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MOORE MARITIME INDEX 2023

SHIPPING TRENDS BASED ON THE FLEET SIZE

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Disclaimer

SHIPPING TRENDS BASED ON THE FLEET SIZE

INTRODUCTION

The Moore Maritime Index (MMI) report on “Shipping Trends based on Fleet Size” focuses on studying the possible trends and correlations between “fleet size” and other shipping factors, such as operating expenses, net income, vessel age and capacity. For the purposes of this report, fleet size is defined as the total number of vessels managed by a single management company.

Collected data comes from more than 140 management companies which manage about 1,500 vessels globally. Data is grouped under four categories based on fleet size under management:
1-5 vessels, 6-10 vessels, 11-20 vessels, more than 20 vessels.

The study concentrates on the dry cargo and tanker shipping sectors aiming at identifying possible relationships between fleet size and vessel operational performance. The analysis is based on 2022 data.

Our report contains reliable data based on specific criteria we consider of importance and ensure sufficient data depth on which our preliminary results are based. Our aspiration, however, is to act as a business companion, therefore we encourage our members to run their own data queries in Moore Maritime Index and seek information in order to obtain a more accurate view on the topic and gain further insights. See more information on how to access MMI at section 6, page 8.

1. FLEET SIZE AND AVERAGE AGE

Table 1 presents the average age of vessels per fleet size as in December 31, 2022.

In the bulk carrier sector, average age of the fleets in our database is 10-11 years.

In the tanker sector, vessels managed by a) companies of 1-5 vessels have an average age of 13 years, b) companies of 6-10 vessels have an average age of 9 years, c) companies of 11-20 vessels have an average age of 10 years and d) companies of more than 20 vessels have an average age of 8 years.

Table 1: Average vessel age per fleet size

Fleet Size	Average Age Bulk Carriers	Average Age Tankers
1-5 vessels	11 years	13 years
6-10 vessels	11 years	9 years
11-20 vessels	10 years	10 years
> 20 vessels	11 years	8 years

Source: Moore Maritime Index

2. FLEET SIZE AND AVERAGE CAPACITY

Table 2 presents the average vessel capacity per fleet size illustrating the concentration of large-capacity ships in management companies with large fleets.

In the bulk carrier sector, management companies with fleets of up to 20 vessels have an average vessel capacity between 60,000 and 73,000 dwt, but when the fleet exceeds 20 vessels, the average capacity increases to 94,616 dwt.

In the tanker sector, management companies with fleets of up to 20 vessels have an average vessel capacity between 44,000 and 64,000 dwt, but when the fleet exceeds 20 vessels, the average capacity increases to 97,414 dwt.

Table 2: Average vessel capacity per fleet size

Fleet Size	Aver. Capacity Bulk Carriers	Aver. Capacity Tankers
1-5 vessels	61,475 dwt	54,761 dwt
5-10 vessels	72,466 dwt	44,079 dwt
10-20 vessels	66,850 dwt	63,501 dwt
> 20 vessels	94,616 dwt	97,414 dwt

Source: Moore Maritime Index

Management companies with fleets of more than 20 vessels tend to manage larger vessels.

"MMI data to date show that management companies with large fleets tend to manage larger in size vessels."

3. DRY CARGO SECTOR

General Overview

The highest Time Charter Equivalent (TCE) in the dry cargo sector is observed in fleets of more 11-20 vessels, with a TCE of $26,313 per day. Fleets of 1-5 vessels earned on average $20,156 per day, fleets of 6-10 vessels $21,111 per day and fleets of more than 20 vessels $22,855 per day.

As far as Operating Expenses (OpEx) are concerned, companies managing between 6 and 10 vessels report the lowest average daily expenses of $6,041 per day. Management companies with more than 20 vessels under management however, report the highest average daily operating expenses of $6,866 per day.

The best performing TCE to OpEx ratio appears in management companies managing 11-20 vessels, achieving a ratio of 4.12. TCE to OpEx ratio shows how many times the time charter equivalent earned covers the operating expenses of the vessel.

