with Maltese flag the stores and lubricants daily expenses were \$645 for the fiscal year 2018, approximately 8.9% of the total operational expenses. On the other hand, for the Tanker vessels with Liberian flag, the approximate daily cost for the stores and lubricants was \$705 which constitutes around 10% of the total Opex for the year 2018.

As concluded from the above, the stores and lubricants constitute a smaller percentage of the total operational expenses compared to the crewing cost, with the most important cost driver being the lubricating oils. Although the percentage is lower, owners and carriers are in a constant effort to reduce oil consumption. Nevertheless, stores and lubricants are not generally impacted by flag or registry, as these prices are impacted by other market factors.

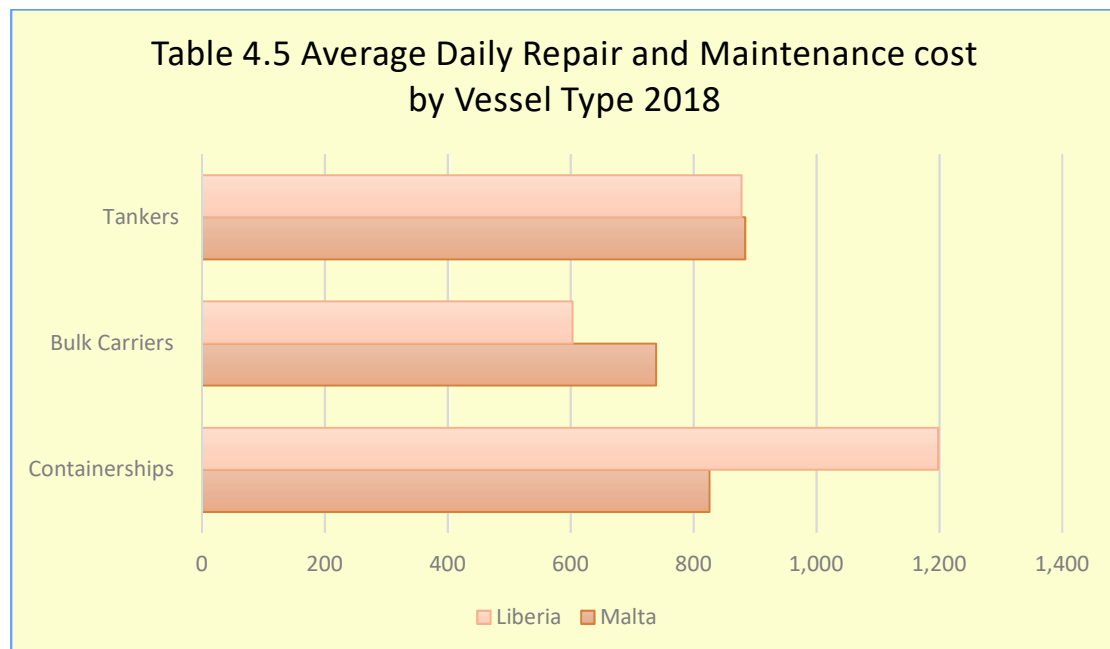
4.5 Repair and Maintenance (R&M)

Maintenance and repair at the operational level is a crucial duty for officers in charge of an engineering watch in a manned/unmanned ship engine room to meet the standard of competence. Interim drydocking, special surveys, and routine repairs are typically covered by these costs to keep the vessel up to the company's and classification society's standards (Kandemira et al., 2019).

According to the information received from the Maritime Moore Index, deck machinery, electrical equipment, propulsion and rudder systems, auxiliary machinery, diesel engine, communication and navigation equipment, ship chandler, firefighting and life-saving equipment, deck/accommodation, cargo hold hatch cover, HVAC, valve, filter/strainer, pipe fittings, and other equipment are among the items that need to be repaired and maintained. It is vital to remember that as a vessel ages, all aspects of maintenance and repair expenditures skyrocket.

