

**ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ**



**ΤΜΗΜΑ ΝΑΥΤΙΛΙΑΚΩΝ ΣΠΟΥΔΩΝ**

**ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ**

**στην ΝΑΥΤΙΛΙΑΚΗ ΔΙΟΙΚΗΤΙΚΗ**

**ΑΞΙΟΛΟΓΗΣΗ ΟΙΚΟΝΟΜΙΚΗΣ ΑΠΟΔΟΣΗΣ ΚΑΙ  
ΑΠΟΤΙΜΗΣΗ ΕΛΛΗΝΙΚΩΝ ΝΑΥΤΙΛΙΑΚΩΝ  
ΕΤΑΙΡΕΙΩΝ ΜΕΤΑΦΟΡΑΣ ΥΦΑ ΕΙΣΗΓΜΕΝΕΣ  
ΣΤΟ ΧΡΗΜΑΤΙΣΤΗΡΙΟ ΤΩΝ ΗΠΑ.**

**Κορομπίλια Ιφιγένεια**

*Διπλωματική Εργασία*

*που υποβλήθηκε στο Τμήμα Ναυτιλιακών Σπουδών του Πανεπιστημίου Πειραιώς ως μέρος των  
απαιτήσεων για την απόκτηση του Μεταπτυχιακού Διπλώματος Ειδίκευσης στην Ναυτιλιακή  
Διοικητική*

*Πειραιάς  
Μάρτιος 2021*

## **Δήλωση αυθεντικότητας / Ζητήματα Copyright**

Το άτομο το οποίο εκπονεί την Διπλωματική Εργασία φέρει ολόκληρη την ευθύνη προσδιορισμού της δίκαιης χρήσης του υλικού, η οποία ορίζεται στην βάση των εξής παραγόντων: του σκοπού και χαρακτήρα της χρήσης (εμπορικός, μη κερδοσκοπικός ή εκπαιδευτικός), της φύσης του υλικού, που χρησιμοποιεί (τμήμα του κειμένου, πίνακες, σχήματα, εικόνες ή χάρτες), του ποσοστού και της σημαντικότητας του τμήματος, που χρησιμοποιεί σε σχέση με το όλο κείμενο υπό copyright, και των πιθανών συνεπειών της χρήσης αυτής στην αγορά ή στη γενικότερη αξία του υπό copyright κειμένου.

Η δηλούσα

Κορομπίλια Ιφιγένεια

## Τριμελής Εξεταστική Επιτροπή

Η παρούσα Διπλωματική Εργασία εγκρίθηκε ομόφωνα από την Τριμελή Εξεταστική Επιτροπή που ορίστηκε από τη ΓΣΕΣ του Τμήματος Ναυτιλιακών Σπουδών Πανεπιστημίου Πειραιώς σύμφωνα με τον Κανονισμό Λειτουργίας του Προγράμματος Μεταπτυχιακών Σπουδών στην Ναυτιλιακή Διοικητική.

Τα μέλη της Επιτροπής ήταν:

- Παντουβάκης Άγγελος (Επιβλέπων)
- Πολέμης Διονύσιος
- Καρακασνάκη Μαρία

Η έγκριση της Διπλωματική Εργασίας από το Τμήμα Ναυτιλιακών Σπουδών του Πανεπιστημίου Πειραιώς δεν υποδηλώνει αποδοχή των γνώμων του συγγραφέα.

## Ευχαριστίες

Ιδιαίτερες ευχαριστίες θα ήθελα να αποδώσω ξεχωριστά σε όλους όσους με βοήθησαν στην υλοποίηση της παρούσας διπλωματικής.

Αρχικά, θα ήθελα να ευχαριστήσω τον επιβλέποντα καθηγητή και Πρόεδρο του μεταπτυχιακού προγράμματος στη Ναυτιλιακή Διοικητική του Πανεπιστημίου Πειραιώς κ. Παντουβάκη Άγγελο για τις εύστοχες επισημάνσεις και παρατηρήσεις του και για την πολύτιμη βοήθεια που μου παρείχε καθ' όλη την διάρκεια της εκπόνησης της διπλωματικής. Επιπρόσθετα, νιώθω αμέριστη εκτίμηση για τους καθηγητές που απαρτίζουν τη τριμελής επιτροπή, για τις πολύτιμες γνώσεις και εφόδια που έλαβα κατά την διάρκεια του προγράμματος.

Τέλος, θα ήθελα να ευχαριστήσω την οικογένειά μου για την συμπαράσταση και την υπομονή που έδειξαν κατά την εκπόνηση της παρούσας διπλωματικής εργασίας, αλλά και καθ' όλη τη διάρκεια των σπουδών μου στο Πρόγραμμα Μεταπτυχιακών σπουδών στην Ναυτιλιακή Διοικητική του Πανεπιστημίου Πειραιώς.

## ΠΕΡΙΛΗΨΗ

Στόχος της παρούσας μελέτης είναι η αξιολόγηση της οικονομικής απόδοσης δύο ελληνικών ναυτιλιακών εταιρειών μεταφοράς υγροποιημένου φυσικού αερίου (ΥΦΑ) εισηγμένων στο χρηματιστήριο των Η.Π.Α., καθώς και η αποτίμησή τους για τον προσδιορισμό της δίκαιης αξίας των εξεταζόμενων εταιρειών, αλλά και της τιμής-στόχου της κάθε μετοχής τους που διαπραγματεύονται στο χρηματιστήριο της Νέας Υόρκης (NYSE).

Σε αρχικό στάδιο γίνεται επισκόπηση της αγοράς υγροποιημένου φυσικού αερίου (ΥΦΑ) με αναφορά στα πρόσφατα μεγέθη προσφοράς και ζήτησης φυσικού αερίου, εμπορικών τιμών και ναύλων μεταφοράς υγροποιημένου φυσικού αερίου καθώς και η εξέλιξη του στόλου μεταφοράς LNG τα τελευταία χρόνια. Επιπλέον, γίνεται παρουσίαση των εξεταζόμενων ελληνικών ναυτιλιακών εταιρειών μεταφοράς ΥΦΑ, Dynagas LNG Partners LP και GasLog Ltd.

Στη συνέχεια, η μέθοδος που χρησιμοποιείται για την αξιολόγηση της οικονομικής απόδοσης των εταιρειών Dynagas LNG Partners LP και GasLog Ltd. είναι ο υπολογισμός οικονομικών αριθμοδεικτών για την περίοδο των πέντε τελευταίων ετών (2015 -2019). Η αξιολόγηση της οικονομικής απόδοσης με τη χρήση αριθμοδεικτών έχει στόχο την ανάλυση σε βάθος της οικονομικής θέσης των επιχειρήσεων, της δυναμικής εικόνας της επιχειρηματικής τους προσπάθειας και τον προσδιορισμό της αποτελεσματικής ή μη χρησιμοποίησης των περιουσιακών στοιχείων της επιχειρηματικής τους δραστηριότητας. Οι κατηγορίες αριθμοδεικτών που υπολογίζονται χρησιμοποιούνται επομένως για την αξιολόγηση της ρευστότητας, δραστηριότητας ή κερδοφορίας, αποδοτικότητας, διάρθρωσης κεφαλαίων και βιωσιμότητας όπως και αποτίμησης των μετοχών των εξεταζόμενων εταιρειών.

Με την ολοκλήρωση αξιολόγησης της οικονομικής τους απόδοσης, ακολουθεί η αποτίμηση των δύο ναυτιλιακών εταιρειών με τη μέθοδο Προεξόφλησης Ταμειακών Ροών (Discounted Cash Flow Model). Η αποτίμηση των εταιρειών και ιδίως των εισηγμένων, είναι αναγκαία για τη διερεύνηση επενδυτικών ευκαιριών καθώς και για τον προσδιορισμό υποτιμημένων ή υπερτιμημένων μετοχών. Στην παρούσα μελέτη θα πραγματοποιηθεί πρακτική εφαρμογή της μεθόδου DCF για τις ναυτιλιακές εταιρίες Dynagas LNG Partners LP και GasLog Ltd. με σκοπό τον προσδιορισμό της εσωτερικής αξίας και δίκαιης τιμής της μετοχής τους με βάση τη χρηματοοικονομική ανάλυση που προηγήθηκε στις υπό αποτίμηση εταιρείες. Οι προβλέψεις που παρουσιάζονται στην παρούσα ανάλυση δύνανται να αποτελούν ένα από τα πολλά πιθανά σενάρια μελλοντικών εξελίξεων των μετοχών, με βάση τις παραδοχές που λήφθηκαν υπόψη για την εξαγωγή τους.

**Λέξεις κλειδιά: Χρηματοοικονομική Ανάλυση, Χρηματοοικονομικοί Δείκτες, Αποτίμηση Επιχειρήσεων, Μέθοδος Προεξόφλησης Ταμειακών Ροών, Ναυτιλιακές Εταιρείες Μεταφοράς υγροποιημένου φυσικού αερίου (ΥΦΑ)**

## ABSTRACT

The aim of this study is to evaluate the financial performance of two Greek shipping companies transporting liquefied natural gas (LNG) listed on the U.S. stock exchange, as well as their valuation to determine the fair value of these companies, and the target price of their shares traded on New York Stock Exchange (NYSE).

At an early stage, the liquefied natural gas (LNG) market is reviewed with reference to the recent supply and demand volumes of natural gas, natural gas trade prices and LNG carrier spot freight rates as well as the evolution of the LNG fleet in recent years. Then follows a presentation of the examined Greek LNG shipping companies, Dynagas LNG Partners LP and GasLog Ltd. which are listed on NYSE.

Subsequent, the method used to evaluate the financial performance of Dynagas LNG Partners LP and GasLog Ltd. is the calculation of financial ratios for the period of the last five years (2015 -2019). The assessment of financial performance using financial ratios aims to achieve in-depth analysis of the financial position of companies, the dynamic image of their business endeavor and the determination of the efficient or non-efficient use of their assets in their business activity. The categories of financial ratios calculated are therefore used to evaluate liquidity, profitability and operating efficiency, the capital structure and viability as well as the valuation of the shares of the examined companies.

After the completion of the assessment of their financial performance, the valuation of the two shipping companies follows applying the Discounted Cash Flow (DCF) Model. Valuation of enterprises, especially listed companies, is necessary to explore investment opportunities as well as to identify undervalued or overvalued shares. In this study, the practical application of the DCF method will be carried out for the LNG shipping companies Dynagas LNG Partners LP and GasLog Ltd. in order to determine the intrinsic value and fair value of their shares based on the financial analysis that preceded the companies under valuation. The forecasts presented in the present analysis can be one of the many possible scenarios for future stock developments, based on the assumptions made for their export.