Table 3: Bulk Carriers Operating Performance per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Time Charter Equivalent (TCE)	$20,156	$21,111	$26,313	$22,855
Operating Expenses (OpEx)	$6,437	$6,041	$6,379	$6,866
TCE to OpEx ratio	3.13	3.49	4.12	3.33

Source: Moore Maritime Index

Filtering data based on "age" and "capacity"

Since age and size are two of the most important parameters for the cost and income behaviour, in order to focus exclusively on the impact of fleet size on performance we excluded these factors and analysed the data of specific vessel types.

i) Vessels with capacity between 40,000 dwt and 70,000 dwt and average year built between 2007 and 2011

We have focused on the vessels with capacity between 40,000 dwt and 70,000 dwt and built between 2007 and 2011, in order to examine the category with similar characteristics with our studies of prior years

The relevant results are presented in Table 4.

Table 4: Bulk Carrier built 2007-2011 with capacity 40,000 dwt - 70,000 dwt - Operating Performance per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Time Charter Equivalent (TCE)	$20,439	$23,537	$26,219	$22,806
Operating Expenses (OpEx)(*)	$6,756	$5,906	$6,677	$6,444
TCE to OpEx ratio	3.03	3.99	3.93	3.54
Crew costs	$3,055	$2,830	$3,209	$3,243
Stores	$865	$701	$736	$782
R & M	$1,362	$885	$915	$889
Insurance	$495	$511	$385	$426
Administration	$980	$979	$1,433	$1,115
Age (AVG) at 2022	11.78	12.41	12.25	12.05
Capacity (AVG)	56,660	56,469	55,632	56,198

Source: Moore Maritime Index
(Filters: Year Built 2007-2011, Capacity 40,000-70,000 dwt)

The highest daily operating expenses are reported in fleets managing 1-5 vessels, amounting $6,756 per day, while fleets of 6-10 vessels, present the lowest average operating expenses, namely $5,906 per day.

Fleets of 11-20 vessels present the highest average TCE, amounting to $26,219 per day while fleets of 1-5 vessels reported the lowest average TCE.

Vessels belonging in fleets of 6-10 vessels present the best performing TCE to OPEX ratio, achieving a score of 3.99.

Operating expenses do not decrease as fleet size increases, as traditionally hypothesised. Additionally, fleets of more than 11 vessels report lower daily insurance expenses and the highest daily crew expenses. Fleets of more than 11 vessels have administration expenses of more than $1,000 per day.

ii) Vessels with capacity between 60,000 dwt and 120,000 dwt with average year built between 2010 and 2017

Here we analyse vessels with capacity between 60,000 dwt and 120,000 dwt built between 2010 and 2017, in order to extend our research in a query where the MMI database encapsulates more than 190 vessels.

The relevant results are presented in Table 5.

Table 5: Panamax Bulk Carrier Operating Performance built between 2010 and 2017

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Time Charter Equivalent (TCE)	$20,931	$21,854	$25,686	$24,443
Operating Expenses (OpEx) (*)	$6,339	$6,033	$6,394	6,798
TCE to OpEx ratio	3.30	3.62	4.02	3.60
Crew costs	$3,114	$2,858	$3,313	$3,319
Stores	$733	$758	$799	$903
R & M	$810	$831	$718	$1,007
Insurance	$521	$562	$390	$350
Administration	$1,161	$1,025	$1,174	$1,219
Age (AVG) at 2022	9.64	8.47	8.21	8.11
Capacity (AVG)	76,855	75,567	75,935	77,881

Source: Moore Maritime Index
(Filters: Year Built 2010-2017, Capacity 60,000-120,000 dwt)

The best performing TCE to OpEx ratio is achieved by vessels belonging in fleets of 11-20 vessels.

These fleets present the highest average TCE, reaching $25,686 per day, while fleets between 1 to 5 vessels present the lowest TCE, in the range of $20,931 per day.

Again, it can be clearly observed that operating expenses do not decrease as fleet size increases and there is not a linear relationship between the two.

The lowest daily insurance costs are reported in larger fleets, while the highest R&M expenses and administration expenses are presented in fleets of more than 20 vessels.

"There is no clear evidence that operating expenses, in total, decrease as fleet size increases although we can observe trends in certain categories. Factors, such as human capital skills, unforeseen events and profit margin goals, have an effect on companies' operating cost performance".

