

## Evaluation of Bulk Cargo According to Turkish Maritime Transportation

By Serap İNCAZ †

**Abstract.** Maritime transportation offers new opportunities and challenges for all the countries. The many advantages of maritime transportation are more than other transportation types. Maritime transportation is the backbone of the World Economy. It is generally believed that nearly 90% of world trade is carried by sea. According to UNCTAD records – world seaborne trade volumes were estimated to have exceeded 10 billion tons annually with bulk cargo. In 2015, dry cargo shipments accounted for 70.7 per cent of total seaborne trade volumes. Because of this high quantity, in this paper aims to discussed the importance of bulk cargo in Turkish trad.

**Keywords.** Bulk cargo, Turkish trade, Turkish fleet, Maritime transportation.

**JEL.** L91, R40, R41.

### 1. Introduction

The role of maritime shipping in maritime policy and in the overall development of every country is very important (Jugović, Komadina, & Hadžić, 2015). Maritime transport relates to the carriage of goods or/and passengers by sea by a person for commercial purposes, either in return for payment (i.e. for hire and reward) or on an organization's own account as part of its wider economic activity. Goods transportation refers to the volume of containerized, dry bulk, liquid bulk and roll on-roll off (Ro-Ro) type of cargo handled by the ports while passenger traffic refers to the number of national, international and cruise passenger volumes transported through ports European Regional Development Fund (ERDF, 2012).

### 2. Importance of Maritime Transportation

Maritime transportation is an important factor of economic development of every maritime country. Its basic task is providing shipping services, meaning that they may as well be considered as the product of the shipping economic activity. Maritime transport, therefore, involves transport of passengers and/or goods by sea, which is often called shipping trade (seaborne), which can be passenger and cargo shipping (Šamija, 2017). Twenty-four hours a day and all year round, ships carry cargoes to all corners of the globe (International Maritime Organization, 2017).

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**Table 1.** *Developments in international seaborne trade, selected years (Millions of tons loaded)*

Years	Oil and gas	Main bulk commodities (iron ore, coal, grain, bauxite and alumina and phosphate rock)	Dry cargo other than main bulk commodities	Total (all cargo)
1970	1 440	448	717	2 605
1980	1 871	608	1 225	3 704
1990	1 755	988	1 265	4 008
2000	2 163	1 295	2 526	5 984
2005	2 422	1 709	2 978	7 109
2006	2 698	1 814	3 188	7 700
2007	2 747	1 953	3 334	8 034
2008	2 742	2 065	3 422	8 229
2009	2 642	2 085	3 131	7 858
2010	2 772	2 335	3 302	8 409
2011	2 794	2 486	3 505	8 785
2012	2 841	2 742	3 614	9 197
2013	2 829	2 923	3 762	9 514
2014	2 825	2 985	4 033	9 843
2015	2 947	2 951	4 150	10 047

**Source:** UNCTAD secretariat calculations, based on data from reporting countries, as published on relevant government and port industry websites, and from specialist sources, as well as Clarksons Research (2006–2015), Dry Bulk Trade Outlook. from United Nations Conference on Trade and Development, (UNCTAD, 2016).

In 2015 – for the first time in UNCTAD records – world seaborne trade volumes were estimated to have exceeded 10 billion tons.

### 3. Main Definition about Bulk Cargo

Definition bulk cargo: a bulk cargo is in general a cargo which is uniform in composition. The variety in bulk cargoes is considerable, such as (Bakker, 2013):

- minerals/ concentrates
- cokes/ coals • soda ash
- fertilizers • sulphur/salt
- forest products grain products

Dry bulk shipping can be defined as the maritime transportation segment associated with transporting commodities in bulk, rather than containerized or palletized. Dry bulk cargo is shipped in large quantities and can be stowed in a single hold with diminished risk of cargo damage. Dry bulk cargo is categorized as either major bulk or minor bulk. Major bulk cargo represents the vast majority of dry bulk cargo by weight, and comprises, among other things, iron ore, coal and grain. Minor bulk cargo represents the balance of the dry bulk industry, and comprises agricultural products, mineral cargoes, cement, forest products and steel products (Batinca, & Cojanu 2014).

### 4. Bulk shipping

Bulk shipping has been used for many years to reduce the cost of sea transport and the transport of bulk cargoes is a vital component of international trade. Such trades require a sufficient volume of cargo suitable for bulk handling and hence justify a tailored shipping operation (Roberts, & Marlow, 2002).

The five major dry bulk cargoes are coal, iron ore, grain, bauxite and alumina, and phosphate rock, and each year the trade in bulks increases.

Bulk carriers carry raw materials such as iron ore; tankers carry crude oil and liquefied natural gas and container ships move manufactured goods from manufacturing centres to consuming countries. The total bulk carrier deliveries will have increased for the next two decades. Newbuildings in bulk carrier will be dominated by China (40-59%) and emerging countries (26-43%) in 2030 (Lloyd's Register Group Limited 2017).