**Keywords / Phrases: Financial Performance Analysis, Financial Ratios, Enterprise Valuation, Discounted Cash Flow Method, Liquefied Natural Gas (LNG) Shipping Companies**

## Table of Contents

1. INTRODUCTION.....	10
2. NATURAL GAS MARKET DESCRIPTION .....	12
2.1 NATURAL GAS DESCRIPTION.....	12
2.2 NATURAL GAS MARKET OVERVIEW.....	14
2.3 NATURAL GAS PRICES .....	16
2.4 LNG SUPPLY .....	17
2.5 LNG EXPORTS .....	19
2.6 LNG DEMAND .....	20
2.7 LNG IMPORTS .....	22
2.8 LNG CARRIER FREIGHT RATES .....	23
2.9 LNG TRADE ROUTES .....	24
2.10 LNG FLEET.....	26
3. GREEK LNG SHIPPING COMPANIES OVERVIEW .....	28
3.1 DYNAGAS LNG PARTNERS LP .....	28
3.2 GASLOG LTD.....	32
4. FINANCIAL RATIO ANALYSIS .....	35
4.1 PROFITABILITY RATIO ANALYSIS .....	37
4.2 OPERATING RATIO ANALYSIS .....	40
4.3 LIQUIDITY RATIO ANALYSIS.....	45
4.4 LEVERAGE RATIO ANALYSIS .....	47
4.5 VALUATION RATIO ANALYSIS .....	51
5. VALUATION OF ENTREPRISES .....	56
5.1 VALUATION OF ENTERPRISES .....	56
5.2 STOCK VALUE .....	58
5.3 EFFICIENT MARKET HYPOTHESES.....	59
5.4 DCF VALUATION METHOD.....	60
5.5 COST OF EQUITY .....	61
5.6 COST OF DEBT .....	63
5.7 WEIGHTED AVERAGE COST OF CAPITAL (WACC).....	64
6. VALUATION OF GREEK LNG SHIPPING COMPANIES.....	65
6.1 DYNAGAS LNG PARTNERS LP VALUATION.....	65
6.2 GASLOG LTD VALUATION .....	70
7. CONCLUSION .....	74
REFERENCES .....	76
APPENDIX .....	77

## List of Figures

Figure 2.1 Projected natural gas consumption worldwide from 1990 to 2035.....	12
Figure 2.2 World natural gas consumption in 2019, by country.....	13
Figure 2.3 International maritime trade in cargo ton-miles, 1999-2020.....	14
Figure 2.4 Major LNG flows in 2019.....	15
Figure 2.5 LNG Spot and JCC-Indexed, TTF and HH Prices.....	15
Figure 2.6 Global liquefaction capacity by country and global LNG production, 2016-2020.....	18
Figure 2.7 World leading gas-exporting countries in 2019 .....	19
Figure 2.8 Projected demand for liquid natural gas (LNG) worldwide by region.....	21
Figure 2.9 Liquefied natural gas import market share worldwide in 2019 by country .....	22
Figure 2.10 LNG Carrier Day Rates .....	23
Figure 2.11 Major trade movements 2019.....	25
Figure 2.12 Global Active LNG Fleet and Orderbook by Delivery Year and Average Capacity.....	27
Figure 2.13 Top Greek LNG Shipowners.....	28
Figure 4.1 Dynagas LNG Partners LP Operating Cycle .....	43
Figure 4.2 GasLog Ltd Operating Cycle .....	43
Figure 4.3 Dynagas LNG Partners LP BVPS and Stock Price .....	53
Figure 4.4 GasLog Ltd. BVPS and Stock Price .....	53
Figure 4.5 Dynagas LNG Partners LP Actual and estimated Dividend yields .....	55
Figure 4.6 GasLog Ltd Actual and estimated Dividend yields .....	55
Figure 6.1 Dynagas LNG Partners LP (DLNG) stock price forecasts .....	69
Figure 6.2 GasLog Ltd (GLOG) stock price forecasts .....	73

## List of Tables

Table 1. Dynagas LNG Partners LP fleet .....	30
Table 2. GasLog Ltd fleet .....	33
Table 3. GasLog Partners LP fleet .....	34
Table 4.1 Summary of financial ratios for LNG maritime transportation industry, GasLog Ltd and Dynagas LNG Partners LP for the fiscal year 2019 .....	36
Table 4.2 Dynagas LNG Partners Profitability ratios .....	37
Table 4.3 GasLog Ltd Profitability ratios .....	37
Table 4.4 Dynagas LNG Partners LP Operating ratios .....	40



Table 4.5 GasLog Ltd Operating ratios .....	40
Table 4.6 Dynagas LNG Partners LP Liquidity ratios .....	45
Table 4.7 GasLog Ltd Liquidity ratios .....	45
Table 4.8 Dynagas LNG Partners LP Leverage ratios .....	47
Table 4.9 GasLog Ltd. Leverage ratios .....	48
Table 4.10 Dynagas LNG Partners LP Valuation ratios .....	51
Table 4.11 GasLog Ltd. Valuation ratios .....	52
Table 6.1 Dynagas LNG Partners LP Reformulated Statements .....	65
Table 6.2 Dynagas LNG Partners LP Key Accounting Ratios Forecasts .....	66
Table 6.3 Dynagas LNG Partners LP WACC estimation .....	67
Table 6.4 Estimation of Dynagas LNG Partners LP Fundamental Value – DCF method .....	68
Table 6.5 Dynagas LNG Partners LP Price Target Summary .....	69
Table 6.6 Dynagas LNG Partners LP Recommendation Summary .....	69
Table 6.7 GasLog Ltd. Reformulated Statements .....	70
Table 6.8 GasLog Ltd. Key Accounting Ratios Forecasts .....	70
Table 6.9 GasLog Ltd. WACC estimation .....	71
Table 6.10 Estimation of GasLog Ltd. Fundamental Value – DCF method .....	72
Table 6.11 GasLog Ltd. Price Target Summary .....	73
Table 6.12 GasLog Ltd. Recommendation Summary .....	73

## **SECTION 1**

### **INTRODUCTION**

Natural Gas has recognized in the recent years tremendous evolution as a mean of energy production in industrial, residential and commercial sectors as well as electric power for house heating. The most recent years there is a lot conversation about the entrance of natural gas in the transportation sector as an alternative fuel in vehicles and vessels. The advantages arising from the use of natural gas or liquefied natural gas (LNG) instead petroleum, coal or iron ore are beneficial for the environment as it produces clean energy free of poisonous sulphur emissions (Sox), carbon dioxide (CO<sub>2</sub>) and nitrox (NO<sub>x</sub>) gases.

Internationally, the predominant way of natural gas transportation is through pipelines in the mainland. However, liquefied natural gas transportation through LNG vessels is definitely the fastest growing energy transmission system globally, due to innovative solutions in international logistics and continuous technological developments in liquefied natural gas trade. Benefiting from rapid development of LNG trade, Greek shipping companies seized the opportunity to develop their business in LNG transportation. Greek ship-owners and maritime professionals have proven their ability to play a leading role, shaping the international maritime industry through pioneering movements.

Motivated by the aforementioned developments, the current thesis aims to conduct financial performance assessment in two Greek LNG shipping companies listed on the NYSE, as well as to perform enterprise valuation to determine the fair price of the share of the companies. The selected shipping companies to examine in this study are Dynagas LNG Partners LP and GasLog Ltd. Dynagas LNG Partners LP is a limited partnership, which provides maritime transportation services of Liquefied Natural Gas (LNG). The company established in 2004 by Mr. George Prokopiou who is currently the chairman and its Management Office is placed in Glyfada, Greece. In November 2013, Dynagas completed its Initial Public Offering “IPO” having its common shares trading on the NYSE under the ticker symbol “DLNG”. GasLog Ltd. owns, manages and operates liquefied natural gas (LNG) carriers worldwide. The company established in 2003 by Mr. Peter G. Livanos who is currently the chairman and its Management Office is placed in Piraeus, Greece. In April 2012, GasLog Ltd. accomplished its initial public offering, or “IPO”, and its common shares began trading on the NYSE under the ticker symbol “GLOG”.

To evaluate the financial performance of the shipping companies will be implemented financial ratio analysis for the period 2015 to 2019. The data utilized for the calculation of the financial ratios are

derived from the Financial Statements including Balance Sheet, Income Statement and Cash Flow Statement, downloaded from Thomson Reuters Eikon Database. The financial performance assessment includes an extensive analysis of the companies' quality of profitability, operational efficiency, liquidity, capital structure and viability, as well as valuation of their shares trading on NYSE. The companies will be evaluated both in individual level and compared to the industry performance.

The leading principle of value creation is the companies' effort to create added value using the capital raised from investors to generate future cash flows, the return of which should exceed the cost of the invested capital. According to Damodaran (2015)<sup>1</sup>, the higher the rate of revenue growth and the more capital employed in profitable investments enjoying high returns the more value they create. Therefore, the objective of every enterprise is to maximize its value. Through the enterprise valuation process is concluded the determination of the "fair" or fundamental value of the company's share, which allows investors to assess whether that company's share is overvalued or undervalued. Correspondingly, the fundamental price of the share is particularly important to disclose to both existing and future investors. For this reason, the later purpose of the present study is to determine the fundamental value of the companies Dynagas and GasLog and consequently the fair price of their share traded on the stock exchange in order to identify investment opportunities. The data used to make assumptions about the future free cash flows and carry out the companies' valuation are based on their officially published financial statements as well as to analysts' forecasts in Thomson Reuters Eikon.

The rest of this study is organized as follows: Section 2 provides an extensive overview of the natural gas market, the evolution of natural gas consumption in certain regions, the dynamics of supply and demand as well as the leading exporting and importing LNG countries. Additionally, reference is made to the major LNG trade routes and LNG carrier spot freight rates and to LNG worldwide fleet development. In section 3 are presented in detail the examined Greek LNG shipping companies, Dynagas and GasLog as regards to their structure, fleet of vessels, strategy, chartering policy and risks inherent to their operation. Afterwards, section 4 demonstrates a comprehensive financial performance analysis of Dynagas and GasLog through the interpretation of financial ratios for the period 2015 to 2019. Subsequent, section 5 provides the theoretical framework of the Discounted Cash Flow model necessary for the companies' valuation. Finally in Section 6 are illustrated the empirical results of the DCF model application to Dynagas and GasLog revealing the fundamental value of their share along with investing recommendation. Finally, section 7 presents some concluding remarks.

---

<sup>1</sup> Damodaran, A., (2015) "*Applied Corporate Finance (4<sup>th</sup> Edition)*", Wiley, New York.