By examining the repair and maintenance costs of each vessels' category for the Liberian and Maltese flags, the analysis expanded further into the relevant operational expenses.

From the information provided from the Maritime Moore Index, it is revealed that for the Container vessels with Maltese flag for the fiscal year 2018, the average daily repair and maintenance expenses, including the repairs, maintenance, and spares, were \$826 which constitute 16.6% of the daily operational expenses and respectively for the Containerships with Liberian flag were \$1,198 which constitute the 17% of the total Opex. Although the relevant R&M costs are higher than the stores' expenses, these remain much lower than the relevant crew costs which continue to have the first place in the operational expenses. The difference in the repair and maintenance cost was approximately 31% which is quite remarkable.



By comparison, for the Bulk Carriers with Maltese flag, the repair and maintenance costs for the year 2018 were \$739 which constitute 13.17% of the aggregate Opex and

for the Liberian flag were \$603 which constitute 11.08% of the total Opex. The difference between the two flags is approximately 18%.

Furthermore, according to the Maritime Moore Index, the R&M cost for the Tankers vessels flying Maltese flags for the aforementioned year was \$884, constituting 12.3% of the total Opex and respectively for the Tankers vessels with Liberian Flag the repair and maintenance cost was \$878, which is approximately the 12.5% of the Opex. From the previous information, it is revealed that the cost difference between the two flags is only 0.7%.

Although for the Bulk Carriers and Tanker vessels the R&M for the flag of Liberia was lower, for the Containerships the relevant cost is much higher than this of the Maltese flag. This is due to the fact that the repair and maintenance for the Liberian flag for the year 2018 were around \$711 compared to the repair and maintenance cost for the Maltese flag which was \$315. The relevant cost for the spares was close enough with \$518 and \$527 respectively.