COMPARISON WITH PRIOR YEARS IN THE DRY CARGO SECTOR

This study concentrates on identifying trends based on the fleet size that are applicable over the last five years.

Tables 6, 7 and 8 below, present OpEx related figures between 2018 and 2022:

Table 6: 5-year comparison Bulk Carrier built 2010-2017 with capacity 60,000 dwt - 120,000 dwt - Operating Expenses per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
OpEx 2022	$6,339	$6,033	$6,394	$6,798
OpEx 2021	$5,605	$6,109	$6,181	$5,979
OpEx 2020	$5,790	$5,569	$5,573	$5,600
OpEx 2019	$5,374	$5,253	$5,394	$5,521
OpEx 2018	$5,348	$4,961	$5,236	$5,512

Source: Moore Maritime Index

In the five year comparison, it can be observed that operating expenses do not necessarily decrease as fleet size increases.

Initially, as the fleet size increases, the total operating expenses decrease, but as the fleet size continues to grow, the operating expenses increase again.

Additionally, a general increase in the daily operating expenses of bulk carriers in fleets of more than 6 vessels is reported since 2018.

Table 7: 5 year comparison Bulk Carrier built 2010-2017_with capacity 60,000-120,000 dwt – TCE to Opex per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
TCE to OpEx 2022	3.30	3.62	4.02	3.60
TCE to OpEx 2021	3.61	3.70	3.72	3.91
TCE to OpEx 2020	1.46	1.72	1.69	1.64
TCE to OpEx 2019	1.95	2.07	2.08	2.01
TCE to OpEx 2018	2.01	2.24	2.34	2.22

Source: Moore Maritime Index

Table 8: 5 year comparison Bulk Carrier_built in 2010-2017_average capacity 60,000-120,000 dwt – Opex Categories per Fleet Size

By fleet size (Daily)		1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Crew costs	**2022**	$3,114	$2,858	$3,313	$3,319
	2021	$2,956	$3,164	$3,262	$3,185
	2020	$3,046	$2,869	$3,047	$3,050
	2019	$2,797	$2,683	$2,891	$3,016
	2018	$2,777	$2,566	$2,879	$3,046
Stores	**2022**	$733	$758	$799	$903
	2021	$635	$636	$652	$564
	2020	$607	$537	$568	$573
	2019	$566	$568	$625	$589
	2018	$568	$505	$561	$583
R & M	**2022**	$810	$831	$799	$903
	2021	$627	$728	$704	$801
	2020	$595	$616	$639	$655
	2019	$629	$630	$570	$679
	2018	$559	$548	$507	$571
Insurance	**2022**	$521	$562	$390	$350
	2021	$472	$467	$367	$334
	2020	$431	$426	$316	$273
	2019	$389	$371	$333	$273
	2018	$416	$369	$308	$276
Administra-tion	**2022**	$1,161	$1,025	$1,174	$1,219
	2021	$915	$1,115	$1,196	$1,100
	2020	$1,110	$1,122	$1,001	$1,048
	2019	$994	$1,001	$975	$963
	2018	$1,028	$973	$983	$1,044

Source: Moore Maritime Index

Large fleets tend to have the highest R&M expenses.

At the same time large fleets tend to have lower insurance expenses

4. TANKER SECTOR

General Overview

Table 9 summarizes the results on tanker vessels, based on fleet size.

The average daily TCE for tankers, regardless of the sector they operate, is reported between $20,000 and $33,000. The lowest TCE is reported by management companies managing fleets between 1 and 5 vessels, averaging $20,200 per day and the highest TCE is reported by companies of more than 20 vessels, reaching $32,240.

The lowest daily operating expenses are reported by fleets between 6 and 10 vessels and the highest operating expenses are reported by fleets of more than 20 vessels.

Table 9: Tanker Operating Performance per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Time Charter Equivalent (TCE)	$20,200	$26,427	$26,882	$32,240
Operating Expenses (OpEx)	$7,212	$6,922	$7,147	$7,564
TCE to OpEx ratio	2.80	3.82	3.76	4.26

Source: Moore Maritime Index

Fleets of more than 20 tankers achieve the best performing financial performance based on the TCE to OpEx ratio (4.26), while companies managing 1-5 tankers achieve the lowest "TCE to OpEx" ratio (2.80).