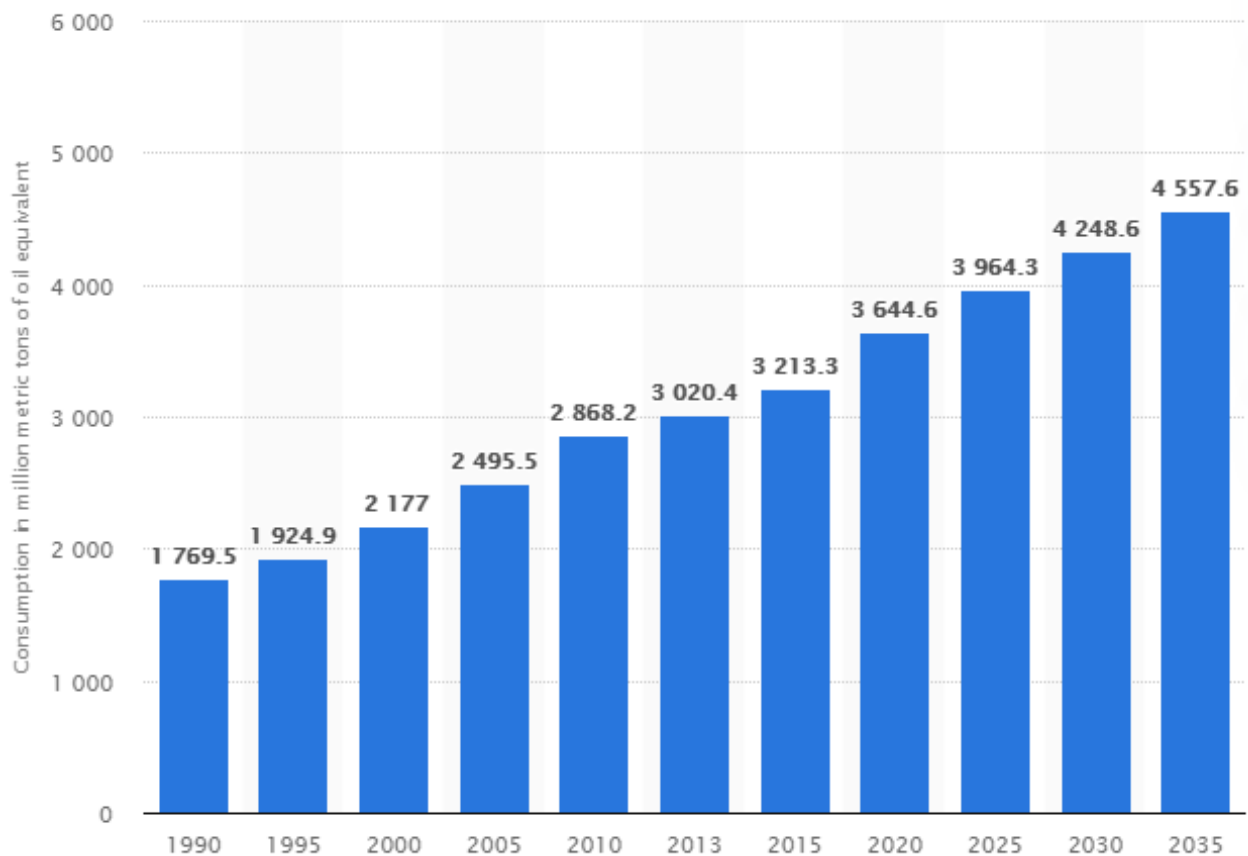
## SECTION 2

### NATURAL GAS MARKET DESCRIPTION

#### 2.1 NATURAL GAS DESCRIPTION

Natural Gas accounts a major source for energy production globally including among others oil, coal, solar, wind and nuclear power. The demand for natural gas has increased significantly than other fossil fuels in the last thirty years. Natural gas recognizes a plenty of advantages that possess it a competitive source of energy in the years to come. Some of these advantages is that natural gas can be considered a clean source of energy as it releases the lowest carbon emissions compared to other fossil fuels and it is the least affected by regulatory policies relevant to curb greenhouse gas emissions. Affected by the global economic growth and the following increased demand for energy as well as competitive pricing and market deregulation, natural gas demand and consumption has risen steadily in the recent years. Natural Gas generates 50%-60% lower carbon dioxide emissions and pollutants in power production than coal-fires power plants and in automobile engine, natural gas emanates 15%-20% less heat trapping gases than gas oil or gasoline.

**Figure 2.1 Projected natural gas consumption worldwide from 1990 to 2035  
(In million metric tons of oil equivalent)**

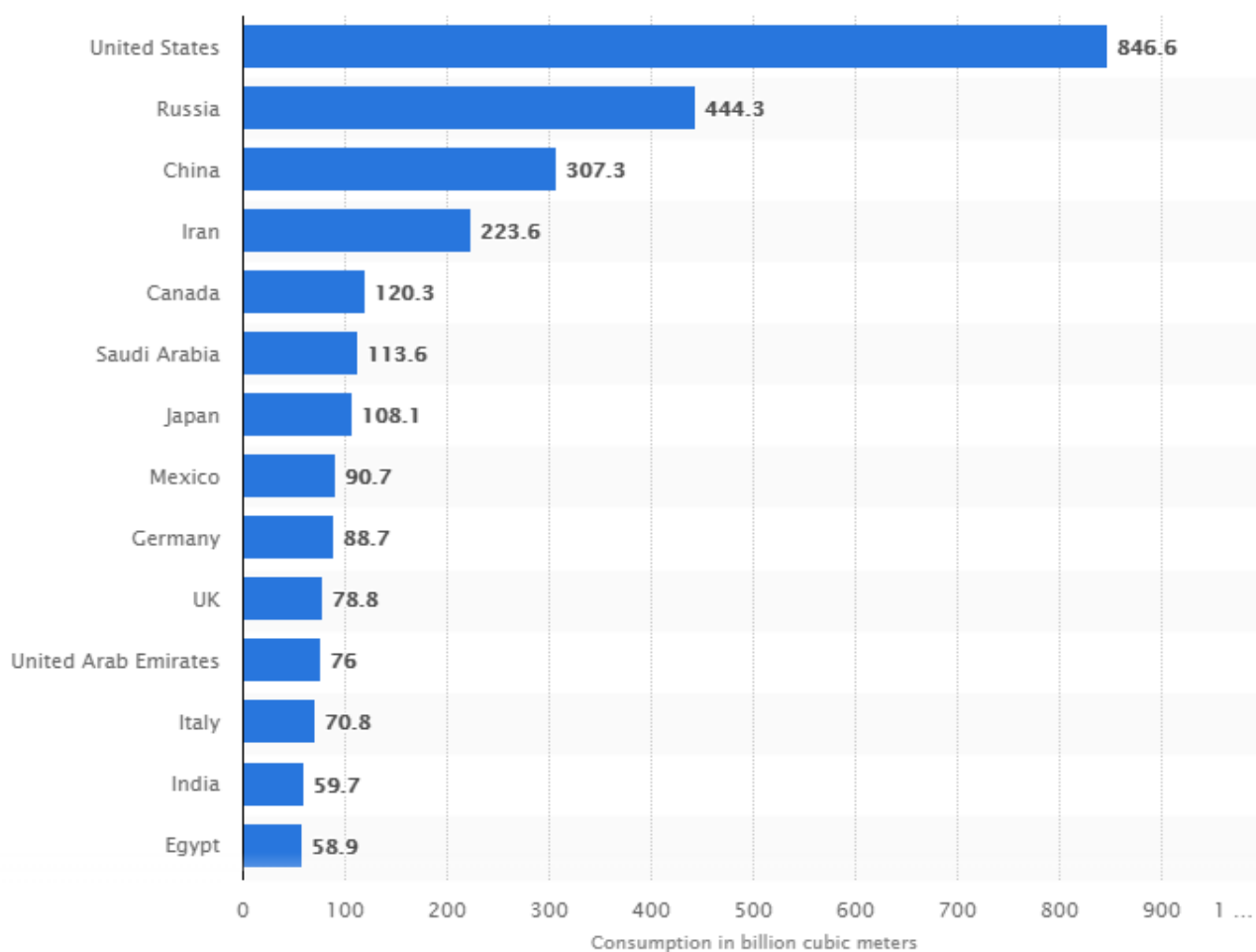


Source: Statista.com

The prenominal use of Natural gas is in power generation and heating. However, in recent years there is a lot conversation about using natural gas as marine fuel in vessels with the aim to benefit LNG technology advantages and comply with strict IMO emission regulations.

As illustrated in figure 2.1, the consumption on natural gas is projected to increase through 2035 with total approximately 3.65 billion metric tons of oil equivalent demonstrating the consumers’ desires to diversify energy sources. According to BP (2019)<sup>2</sup>, worldwide gas reserves are appraised at 196.9 trillion cubic meters (cbm), which is adequate for approximately 51 years of supply at current rates of consumption. Over the last 10 years, gas consumption has climbed 3.0% annually, with growth 5.2% annually in the Middle East, followed by 5.4% annually in Asia-Pacific and 4.9% annually in Africa. From 2009 to 2019, the large part of natural gas consumption growth to almost 1.7 times accounted for Asia-Pacific and the Middle-East regions.

**Figure 2.2 World natural gas consumption in 2019, by country  
(In billion cubic meters)**



Source: Statista.com

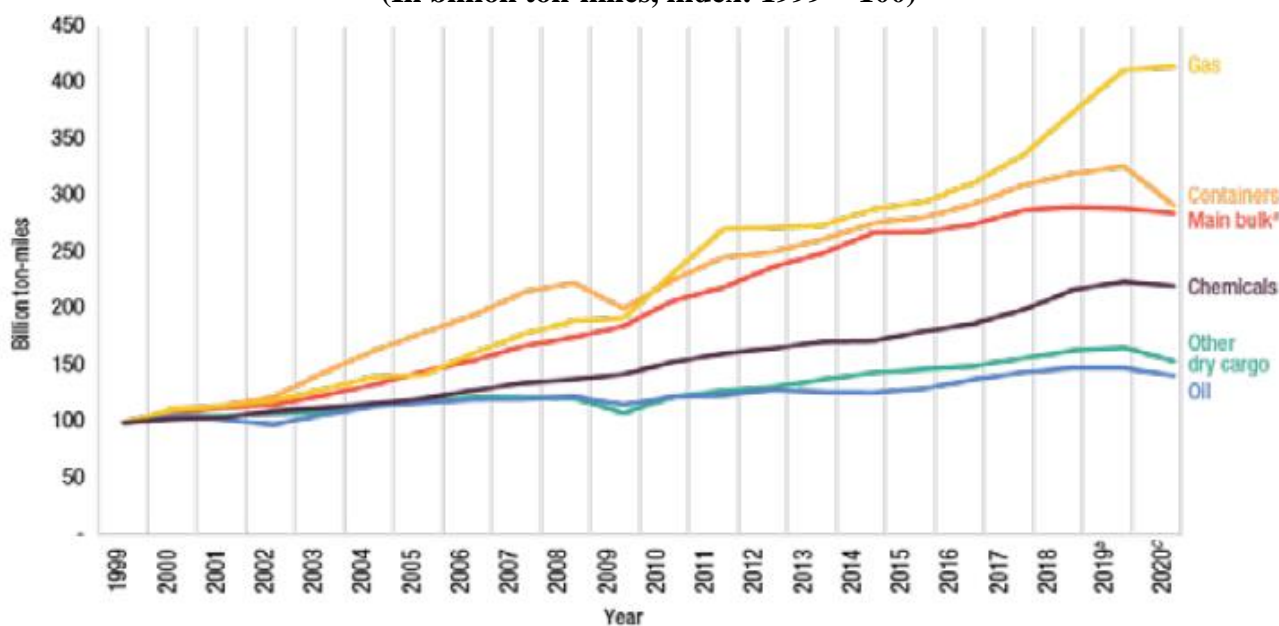
<sup>2</sup> BP (2019), “Statistical Review of World Energy”.