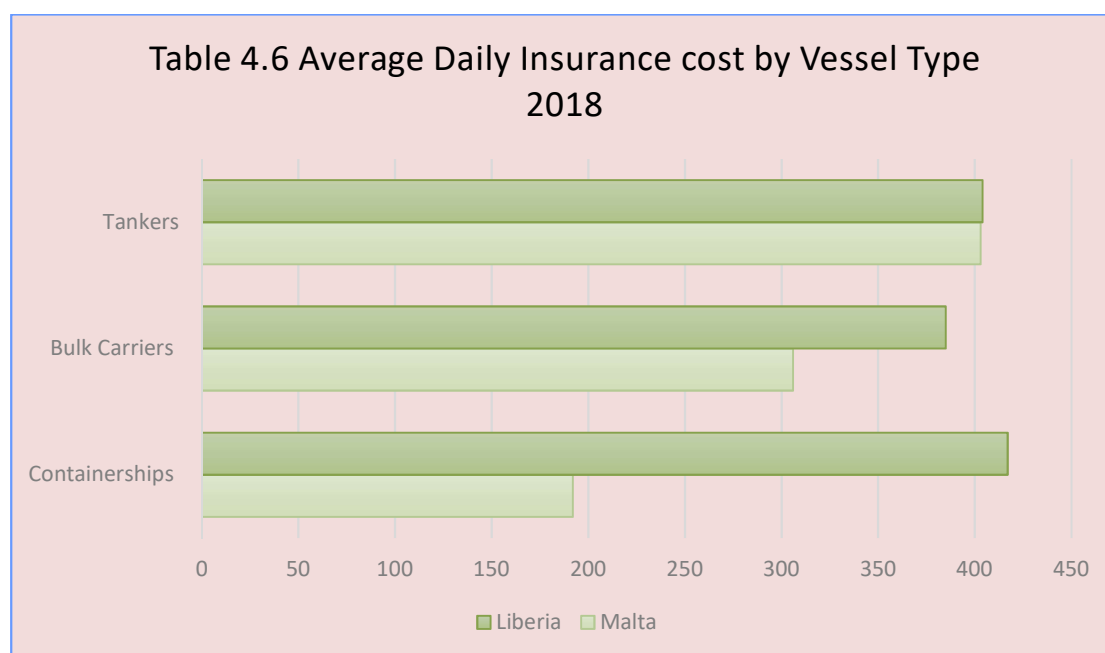
4.6 Insurance Costs

Several factors are influencing the Insurance costs from vessel to vessel. However, based on the information received from the Maritime Moore index, the Insurance expenses are generally divided into three main categories: Hull and Machinery (H&M), Protection and Indemnity (P&I) and other insurance costs which constitute only a small percentage. H&M insures the vessel's owner against physical loss or damage. The P&I is an insurance type, also known as “third party insurance” which protects the policy owner against financial losses caused by damages to the property and health of third parties as a result of an incident caused by the insured. Moreover, P&I provides cover against pilferage or cargo damage, accident damage, pollution, and other issues that aren't covered by open insurance markets (Keceli, 2012).

Going further to the analysis regarding the Operational Expenses, based on the information received from the Maritime Moore Index, the approximate daily insurance cost for the Container vessels with Maltese flag was \$192 for the fiscal year 2018 and \$417 for the Container vessels with Liberian Flag. The difference between the two flags is quite significant since the insurance cost of the Liberian flag is around \$225 up compared to the Maltese flag. Going deeper into the analysis, the Maritime Moore Index's data revealed that this difference resulted from the fact that the Hull and Machinery costs were \$203, and the P&I costs were \$222 for the Liberian flag, compared to the H&M costs of the Maltese flags which were \$78 and the P&I \$107 respectively.

Despite the difference between the two categories, the Insurance costs constitute a low percentage of the total daily Operational Expenses in contrast with the aforementioned

categories. For the Maltese flag, it constitutes only 3,8% of the aggregate vessel's daily Opex and for the Liberian flag 5.9%.



For the Bulk Carrier vessels, the total insurance cost for the Maltese flags in 2018 was \$306 and for the Liberian flag was \$385. The monetary difference between the two is quite small around 20% compared to the corresponding difference in Container vessels. Moreover, the covered amount of the total Opex is 5.4% for the Maltese flag and 7% for the Liberian flag respectively.

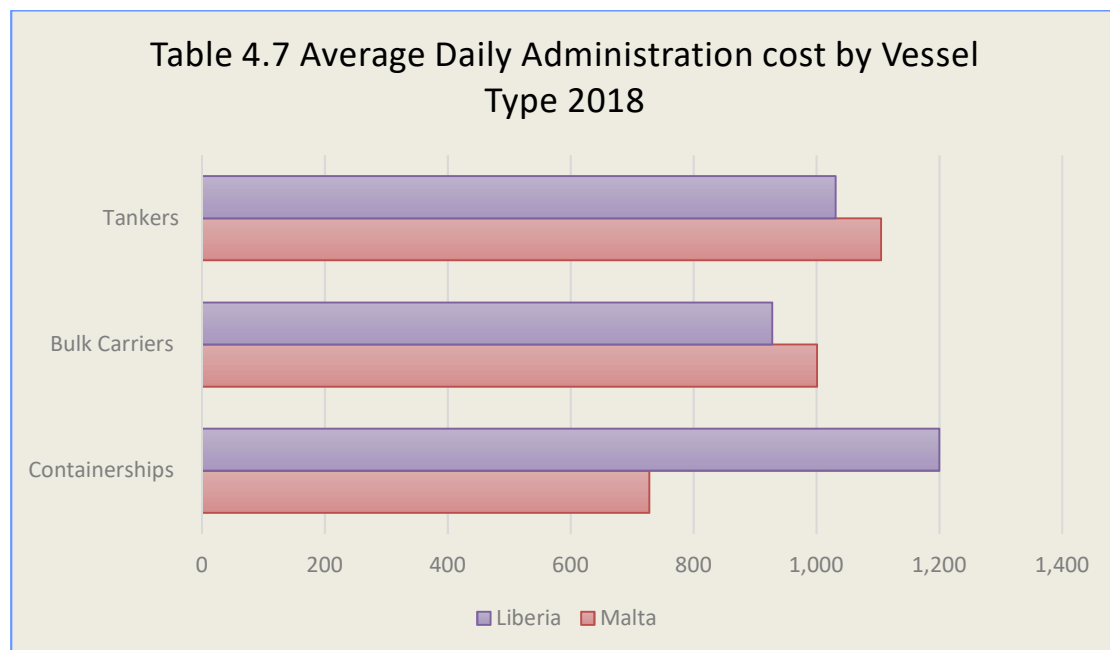
For the Tanker vessels, the information received from the Maritime Moore Index reveals that the insurance costs in 2018 for the Maltese flag were \$403 and for the Liberian flag were \$404. While the level of insurance costs is often influenced by several reasons, including the individual owners' claims record, it is obvious that the difference, in this case, is almost negligible. Additionally, the covered amount in the total operational expenses is around 5.6% for the vessels with the Liberian Flag and 5,7% for the vessels with the Maltese flag.