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Dry bulk shipping provides the most cost effective way of transporting large volumes of low value cargo for seaborne trade. International seaborne trade has also increased.

2016 has been a horrible year for the dry bulk shipping industry. After the Baltic Dry Index (BDI) reached an all-time-low of 290 on 10 February, it improved steadily throughout the year to peak in mid-November at 1,261. This was driven by and benefitted mainly the capesize ships as they transported the key commodities of iron ore into China. As The Year Progressed, The Situation Eased As Demand Growth Outstripped The Impact Of The Net Supply Growth Of The Fleet (Sand, 2017).

### 5. Maritime Transportation and Bulk Cargo in Turkey

Turkey is located at the crossroads between Europe and Asia. This geographical location enables Turkish ports to handle significant amount of cargo between the Western and the Eastern points. Shipping is the most usual method of transportation for Turkey's exports and imports, with respective shares of 46.0 percent and 59.1 percent. 85 percent of the volume of Turkey's foreign trade transportation has been carried by sea (Republic of Turkey Ministry of Transport and Communications, 2011).

In the maritime transport sector of Turkey related with the following fields: Turkish merchant fleet, Turkish ports, cabotage, financial policy, safety and security, protection of the environment, maritime education and training, new maritime trade links.

87,7 % of the Turkey's foreign trade is being realised by maritime transportation. The progress of transportation between the years of 2006-2015 is shown in the Table below by the modes of transportation. 87,7 % of the volume of Turkey's foreign trade transportation has been carried by sea, 10.7 % has been carried by road, 0.5 % has been carried by rail, 0.4 % has been carried by air and 0.7 % has been carried by other transportation modes (Turkish Chamber Of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016).

Maritime transport plays a major role at the lengthy Turkish coast, for national as well as international transportation. Turkey also has great potential in terms of intermodal transportation, owing to its privileged geographical position amid European, Central Asia and Middle Eastern countries. The country's land bridge position in North-South and East-West transportation ensures that ports play a vital role in logistics and shipping operations (Bloem, *et al.*, 2013).

In 2016 Turkish tonnage under foreign flags is 20.8 million DWT, as of 1 January 2016, concerning the ships of 1000 GT and above, the total tonnage of the Turkish shipowners, both under Turkish flag and foreign flags is 29.1 million DWT. As of the beginning of 2016, regarding the Turkish Ship owners' ships of 1000 GT and above, 35.9 % percent of these ships are registered under Turkish flag and 64.1 % are registered under foreign flags.

**Table 2.** *Turkish Ships Under the National Flag and Foreign Flags (1000 GT and over)*

Year	National Flag		Foreign Flag		Total Fleet Controlled 1000 DWT
	1000 DWT	%	1000 DWT	%	
1999	8.697	90,48	915	9,52	9.612
2000	8.269	90,63	855	9,37	9.124
2001	7.321	82	1.607	18	8.928
2002	7.815	83,77	1.514	16,23	9.329
2003	7.045	79,9	1.772	20,1	8.817
2004	6.556	75,23	2.159	24,77	8.715
2005	6.427	70,23	2.725	29,77	9.152
2006	6.844	65,47	3.609	34,53	10.453
2007	6.464	58,16	4.650	41,84	11.114
2008	6.592	50	6.591	50	13.183
2009	6.736	43,9	8.592	56,2	15.328
2010	7.246	42,1	9.954	57,9	17.201
2011	7.797	39,7	11.863	60,3	19.660

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2012	8.479	37,6	14.093	62,4	22.572
2013	9.488	31,3	20.838	68,7	30.326
2014	8.580	28,2	21.846	71,8	30.427
2015	8.297	30,2	19.209	69,8	27.507
2016	8.272	35,9	20.879	64,1	29.151

**Source:** ISL January-February 2016 from Turkish Chamber Of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016. Maritime Sector Report 2015, İstanbul.

The Turkish fleet range among the World fleets between the years 2005 and 2016 is as follows ([Turkish Chamber Of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

- In 2005, the 24 th
- In 2006, the 24 th
- In 2007, the 26 th
- In 2008, the 25 th
- In 2009, the 26 th
- In 2010, the 26 th
- In 2011, the 24 th
- In 2012, the 23 rd
- In 2013, the 22 nd
- In 2014, the 23 rd
- In 2015, the 23 rd
- In 2016, the 23 rd

### *5.1. Foreign Trade Transportation by Types of Cargoes in 2015*

The major segments of the exports and transit loading goods in 2015, which realized totally as 150,7 million tons are % 45,40 Liquid Bulk cargo, 28,59 % Container, 12,41 % general cargo, 10,74 % dry bulk cargo and % 2,85 vehicle. Major segments of the imported and transit unloading goods in 2015, which realized totally as 239,4 million tons are 36,97 % dry bulk cargo, 27 % Liquid bulk Cargo, 17,89 % Container, % 16,30 General Cargo and % 1,85 vehicle.