In 2019, the United States (U.S.) was the largest consumer of natural gas with 846.6 billion cubic meters and mostly used for house heating. Despite the large consumption, U.S. produce as well natural gas, through novel techniques such as horizontal drilling and hydraulic fracturing reaching at a surplus as domestic gas production exceeded domestic gas consumption in 2019, which may lead to a possible decrease in domestic gas prices and natural gas imports in the future.

## 2.2 NATURAL GAS MARKET OVERVIEW

According to UNCTAD 2020<sup>3</sup> and depicted in the below figure, global natural gas trade accounted about 400 billion ton-miles in 2019 and similarly estimated for the year of 2020. Global natural gas trade increased to 354.7 MT for the year 2019 by the amount of 40.9 MT compared to 2018 or 13% in terms of percentage growth rate. Global natural gas trade experiences a consecutive growth for a sixth year in a row, indicating the amplified demand and use of this type of commodity in the production of energy.

**Figure 2.3 International maritime trade in cargo ton-miles, 1999-2020**  
(In billion ton-miles, index: 1999 = 100)



Source: Clarksons Research, 2020a, *Shipping Review and Outlook*, spring.

Note: Seaborne trade data in ton-miles are estimated by Clarksons Research. Given methodological differences, containerized trade data in tons sourced from Clarksons Research are not comparable with data in TEUs sourced from MDS Transmodal.

<sup>a</sup> Includes iron ore, grain and coal.

<sup>b</sup> Estimated.

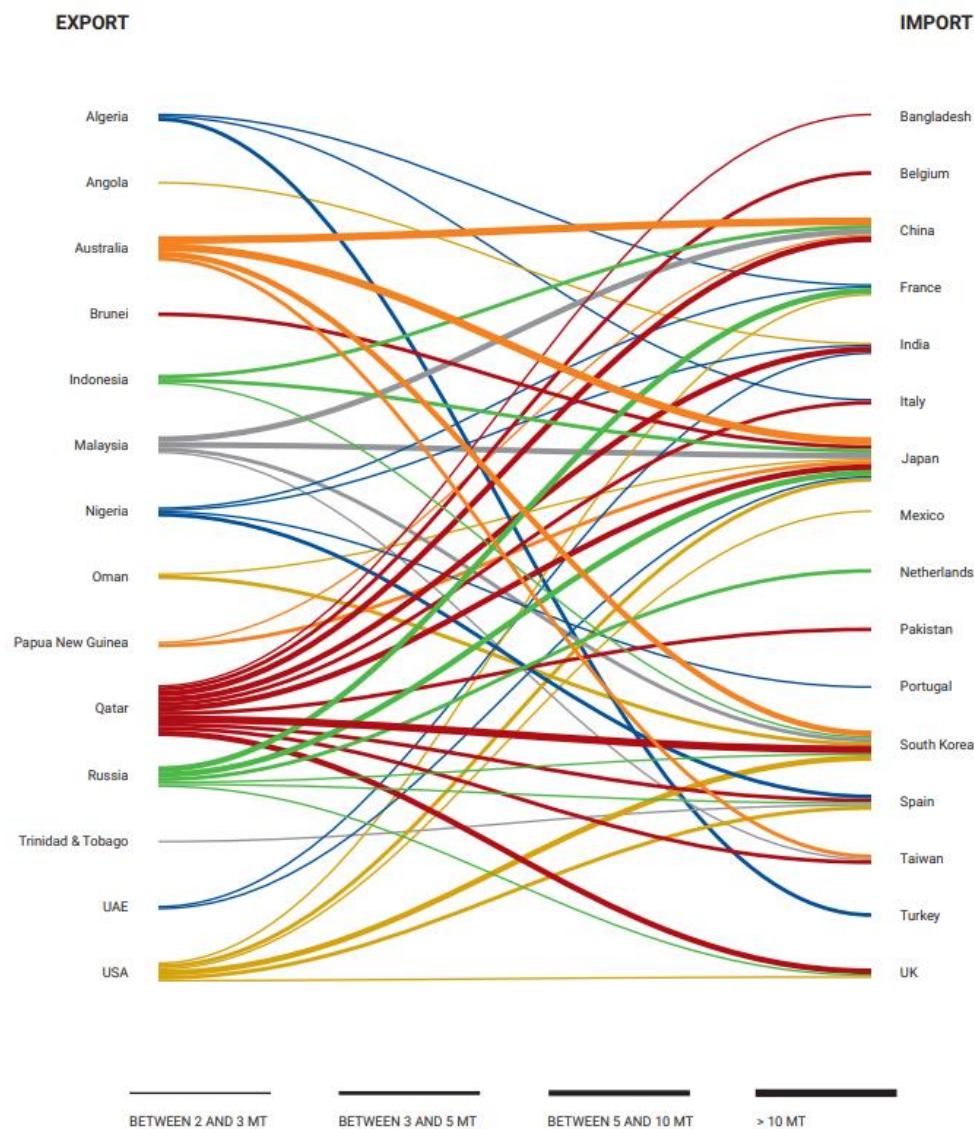
<sup>c</sup> Forecast.

In attempt to determine the trade relations between countries as regards to natural gas trade, it is worth mentioning the top countries that export and import Liquefied Natural Gas (LNG). According to

<sup>3</sup> UNCTAD (2020), “*Review of Maritime Transport 2020*”

International Group of Liquefied Natural Gas Importers<sup>4</sup> (GIIGNL), Qatar is the largest exporter of LNG in the world and managed to maintain this position by exporting 77.8 MT in 2019 mainly in South Korea, China, Japan and India. Australia is the second largest exporter of LNG with 75.4 MT in 2019 largely of which transported in China demonstrating the strong trade relations between these two countries. USA is the third largest exporter of LNG counting to 33.8 MT and mostly transferred to Japan, South Korea and European countries. Subsequently, Russia is the fourth largest exporter of LNG with 29.3 MT in 2019 distributed to European countries, Japan and South Korea. Malaysia consists the fifth largest LNG exporter with 26.2 MT in 2019 principally supply China, Japan and South Korea. In the following figure can be observed the major LNG flows in 2019.

**Figure 2.4 Major LNG flows in 2019**



Source: GIIGNL Annual Report 2020

<sup>4</sup> International Group of Liquefied Natural Gas Importers (GIIGNL) (2020), Annual Report

## 2.3 NATURAL GAS PRICES

In 2020 spot prices of Brent crude oil, a measure of oil prices, experienced consecutive fluctuations trading within a range of approximately \$65 per barrel to \$52 per barrel. In fact, on 8 March 2020, Brent crude oil prices were affected strongly by Saudi Arabia unexpected announcement to provide special price discount \$6 to 8\$ per barrel to customers in Europe, Asia and United States, having as result to drop by 30% surpassing its lowest historical rate since Gulf War. Nonetheless, crude oil prices have been under pressure from the beginning of the year because financial markets speculate over the potential negative effect of Covid-19 virus outbreak on oil demand and products.

**Figure 2.5 LNG Spot and JCC-Indexed, TTF and HH Prices  
(In \$ million British Thermal Units \$MMBtu)**



Source: Thomson Reuters Eikon

Comparable to global oil prices, global natural gas prices were also under sustained pressure for the most of 2019 continued to fall in 2020 as natural gas affected by increasing gas production in export markets likewise the United States and a milder winter in the Northern Hemisphere. In 2020, the measure of natural gas prices in Europe, Title Transfer Facility (“TTF”) averaged \$6.29 per million British Thermal Units (“MMBtu”) while in Asia, the Japan Korea Marker (“JKM”) averaged \$7.4 per MMBtu with both hitting multi-year lows during 2020. However, the astonishing rally in the Japan Korea Marker (“JKM”) spot price from an all-time history low of \$1.82/MMBtu at the end of April 2020 to an all-time high of \$32.50/MMBtu in January 2021 was the result of a perfect storm of high demand, shipping constraints and supply-side issues. This remarkable recovery was driven by an unprecedented supply-side response to low prices along with US LNG cancellations starting to



rebalance the market in the summer followed by resilient winter purchasing demand from Asian buyers in the fall and a number of supply-side issues.

In further to, U.S. natural gas spot prices measured by the national benchmark Henry Hub (“HH”) averaged \$2.05 per million British thermal units (MMBtu) in 2020, which is the lowest annual average price in decades mainly due to mild winter weather and lessened residential, commercial, and industrial consumption of natural gas. However, a shift to a colder weather in the first months of 2021 contributed to a substantial increase in Henry Hub prices that exceeded all of the closing prices from the previous months. According to U.S. Energy Information Administration (EIA) Short-term energy outlook (2021),<sup>5</sup> U.S. LNG exports touched a record high level in January 2021 for third consecutive month, and U.S. inventories is projected to weaken in lower than the five-year average by the end of March 2021. Notwithstanding the substantial demand increase, unplanned outages at a number of LNG export facilities in many countries also contributed to reduced global LNG supply. Normally, LNG export facilities run at maximum capacity in the winter because more than 97% of global LNG consumption befalls in the northern hemisphere, where regasified LNG is used for residence heating and the relevant use of LNG depends on prevailing weather conditions. According to EIA, in December 2020 the global LNG export capacity was exploited at 88% which is the lowermost level for the month in at least six years.

## 2.4 LNG SUPPLY

In 2020 global LNG supply growth was almost flat, rising a mere 0.5% from 2019 levels to 484bcm (excluding reloads). However, despite the fact that export growth from strategic producers like Qatar and Russia were largely stationary, the United States experienced a striking 31% increase in exports reaching to 65.5 bcm with expanded capacities at the Cameron, Freeport and Elba Island terminals. Turning to the Pacific basin, Australia’s exports grew approximately from 0.5bcm to around 105bcm regardless the issues at the Gorgon and Prelude projects.