4.7 Administration Costs

According to the information received from the Maritime Moore Index, the administration costs are fees for both in-house management and management that is outsourced to a third party. Chartering management, technical management, personnel management, and insurance arrangements are all included in the management costs. Sales and Purchases management expenses are not included in the operational costs.

The administration fees are divided into three categories: the annual registration fees, the sundry expenses, and the management fees. In the sundry expenses are included the administration, agency fees, communications, general expenditures, legal and professional fees, other non-voyage expenses, and OPA90 expenses which are all examples of non-voyage expenses. The operational costs mentioned do not include disbursements or the owners projected disbursement account suspense.

In 2018, the daily administration fees for the Container vessels flying a Maltese flag were \$728 based on the data received from the MMI and for the Liberian flag the corresponding costs were \$1,200. The administration costs constitute the highest percentage of the Operational Expenses after the Crew costs. For example, the administration costs for the Maltese flag constitute 14.6% of the total operational expenses and for the Liberian flags constitutes approximately 17% of the total Opex. Additionally, the difference between the two flags is about 35%. Thus, the degree to which each carrier overhead varies will be determined by the kind and magnitude of vessel operations. A small tramping business with three or four vessels, for example, will have relatively low administrative costs, but a big liner company will have significantly higher administrative costs, owing in large part to extra shore-based employees.



For the Bulk Carrier vessels, the administration cost was \$1,001 for the vessels flying a Maltese flag and \$928 for the vessels with Liberian Flag. The difference between the two flags is quite small, approximately 8%. In the total Operational Expenses, the administration costs with the Maltese flag constitute 17.8% according to the Maritime

Moore Index and the corresponding costs for the vessels with the Liberian flag were 17%.

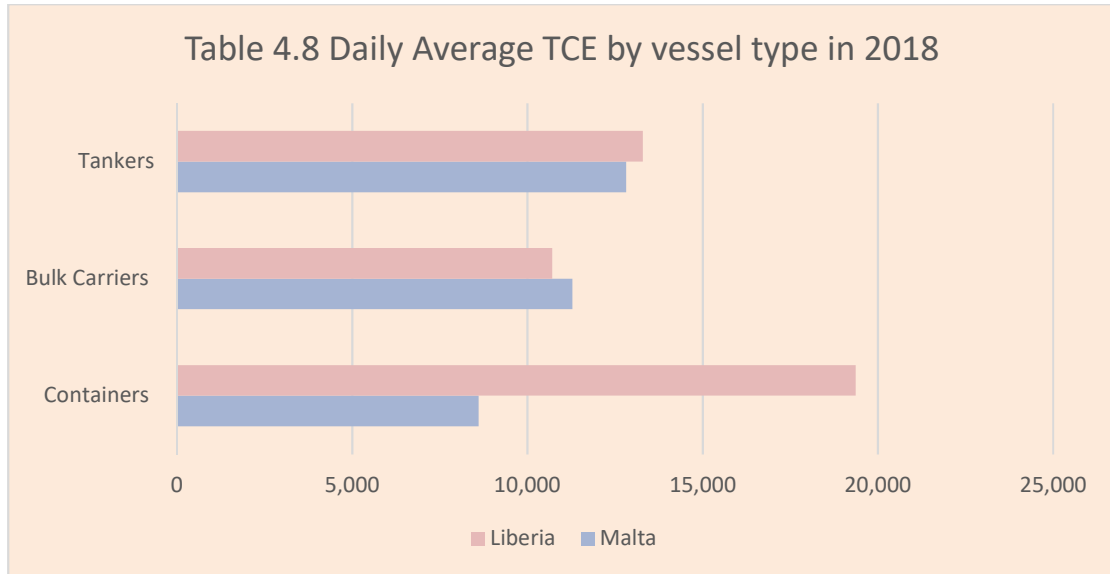
Moreover, for the tanker vessels with the Maltese flag, the administration costs in 2018 were \$1,105 and the relevant cost for the vessels with the Liberian flag was \$ 1,031. That means that the difference between the two flags is around 7%. In this case, the daily administration costs with the Maltese flag constitute 15.3% of the total Opex and for the Liberian flag were 14.7%.