In the following analysis, we have excluded the parameters of age and size to study how operating cost and income behaviour interrelate with fleet size.

Filtering data based on "age" and "capacity"

We have focused on vessels with average capacity of 30,000-80,000 dwt and average year built between 2009 and 2015, since this is the largest category within the MMI database for 2022. The goal is to examine the financial performance for different fleet sizes based on specific age and capacity characteristics.

The results are illustrated in Table 10.

Table 10: Operating Performance for Tankers of 30,000dwt - 80,000dwt and built in 2009-2015

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	>20 vessels
Time Charter Equivalent (TCE)	$23,920	$19,592	$25,596	$34,720
Operating Expenses (OpEx)(*)	$6,757	$7,337	$7,332	$7,093
TCE to OpEx ratio	3.54	2.67	3.49	4.90
Crew costs	$3,768	$4,404	$4,013	$4,123
Stores	$603	$746	$800	$643
R & M	$817	$657	$947	$1,014
Insurance	$563	$308	$409	$299
Administration	$1,007	$1,222	$1,229	$1,030
Age (AVG) at 2022	12.40	9.29	11.08	8.83
Capacity (AVG)	50,545	43,773	54,913	48,983

Source: Moore Maritime Index
(Filters: Year Built 2009-2015, Capacity 30,000-80,000 dwt)

Tankers belonging to fleets between 1 and 5 vessels achieved the most favourable level of operating costs, while vessels belonging to fleets of 6-10 vessels had the highest daily operating costs.

Fleets of more than 20 vessels achieved the best average TCE, reaching $34,720, while companies managing 6-10 tankers achieved the lowest average TCE, reaching $19,592.

Operating expenses do not decrease as fleet size increases, as traditionally hypothesised. Certain trends can be identified, such as that the larger fleets report the lowest daily insurance expenses. R&M expenses appear to be relatively high in fleets of more than 20 vessels.

(*) Total Opex does not equal to the sum of the Opex sub-categories. All values have been calculated independently for each sub-category, based on the data we hold. Therefore, the calculations for each sub-category and the total Opex category are based on their independent samples.

COMPARISON WITH PRIOR YEARS IN TANKER SECTOR

This section concentrates on identifying trends based on the fleet size for the tanker sector which are applicable over the last five years.

We summarise the results for tankers built between 2006 and 2012(**) with average capacity from 40,000 dwt to 60,000 dwt, since this is the category studied in prior years. For this category of tankers, there are not sufficient data in 2021, so the figures in the below analysis are stated as not applicable (n/a).

Table 11: 5-year comparison Tanker built in 2006-2012(**)_average capacity 40,000-60,000 dwt - Operating Expenses per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	> 20 vessels
OpEx 2022	$7,109	$8,790	$7,395	$7,461
OpEx 2021	$7,027	n/a	$7,432	$7,929
OpEx 2020	$6,433	$6,621	$6,384	$6,636
OpEx 2019	$6,343	$6,741	$5,755	$6,650
OpEx 2018	$6,002	$6,921	$6,424	$6,691

Source: Moore Maritime Index

In 2022 the fleets of 6-10 vessels reported the higher operating expenses than the other fleets.

Table 12: 5-year comparison for Tankers built 2006-2012(**) with capacity 40,000 dwt - 60,000 dwt – TCE to Opex per Fleet Size

By fleet size (Daily)	1-5 vessels	6-10 vessels	11-20 vessels	> 20 vessels
TCE to OpEx 2022	3.45	3.56	3.02	3.11
TCE to OpEx 2021	1.56	n/a	1.54	1.17
TCE to OpEx 2020	1.80	2.12	1.61	2.13
TCE to OpEx 2019	1.89	1.97	2.30	1.97
TCE to OpEx 2018	1.73	1.74	1.80	1.42

Source: Moore Maritime Index

For 2022 the best performing TCE to OpEx ratio was reported in fleets of 6-10 vessels. In 2021, the best TCE to OpEx ratio was reported in fleets of 1-5 vessels and in 2020, the best TCE to OpEx is achieved by vessels belonging in fleets of more than 20 vessels, whereas in 2018 and 2019 the best combination of operating expenses and income was reported by fleets of 11 to 20 vessels.