### *5.2. Turkish Merchant Fleet by Number and Tonnage According to Import and Build (1000 GT and over)*

Turkish merchant fleet has been made according to Turkish National Ship Registry and Turkish International Ship Registry. The values which were established for individual ship groups have been considered by number, tonnage, import and build in Turkey.

Number and tonnage evaluations have been shown totally as of 31 December 2015.

Turkish merchant fleet consists of 593 ships. Distribution of 593 ships by their types; 34,91 % dry cargo ships, 14,33 % bulk carriers, 9,78 % chemical tankers, 9,61 % containers and 5,73 % service ships, 25,64 % other types of ships ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

### *5.3. The Turkish Merchant Fleet by National and International Registries*

The majority of the fleet registered in National Ship Registry (802.829 DWT) is composed of bulk carriers (56,81 %), container (27,94 %), dry cargo ships (9,51 %) and other types of ships (5,74 %) ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

### *5.4. The Age Profile of Turkish Merchant Fleet*

The Merchant Fleet of 1.000 GT and above comprises of 593 ships. The average age of these ships is 26,38 as of 31.12.2015. The average age of bulk carriers is 13 which consists of 48,7 % of the fleet ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

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The Turkish bulk carrier segment (85 ships) which is 4.060.264 DWT.

- 47 ships of 2.692.866 DWT are between 0-9 age range,
- 22 ships of 967.147 DWT are between 10-19 age range,
- 7 ships of 202.978 DWT are between 20-29 age range,
- 9 ships of 197.273 DWT are between 30 and over age range.

It is critical that Turkish maritime transportation as a vital component of our nation's transportation system, and plays significant role in the Turkish. Maritime industry and port infrastructure.

### *5.5. Turkish Merchant Fleet by Number and Tonnage 1000 DWT and Over (Accepted International Seaborne Transportation Tonnage)*

*Turkish merchant fleet consists of 613 ships, 12 % of total fleet (73 ships) registered in National Ship Registry and 88 % of total fleet (540 ships) registered in International Ship Registry.*

11.2 % of the bulk carrier segment which is totally 4.060.264 DWT are registered in National Ship Registry, 88.8 % are registered in International Ship Registry ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

## 6. Conclusion

Bulk shipping provides the most effective way of transporting large volumes of low value cargo ([Roberts, Pettit, & Marlow, 2013](#)).

According to data from the United Nation Conference on Trade and Development (UNCTAD), world seaborne trade volumes were estimated to have exceeded 10 billion tons in 2015. Bulk cargo represent approximately 30 % of the shipping volumes worldwide ([UNCTAD, 2016](#)). While in 1970 international seaborne trade accounted for 2 605 millions of tons loaded, in 2015 international seaborne trade accounted for 10 047 millions of tons loaded. In 2015, dry cargo shipments accounted for 70.7 per cent of total seaborne trade volumes, oil and gas shipments accounted for 29.3 per cent of total seaborne trade volumes. The five major bulk commodities (iron ore, coal, grain, bauxite/ alumina and phosphate rock) account for about 57% of total volume of all transported dry bulk commodities ([UNCTAD, 2014](#)).

The maritime transportation play a vital role in transportation of Turkey. 87,7 % of the volume of Turkey's foreign trade transportation has been carried by sea, 10.7 % has been carried by road, 0.5 % has been carried by rail, 0.4 % has been carried by air and 0.7 % has been carried by other transportation modes ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

The progress of Turkey's seaborne trade has been examined under two headings as maritime cabotage and international transportation. The total cabotage transportation in 2015 is 39.033.371 tons; 12.455.087 tons is carried by Ferries and 26.578.284 tons is carried as bulk and partial cargoes ([Turkish Chamber of Shipping İstanbul & Marmara, Aegean, Mediterranean, Black Sea Regions, 2016](#)).

International sea transportation includes the transit cargoes belonging to other countries, being loaded and unloaded in the harbors of Turkey, besides export and import goods. The transportation of foreign trade cargoes; 11 % of the import transportation totaling 208,3 million tons have been carried by Turkish flag vessels. 15 % of the export transportation totaling 92,2 million tons have been carried by Turkish flag vessels. The transportation of seaborne foreign trade cargoes increased to 264 million tons when compared with 2015 (160,1 million tons). Import goods increased to 208 million tons, (139,4 million tons) export goods increased to 92,1 million tons (63,3 million tons) when compared with 2006 with the same period. The major segments of the exports and transit loading goods in 2015, which realized totally as 150,7 million tons are % 45,40 Liquid Bulk cargo, 28,59 % Container, 12,41 % general cargo, 10,74 % dry bulk cargo and % 2,85 vehicle.

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