Administration expenses vary significantly amongst carriers, even within the Liberian and Maltese fleets. So, when attempting to make conclusions based on a comparison of overhead costs between vessel types and flag registries, much caution should be exercised.

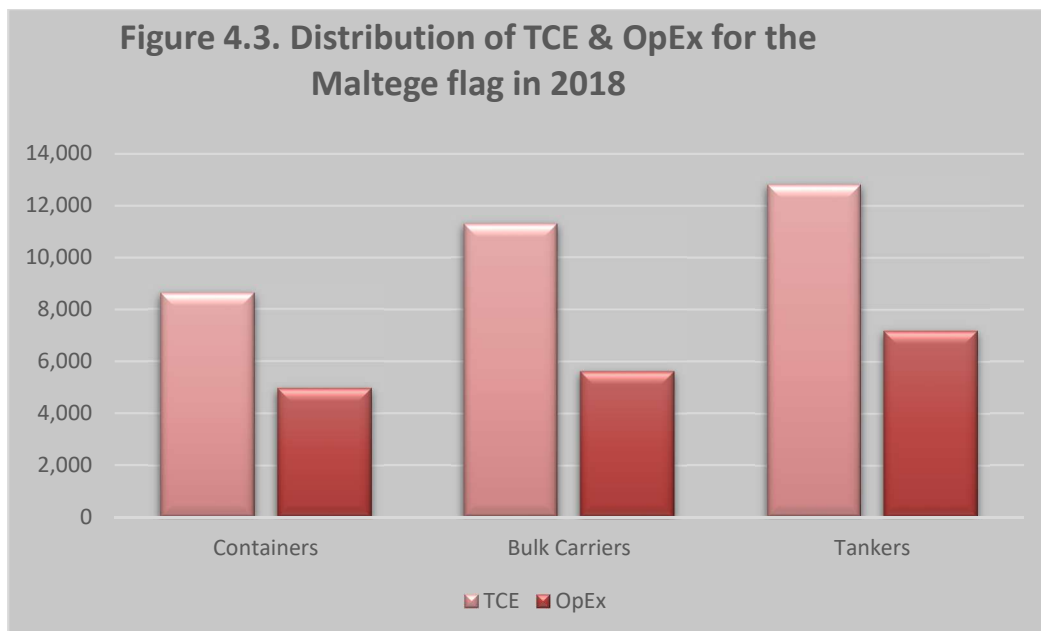
4.8 Time Charter Equivalent

The Operational Expenses analysed in the above section of this paper, are unquestionably a significant part of the flag selection process for a shipowner. However, at this point, it is important to refer to the relevant Time Charter Equivalent for each vessel's category for the Maltese and Liberian Flag for the fiscal year 2018. According to the Maritime Moore Index, TCE constitutes the gross freight revenue of the vessel minus voyage costs (bunker, port, and canal fees), generally stated in US dollars per day.