Table 13: 4-year comparison Tanker built 2006-2012 with capacity 40,000 dwt - 60,000 dwt - Opex categories per Fleet Size

By fleet size (Daily)		1-5 vessels	6-10 vessels	11-20 vessels	> 20 vessels
Crew costs	**2022**	$4,005	$4,817	$3,918	$4,240
	2021	$3,833	n/a	$4,140	$4,428
	2020	$3,678	$3,841	$3,425	$3,790
	2019	$3,611	$3,796	$3,490	$3,715
	2018	$3,666	$3,678	$3,790	$3,872
Stores	**2022**	$726	$953	$842	$824
	2021	$635	n/a	$871	$805
	2020	$547	$635	$529	$663
	2019	$486	$783	$473	$664
	2018	$484	$768	$590	$655
R & M	**2022**	$861	$1,472	$1,108	$1,094
	2021	$853	n/a	$867	$1,279
	2020	$725	$737	$1,163	$897
	2019	$749	$714	$846	$944
	2018	$575	$1,057	$825	$924
Insura-nce	**2022**	$571	$423	$408	$290
	2021	$566	n/a	$401	$268
	2020	$456	$329	$438	$307
	2019	$522	$300	$373	$293
	2018	$559	$309	$256	$308
Admini-stration	**2022**	$946	$1,125	$1,120	$1,046
	2021	$1,139	n/a	$1,152	$1,170
	2020	$1,026	$1,079	$829	$999
	2019	$976	$1,147	$573	$1,034
	2018	$717	$1,108	$962	$1,006

Source: Moore Maritime Index

Costs for scaling-up operations do not show a linear trend. Certain trends can be observed throughout the years. Vessels belonging in fleets of more than 20 vessels presented the lowest insurance expenses. Crew expenses also increase as the fleet size increases from 11-20 vessels to more than 20 vessels.

(*) Total Opex does not equal to the sum of the Opex sub-categories. All values have been calculated independently for each sub-category, based on the data we hold. Therefore, the calculations for each sub-category and the total Opex category are based on their independent samples
(**) For 2022 only, we used the filters: year built 2005-2012 instead of 2006-2012 as year of built, in order to have sufficient data for our results.t

5. INSIGHTS

The following observations are applicable for our dataset which provide insights on how expenses and income behave as fleet size varies.

MMI data to date indicate the following:

- Average managed capacity appears to be significantly higher in fleets of more than 20 vessels.
- There is no indication that operating expenses, decrease as fleet size increases.
- We can observe trends in certain cost categories. For example, insurance expenses tend to be lower in large fleets and at the same time R&M expenses appear to be relatively high in fleets of more than 20 vessels.
- Costs for scaling-up operations do not move in a linear manner.

We will be closely monitoring how these observations evolve over time and share our updates with you. We would be delighted to receive your feedback and requests which we hope to incorporate in our future reports.

6. VISIT MOORE MARITIME INDEX TO INVESTIGATE MORE AND SHARE YOUR MMI EXPERIENCE

Moore Maritime Index (MMI) is a statistical and analytics tool on shipping operating costs and revenues of more than 1,500 vessels. We extract our data from the financial statements of ship-owning companies audited by Moore Global member firms, as well as from verifiable independent submissions from all around the world.

Analysis on Operating Expenses and Revenues per Fleet Size is available on the Moore Maritime Index platform. You are welcome to investigate further this analysis on the following link:

https://www.moore-index.com/insights/byFleetSize

We also encourage our members to run their own data queries, look for interesting themes and share them with us at **mmi@moore.gr**

ABOUT MOORE GREECE

Moore Greece, an independent member of Moore Global, is an accounting and consulting firm specialising in the shipping, media and hotel sectors. Our wide range of services covers audit and assurance, tax consulting, governance - risk and compliance, IT consulting, transaction and outsourcing for the family owned businesses and entrepreneurs we serve. With over 120 professionals, deep knowledge and award winning proprietary tools, we can help clients improve efficiency and maximise profitability. By being the first international accounting firm in Greece with over 55 years of presence in the local market, we remain one of the most historic and important firms in our industry.

ABOUT MOORE GLOBAL NETWORK

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