In the last decades, LNG exporters were located in only three regions: North Africa including Algeria and Libya; Southeast Asia counting Indonesia, Malaysia, Brunei and Australia and the Middle East with Abu Dhabi and Qatar. Conversely, the entrances of Trinidad and Tobago, Nigeria, and Norway have contributed to an imperative regional diversification of LNG exports in the Atlantic basin. Additionally, the entrance of Oman as an exporter and the rapid development of Qatar's production have also situated the Middle East as a progressively major player in the global LNG market. Moreover, in 2019 Australia exceeded Qatar becoming the largest LNG producer and exporter

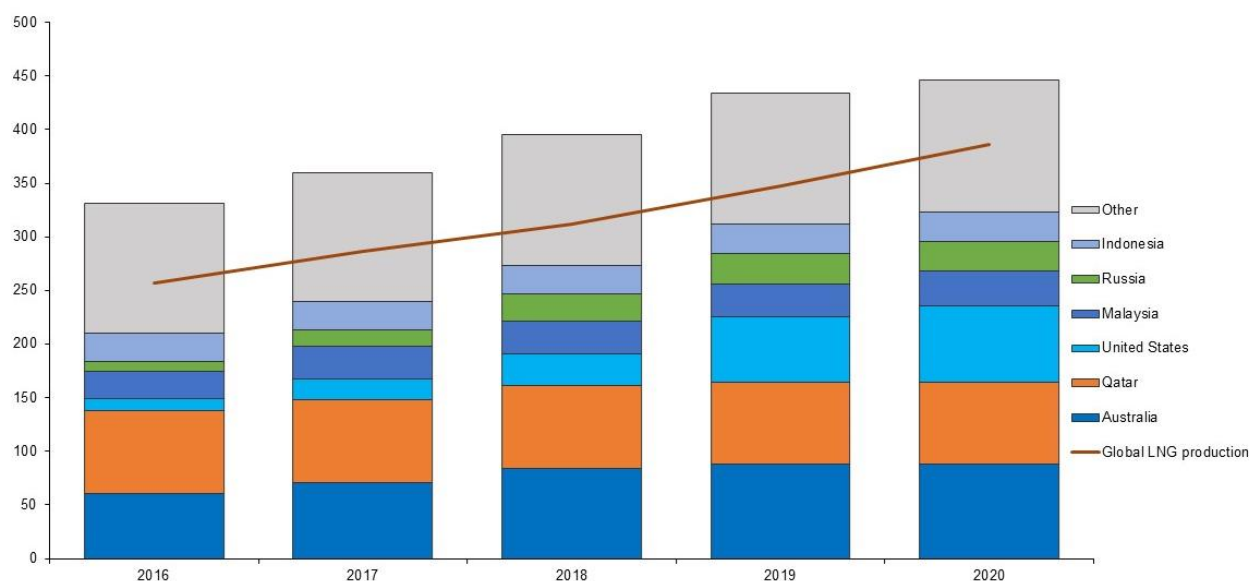
---

<sup>5</sup> U.S. Energy Information Administration (2021), “Short-term Energy Outlook” February 2021

resulting Australia's LNG exports to account for 23.1% of the global LNG exports in 2019. Qatar is currently the world's second largest producer and exporter of LNG, representing about 21.6% of the global LNG export in 2019. What posed Australia as the leading LNG exporter was among others the numerous M&A and sell-downs in LNG and oil and gas projects that allowed a multi-billion dollar transformation in the ownership of its LNG infrastructure.

According to Norton Rose Fulbright<sup>6</sup>, U.S. LNG exports was 13.1 million tonnes out of approximately 41 million tonnes of global LNG export volumes in 2019, holding a 10% of global market share and surpassing Malaysia, thus becoming the third largest exporter in the world. U.S. LNG exports have mainly benefited from the new trains that launched in 2019 and increased more than half of added global liquefaction capacity in 2019. Onshore LNG facilities in the U.S. are to expand, as there are approved 13 additional applications by the Federal Energy Regulatory Commission and some of them are scheduled to achieve FID in 2020 but the global economy reacts due to the impact of Covid-19 pandemic had as result to been delayed into 2021 and possibly beyond.

**Figure 2.6 Global liquefaction capacity by country and global LNG production, 2016-2020 (In million tonnes)**



Source: Rystad Energy research and analysis, Rystad Energy GasMarketCube

Moreover, a defining characteristic of the global LNG trade throughout 2020 was the sharp decline in demand mainly caused by the Covid-19 pandemic. According to U.S. Energy Information Administration<sup>7</sup>, the U.S. exported 8 Bcf/d in January 2020 while in July 2020 this decreased to 3.1 Bcf/d or by 61.2% in terms of percentage, mainly due to the global lockdowns that forced economy to

<sup>6</sup> Norton Rose Fulbright (2021), "Global LNG Outlook"

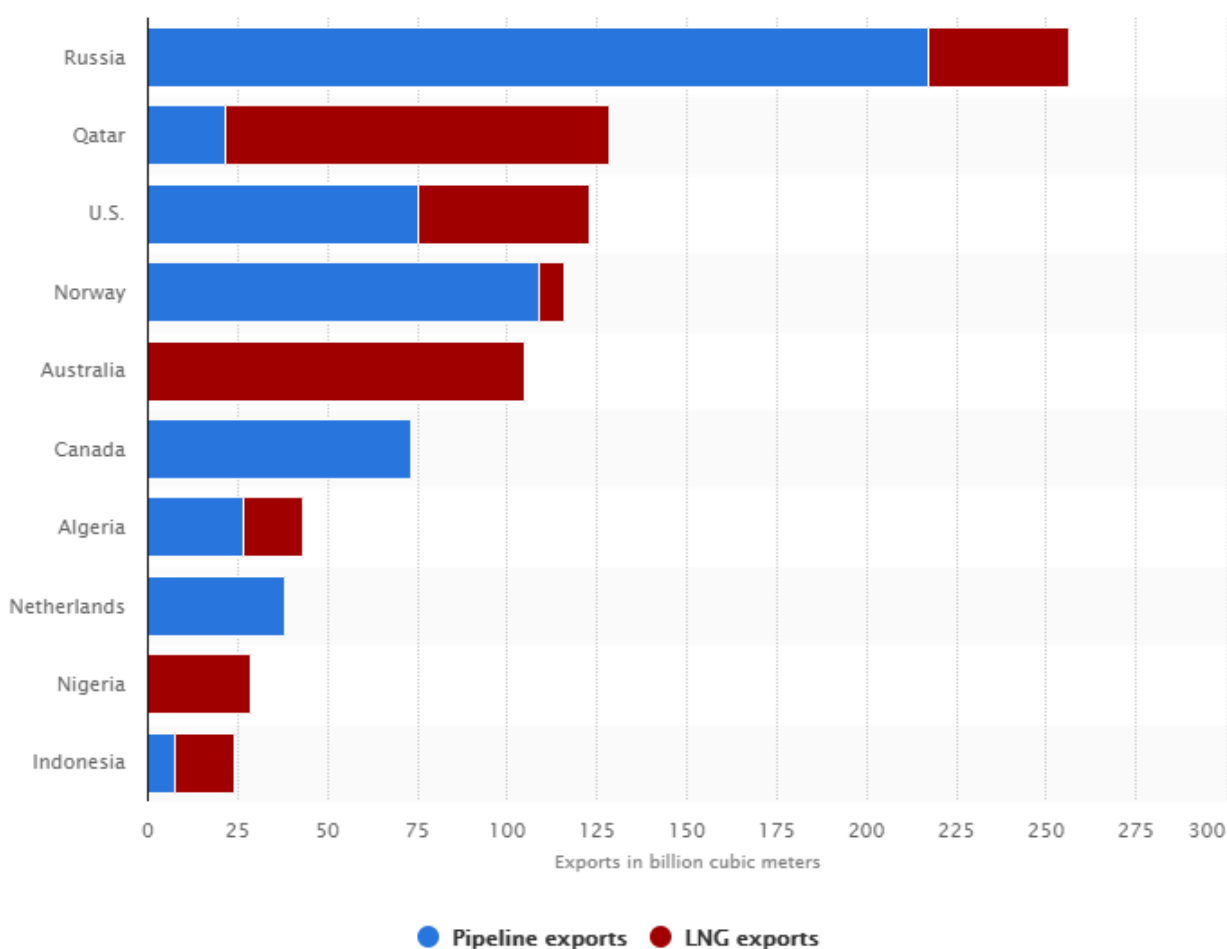
<sup>7</sup> U.S. Energy Information Administration (2020), "Short-Term Energy Outlook", December 2020

shutdown. In this evidence, until October 2020 were cancelled about 175 US LNG cargoes where 80% of them were arranged to load during the summer. Fortunately, this decline did not continue, as from November to December 2020 U.S. LNG exports set consecutive monthly records having exported 9.4 Bcf/d in November and 9.8 Bcf/d in both December 2020 and January 2021 respectively.

The enduring transformation of LNG into a globally traded commodity was an additional characteristic of the past year that allowed LNG players to hedge their risks in a volatile market. Despite the fact spot trading liquidity deteriorated because of the decrease in importing demand, spot trading has provided another capability to contracting challenges confronted by US exporters with excess available capacity. Up to now, U.S. liquefaction sector seems to have sheltered the damage imposed by cargo volume cancelations and it seemed to recover in pre-pandemic export volumes signalling that US will certainly shape the global LNG dynamics in 2021.

## 2.5 LNG EXPORTS

**Figure 2.7 World leading gas-exporting countries in 2019  
(in billion cubic meters)**



Source: Statista.com

As depicted in figure 2.7 Russia stands the world's leading natural gas exporter with 217.2 billion cubic meters through pipeline in 2019 and 39.4 billion cubic meters of natural gas. Norway is the second largest provider of pipeline natural gas as well as Canada's major trading partner is U.S. transferring gas through pipeline. What concerns LNG shipping companies is the natural gas exports because that determines the demand for LNG transportation.

Commonly, transporting natural gas through a pipeline from a producer to a consumer is the most economical way, on condition that the end users are not too far away from the natural gas reserves. Conversely, for some regions for instance the Far East, the insufficient pipeline infrastructure conveys that natural gas requires to be turned into a liquefied form (LNG), as this is the lone economical and feasible way to be transferred over long distances. Furthermore, LNG seaborne transportation is more flexible than through a pipeline as it can incorporate compulsory changes in trade patterns driven by economic or politic bodies.

## 2.6 LNG DEMAND

The major events that defined the LNG market in 2020, was the Covid-19 pandemic, spot prices rebounding from record lows to a six-year high, U.S. cargo cancellations as well as production issues. Early in 2020, demand was affected significantly from pandemic-related lockdowns; however, economies like China and India rapidly recovered and benefitted from the low-price atmosphere, offsetting declines from other markets that continued to feel the enduring impact of the pandemic. In 2020, Global LNG demand excluding northwest Europe held moderately unchanging to 434bcm and by including the region of northwest Europe, imports reached to 485bcm. According to Refinitiv Natural Gas & LNG Research<sup>8</sup>, it is estimated a return to growth, with global demand excluding northwest Europe to rise by 5% to 457bcm. Moreover, China is projected to leave behind Japan as the world's largest LNG importer in 2021, while strong growth is also expected from India and South Asia.