When calculating time charter equivalent yields, the annual operating income minus the direct voyage cost is divided by the total voyage duration, where: a) operating income equals annual hire/freight/pool income plus any ballast bonus if any; b) direct voyage cost equals the cost of bunkers consumed plus any other relevant expenses, such as commissions, port expenses, canal dues, and so on; and c) total voyage duration equals the total voyage duration (Maritime Moore Index).



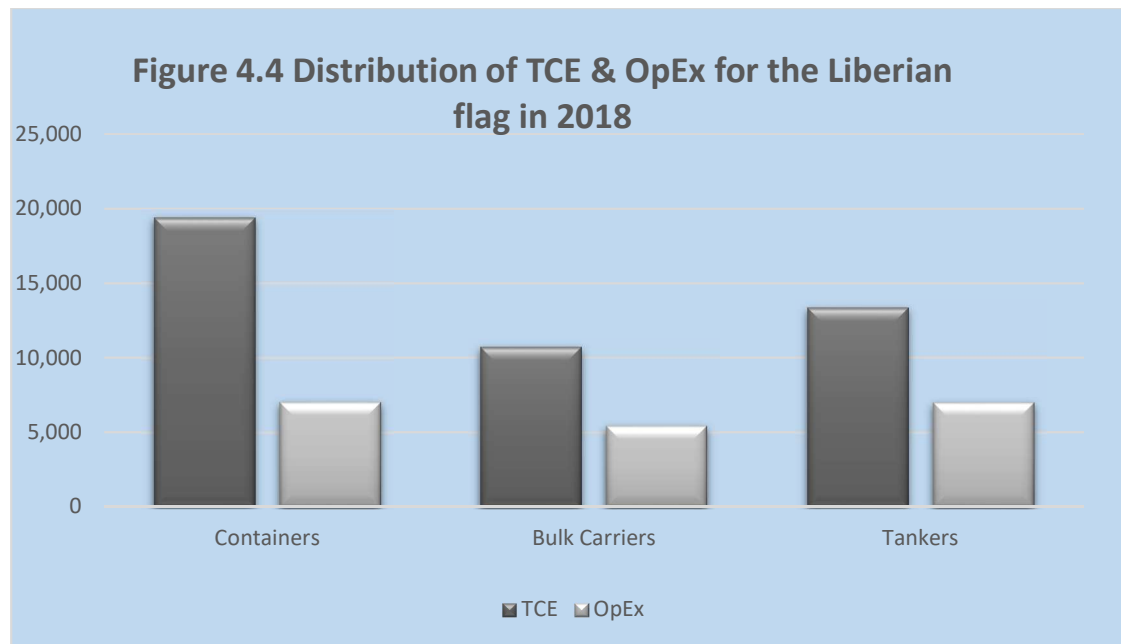
In 2018, the Maritime Moore Index received information from 15 independent vessels for the daily Time Charter Equivalent for the Container vessels with Maltese flag which was \$8,611 compared to the Opex which was \$4,957 and the relevant TCE based on the information received from 221 vessels for the Liberian flag was \$19,364 compared to the Opex which was \$7,047. The TCE of the Liberian flag was approximately 2.3 times higher than this of the Maltese flag which is an important difference.



Regarding the Bulk Carriers, the Time Charter Equivalent for 134 independent vessels with Maltese flag in 2018 was \$11,285 compared to the Opex which were \$5,610 and

for 87 vessels with Liberian flag was \$10,710 compared to the Operational expenses which were \$5,441. The difference in this vessels' category is less important than for the Container vessels. The TCE for the Maltese flag was about 5% higher than the one of the Liberian Flag.

In 2018, the Maritime Moore Index received information from 70 tanker vessels with Maltese flag for their relevant Time Charter Equivalent which was \$12,815 compared to the Opex which were \$7,181 and from 180 independent Tanker vessels with Liberian flag, which TCE was \$13,295 compared to the Opex which were \$6,996.



As presented in Figure 4, in 2018, the daily average Time Charter Equivalent was much higher than the daily average Operational expenses, showing that for all three vessels categories the net profit was higher than the relevant expenses for both Maltese and Liberian Flag.

As concluded from the above, two critical factors influence the carrier's decision regarding the choice of flag: 1) the operating cost differential between the flags and 2) the relevant Time Charter Equivalent.

5. Conclusion

One of the most significant issues in the worldwide shipping industry that has been in the point of interest of the ship owners is the vessel's flag selection process and the ship registry.

The present work focuses on Flags of Convenience and their particular characteristics and role in the global shipping market. Although many research papers have dealt with the phenomenon of the Flag of Convenience, it was observed that there is a gap in the literature regarding the in-depth comparison between Flags of Convenience which was attempted to be filled by the present work.

More specifically, this paper aims to clarify the reasons for which the Flags of Convenience are more advantageous for a ship-owner and their comparative advantage over National Flags. Many political and especially economic reasons are impelling ship owners to register their vessels under foreign flags, the so-called Flags of Convenience.

Through a quantitative analysis, a comparison has been made between two of the most significant Flags of Convenience, the Maltese and Liberian flags. Collecting information from the online platform of Maritime Moore Index, a comparison was initially made between the operational costs of the Containerships, the Bulk carrier vessels, and the Tanker vessels between the Liberian and Maltese flags for the fiscal year 2018. After that, the individual elements of the operating expenses were recorded in order to dig further into the analysis. More specifically, the relevant crew costs, the stores and lubricants, the repair and maintenance, the insurance and administration costs have been recorded for the three vessels categories for the Liberian and Maltese flags for the year 2018, from data received through the Maritime Moore Index. However, vessel operating expenses, regardless of flag, represent a worldwide operating environment that is continuously changing in response to a variety of social, political, and economic forces.

In the last chapter of the present work, Time Charter Equivalent for the Containers, Bulk Carriers and Tanker vessels with Liberian and Maltese flag is further analysed, showing the shipowner's net profit for the fiscal year 2018.

Collected data allowed the author to explore the differences between the two flags. The main point of the above quantitative analysis is to investigate which of the two Flags of Convenience, Liberian or Maltese, would be more profitable for a shipowner to register the vessels under operation for the fiscal year 2018. What it is finally concluded is that for shipowners whose fleet consists of Container vessels it is more profitable to register their vessels under a Liberian flag. Although the Operational Expenses of the Maltese flag is significantly lower than those of the Liberian flag, the Time Charter Equivalent of the Liberian flag is 2.3 times higher than the corresponding TCE of the Maltese flag. Regarding a Bulk Carrier fleet, it would be more profitable for a shipowner to register the vessels under a Maltese flag for the year 2018. Although the Operational expenses are slightly higher than the Opex of the Liberian flag, the Time Charter Equivalent is

approximately 5% higher compared to the TCE of the Liberian flag. Respectively, for the Tanker vessels fleet, the most profitable flag in 2018 for a shipowner was the Liberian flag. In this case, the operational expenses of the Liberian flag are lower compared to the relevant Opex of the Maltese flag and the TCE is 3.7% higher than this of the Maltese flag.

However, the above results have been concluded after the collection of the information from a specific number of vessels by the Maritime Moore Index which does not constitute a universal picture of what prevails in the worldwide shipping market. One more limitation of the present work is that results are based on 1-year data (2018). If more than one year had been investigated in the analysis, this could lead to different results. Despite the aforementioned limitations, this work has contributed to a better understanding of the Flag of Convenience advantages for a shipowner and why the relevant special characteristics make them dominant in the worldwide shipping market.

Concluding, it would be interesting for future research to deal, in more detail, with the comparison of the Greek flag with a Flag of Convenience and under which conditions could the Greek flag be characterized and considered as a “Flag of Convenience”.

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