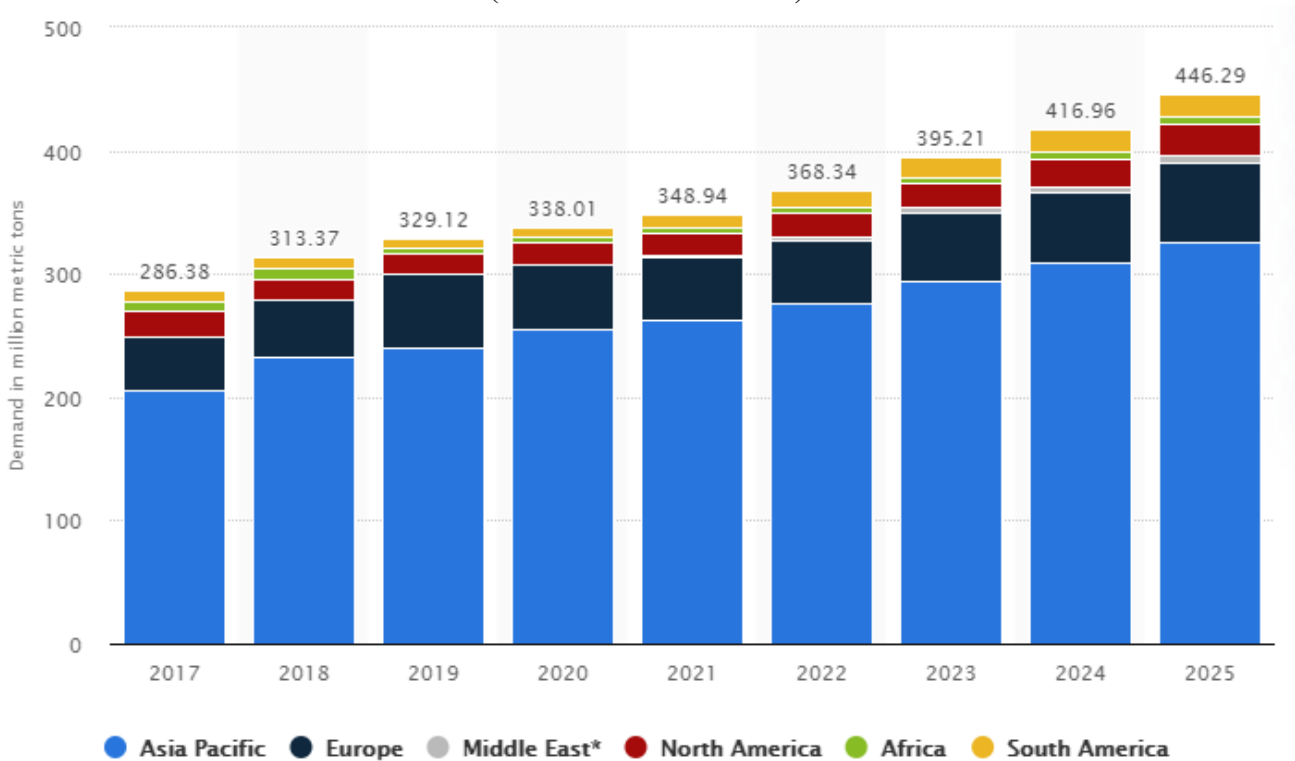
More specifically, LNG imports in Northeast Asian increased by 3% year-on-year to 273bcm with China accounting for one-third of volumes. The features that boosted Chinese LNG demand in the fourth quarter were among others the strong economic recovery from June 2020 as well as the fewer pipeline gas imports and an unseasonably cold winter. On the other hand, the import volumes in South Korea were basically the same as 2019, whereas Japan beheld demand drop by almost 4% as lingering impact from the pandemic weighed on downstream demand. In South and Southeast Asia, LNG

---

<sup>8</sup> Refinitiv Natural Gas & LNG Research (2021), "*LNG Outlook 2021: Recovery underway*"

imports accounted for 72bcm that is 5% higher than 2019 levels with India’s contribution to demand growth.

**Figure 2.8 Projected demand for liquid natural gas (LNG) worldwide by region  
(In million metric tons)**



Source: Statista.com

In addition to, LNG demand in Europe was stable at 62bcm in 2020. The attractive spot LNG prices over the spring and summer period resulted to a higher LNG demand in Turkey and Poland which offset the declines in Italy. It is estimated LNG demand to rise over 65bcm in 2021 as economies recover from the Covid-19 pandemic in the second half of the year, though a stable rise in oil prices could also allow a switch from pipeline supply to spot LNG. At the same time, the entrance of Croatia in LNG market with its first installed LNG terminal will also support higher European LNG demand as it transports natural gas to Hungary.

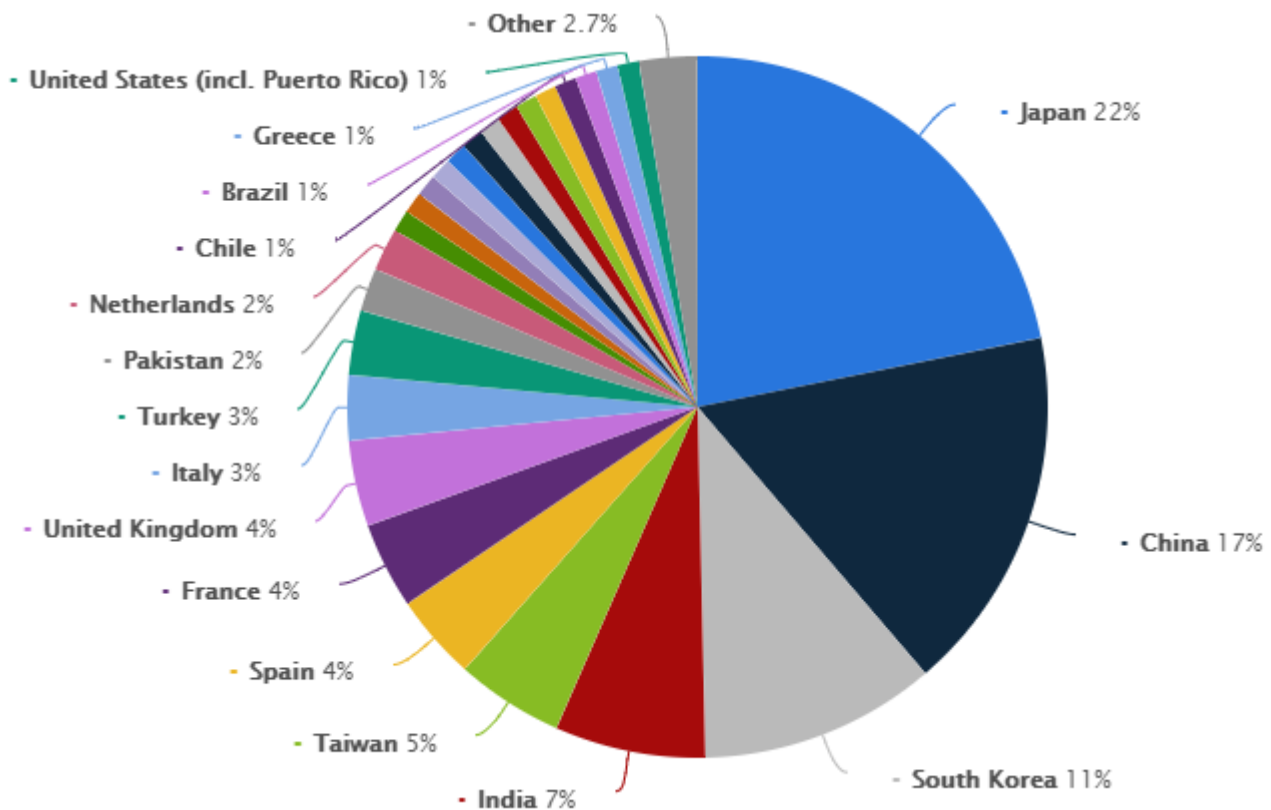
LNG demand in the Americas region for 2020 beheld a sudden decline, falling by around 4bcm to 19bcm as Mexico reduced LNG imports in favor of US pipeline gas. In 2021, it is anticipated a return to growth as Brazil and the Caribbean region turn to the international gas market for more supplies. The Middle East region imported 10.3bcm of LNG in 2020, witnessing an increase by about 4% from the previous year. Existing investments in superior LNG infrastructure are projected to trigger bigger demand for LNG in the coming years. LNG Demand is set to realize greater year-on-year growth from 2021 onwards, as it is expected to reach around 450 million metric tons by 2025, of which 326 million tons is driven by markets in Asia Pacific.

## 2.7 LNG IMPORTS

As illustrated in the below figure, Japan is the largest importer of LNG in 2019 representing 22% of the LNG import market share. Despite a notable reduction in nuclear availability and the large drop in GDP in the second quarter induced by a significant slowdown in economic activity due to the impact of the Covid-19 pandemic took its toll on electricity and gas demand in the industrial sector, weighing on LNG imports.

Following the global import market share of LNG, China was the second largest importers, with 17% in 2019 and is expected to continue with upward course. The combination of impressive economic recovery, low LNG spot prices throughout the spring and summer along with a reduction in pipeline imports, supported the strong uptake of LNG in 2020.

**Figure 2.9 Liquefied natural gas import market share worldwide in 2019 by country**



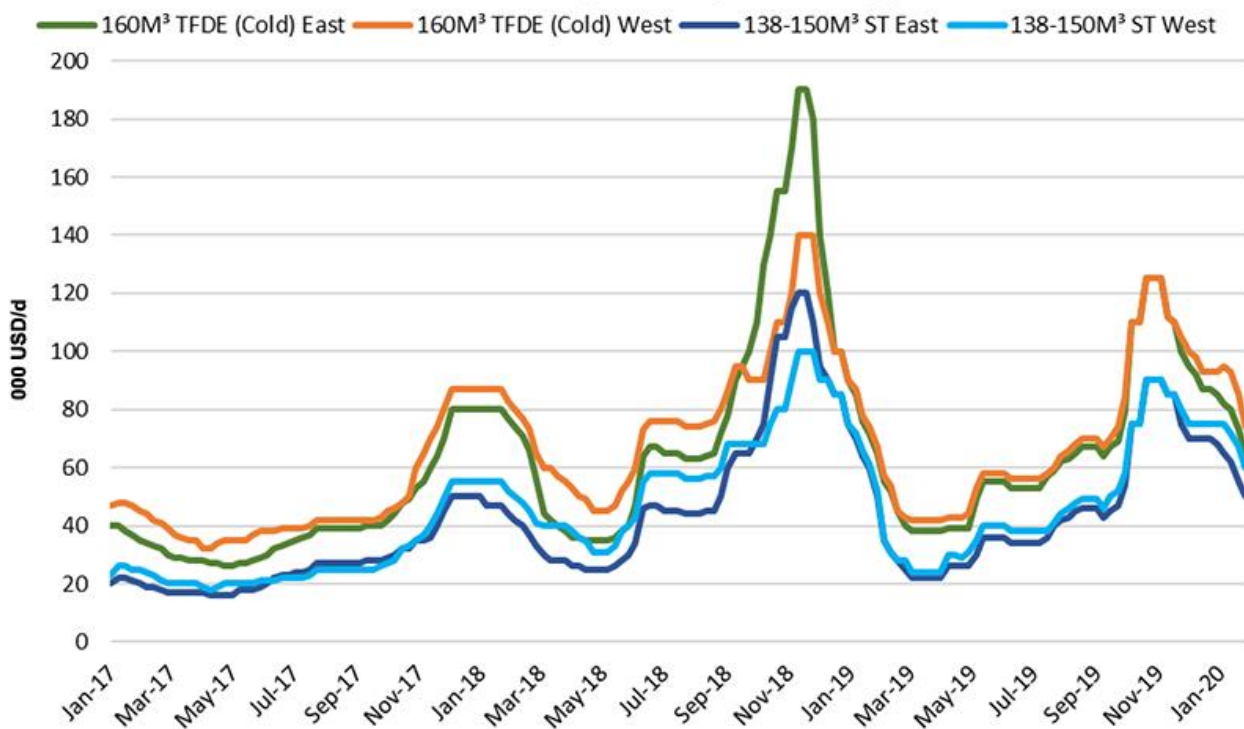
Source: Statista.com

South Korea was the third largest import country of LNG in 2019 accounting to 11% of the global LNG import market share and maintaining its position in 2020. Despite weaker economic activity in consequence of the pandemic, the closure of several coal-fired plants in 2020 and the temporary shutdown of six nuclear reactors following a typhoon during the autumn supported gas demand.

## 2.8 LNG CARRIER FREIGHT RATES

The Fukushima nuclear disaster in Japan on March 2011 had as a result the country to adopt LNG against nuclear power thus spot LNG freight rates rose significantly reaching its peak in 2012. This followed until 2016 where the demand slowed down and spot freight rates met their lowest level. Although the significant delivery of newbuilding vessels in 2018, spot freight rates responded with a steady increase. In the fourth quarter of 2018 spot earnings of LNG vessels reached a peak where demand for LNG vessels surpassed the supply growth in LNG vessels. The high LNG inventory levels in Europe and Asia, along with mild winter and lower LNG imported in China softened spot LNG rates in 2019.

**Figure 2.10 LNG Carrier Day Rates (In \$1,000/day)**



Source: Poten & Partners

Spot charter rates for tri-fuel diesel-electric (TFDE) LNG carriers in the Atlantic basin, averaged \$70,000 per day in 2019 realizing a 23% drop year-on-year. In further due to the decrease in gas prices for the most of 2019, the arbitrage opportunity for transporting LNG between the Atlantic and Pacific basins Low was limited. Nevertheless, the market balance tighten up in the fourth quarter of 2019, as proved by the steep surge in TFDE headline rates to an annual peak of \$140,000 per day in November, following a notable decrease in spot vessel availability. According to Poten<sup>9</sup>, 57 term charters were

<sup>9</sup> Poten & Partners (2020), "LNG in Market Outlook", February 2020

settled between six months and seven years in 2019, upheld to a decrease by 22% compared to 2018. From these term charters, 25 were for TFDE vessels and 12 were for Steam vessels. The term charter market for Steam vessels remains to be considerably less liquid than that for TFDEs.

Headline spot TFDE rates have dropped considerably from the high levels of the fourth quarter of 2019, with Clarksons reporting headline spot rates for TFDE at \$37,500 per day and for Steam LNG carriers at \$29,000 per day. Estimated sustained growth in LNG supply possibly would reinforce LNG vessel demand in the second half of 2020. Still, the very weak current prices and forward curves for natural gas in the strategic markets of North Asia and Europe could result in shorter average voyage distances and lower shipping requirements. The recent COVID-19 virus outbreak has also bring together uncertainty regarding near term demand for LNG, especially in China. Moreover, spot rates may be susceptible to further periods of seasonality and volatility similar to those realized in recent years.

Moreover, the supply/demand balance for LNG shipping may possibly deteriorate due to unexpected downtime or delays to the start-up of the LNG supply projects or even by a significant additional order in new LNG carriers. In the event of a weakened LNG demand or a limited LNG production capacity or substantial increase in LNG shipping capacity, could have a material adverse effect on LNG shipping companies' financial condition, as their ability to secure future time charters at attractive rates is dubious. The unexpected pandemic of Covid-19 virus combined with seasonality affected significantly LNG spot freight rates in the beginning of 2020 with sustained decline. More specifically the TDFE West of Suez spot rates dropped at \$39,500 per day in 2019 having already touched a low of \$35,000 per day in March 2019.

## 2.9 LNG TRADE ROUTES

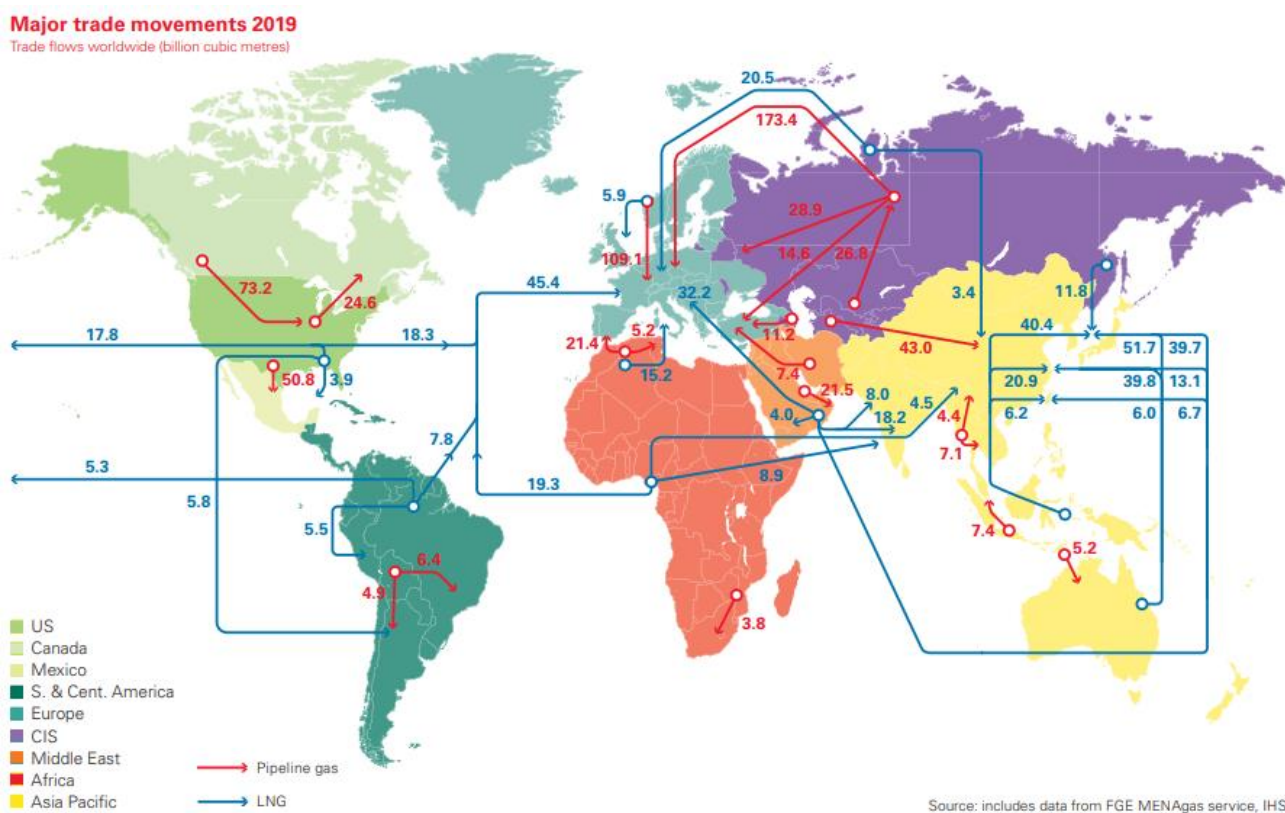
In 2019, there was an increase in LNG trade voyages by 11% with a total of 5,701 trade voyages compared to 2018 level of 5,130 trade voyages mainly owing to the increased demand in Asia region along with the excess supply of U.S. and Australia as well as the ability of the European market to absorb the extra volumes. As regards to Asia region in 2019, were completed 3,848 LNG trade voyages accounting to a slight 2% increase year-of-year. However, in Europe a record of 1,364 LNG voyages we accomplished in 2019 noting a 70% growth compared to 2018. The increase from U.S. terminal Sabine Pass T5 and Corpus Christi T1 and Australian terminals Ichthys LNG and Wheatstone LNG conducted 18 MT of LNG in 2019 which is 11 MT more than in 2018. The start-ups of Cameron LNG T1, Elba Island and Freeport LNG T1 in the US and Prelude FLNG in Australia contributed additional 2 MT to the market in 2019. The plenteous new supplies, along with mild seasonality in Asia, have



driven down gas prices to record lows on a world-wide basis, reduced arbitrage spreads across continents and redirected more-than-expected LNG cargoes to Europe.

The project that wide open and further deepen the Panama Canal in 2016 allowed more vessels to transit and reduce voyage distance and time and therefore voyage costs. Before the project completed it took 14,500 nautical miles (nm) and 45 days via Suez Canal for LNG vessels to transit from US terminal Sabine Pass to Japan terminal Kawasaki LNG and nearly 16,000 nm and 49 days through the Cape of Good Hope where nowadays it takes 9,400 nautical miles (nm) or equally to 29 days through Panama Canal.

**Figure 2.11 Major trade movements 2019**



Source: BP Statistical Review of World Energy, 2020

In 2019, the predominant LNG trade voyage was from Australia to Japan where Australia was the leading LNG exporter with 477 voyages. Regarding Europe, the leading exporter to France, Netherland, United Kingdom and Spain was Russia with 286 voyages through the year. After Russia, the second major exporter to Europe was Qatar with 265 voyages in 2019 to the United Kingdom, Italy and Spain following U.S. with 181 trade voyages. The number of vessels that employed to accomplish 5,701 LNG trade voyages in 2019 was 541 vessels where each vessel completed on average 10.5 trade voyages noting a slight increase compared to average 10.3 voyages in 2018. The voyage time for every

vessel in 2019 was on average 12.8 days remaining unchanged compared to 2018. In general, the voyages from the Atlantic Basin to Asia are longer but from the time when a substantial number of LNG trades redirected from Asia to Europe has as a result the average voyage times to be approximately the same.

Despite the increase of LNG shipping routes in the recent years due to LNG supply and consumption growth, the demand for LNG shipping services continued to be significantly absorbed in a number of key trade routes. The major trade routes for LNG shipping according to figure 2.11 are the following for 2019:

- Australia to Asia
- Qatar to Europe
- Qatar to Asia
- US to Europe
- US to Asia
- Russia to Asia
- Russia to Europe
- Malaysia to Japan

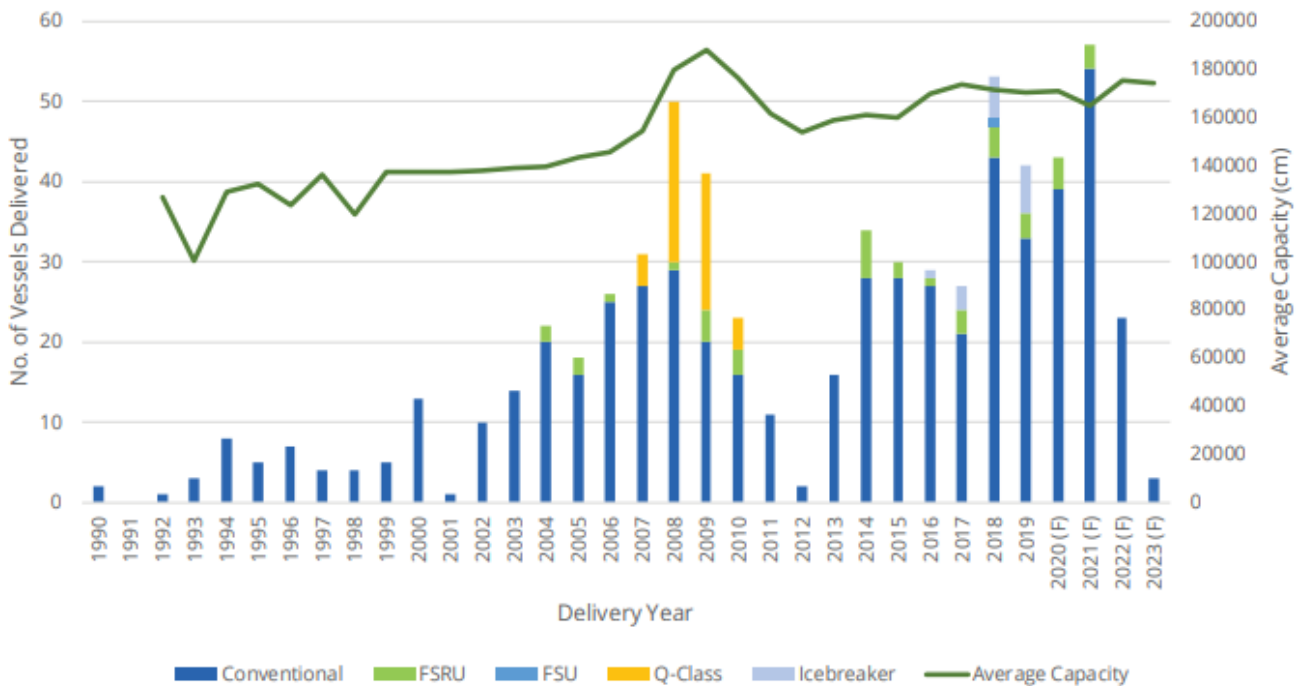
Moreover, additional cargo from the U.S. to Europe and Asia is anticipated to be exported as soon as the liquefaction projects in the U.S. are accomplished. The LNG shipping market was adversely affected in 2020 by the COVID-19 virus outbreak, as demand for LNG is declined due to economic slowdown in Asia with limited production activity in the industrial and commercial sectors. As already noticed, a decline in Chinese LNG demand, followed to further demand decrease in other major markets as the pandemic continues to spread which ultimately is interpreted into less voyages for the LNG carriers.

## 2.10 LNG FLEET

As illustrated in figure 2.12 the LNG shipping market evolved rapidly in the beginning of 2000s, following an overall rising trend during the previous decade. The severe financial crisis in 2008 resulted to huge financial instability globally and a pause of orders mentioning that only one newbuilding LNG carrier ordered in 2009. As the LNG market is fragmented, newbuilding deliveries continue to decline until 2013 where the market picked up again with newbuilding deliveries exceeding the records of 2008. The global LG fleet as of March 2020 totalled to 568 active vessels with an approximate capacity 84,5 million cbm. Between 2014 and 2019 the Compound Annual Growth Rate

(CAGR) of global LNG capacity is 7.9% annually realising rapid growth in the fleet size and in 2019 placed 48 orders for newbuilding LNG carriers. The increasing demand for liquefied natural gas, especially in the Asia-Pacific region, as well as the oversupply of natural gas on the market, lead to significant new ship orders, awaiting the LNG market to employ them.

**Figure 2.12 Global Active LNG Fleet and Orderbook by Delivery Year and Average Capacity**

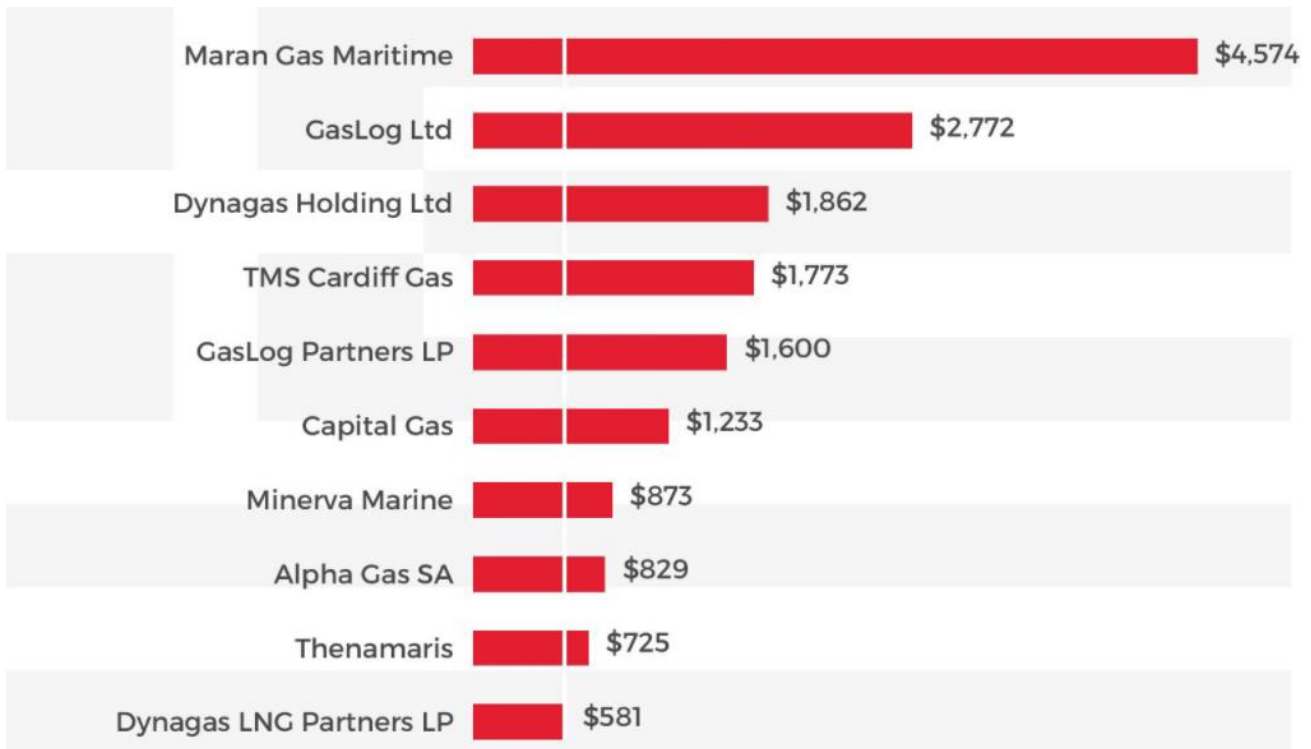


Source: International Gas Union (IGU) World LNG report, 2020 Edition

Greek shipowners and maritime professionals have proven that they can cope and play a leading role internationally even under unstable market conditions, such as the coronavirus effect. According to data from VesselsValue, the total value of the Greek-owned LNG fleet amounted to \$100.446 billion as of September 2020. It is evidence that Greek maritime professionals possess a significant presence in both ownership and management of LNG Carriers, with the value of the fleet under management amounting to \$19.8 billion. Consequently, the Greek-owned fleet of LNG is at the top of the world in terms of value, followed by the Japanese ship-owners, with a value of \$14.199 billion.

According to the VesselsValue and illustrated in figure 2.13, Maran Gas Maritime of Aggelikoussis Group is at the top of the list, with fleet value reaching \$ 4,574 billion. The LNG fleet of GasLog Ltd has value \$2.772 billion followed by the managed LNG Carriers fleet of Dynagas Holding Ltd at \$ 1.862 billion, while the equivalent of TMS Cardiff Gas is estimated at \$ 1.773 billion.

**Figure 2.13 Top Greek LNG Shipowners**  
(Total Value in million USD)



Source: VesselsValue September 2020, Naftikachronika.gr

## SECTION 3

### GREEK LNG SHIPPING COMPANIES OVERVIEW

#### 3.1 DYNAGAS LNG PARTNERS LP

Dynagas LNG Partners LP is a limited partnership, which provides maritime transportation services of Liquefied Natural Gas (LNG). The company established in 2004 by Mr. George Prokopiou who is currently the chairman and is headquartered in Monaco whereas the company’s Management Office is placed in Glyfada, Greece. Dynagas delivers in-house ship management services where owns and operates LNG carriers in the seaborne transportation industry worldwide. The company’s ambition is to provide charterers and stakeholders with the utmost performance and reliability and to achieve that, employs its vessels on multi-year time charters with international energy companies. Furthermore, the company set core priorities as regards to environmental, health and safety standards from the time it has been awarded with ISO 9001, ISO 14001, ISO 50001 and OHSAS 18001 Certification and is a member of SIGTTO. Dynagas is constantly revised to meet evolving requirements and management practices of the LNG shipping industry and for that reason has developed a system to manage risks

associated with Health, Safety, Security and Environmental protection through effective monitoring and continuous improvement of vessel operations. To support the management system, the company has established a safety culture across its organization both onboard and ashore. In the aim to preserve the high quality standards, Dynagas continuously pays attention to attract and employ high caliber professionals with experience and competence in the LNG industry.

Dynagas invests in high flexible fleet and equipped with advanced technological specifications able to service areas and routes that are located in sub-zero or in ice bound areas. Dynagas was the first company internationally that operated LNG carrier namely OB RIVER to transit and carry a cargo through the Northern Sea Route in 2012. The Northern Sea Route envelopes tremendous risks and impact to environmental footprint, thus Dynagas performed all logistics, approval process and risk analysis for this effort. In performing Dynagas' mission to deliver the highest quality of LNG transportation service with reliability, safety and efficiency, has assigned all the vessels with Lloyds Register Ice Class notation 1A FS, or Ice Class, equivalent to ARC4 of the Russian Maritime Register of Shipping Rules, designation for hull and machinery and fully winterized. Through this notation, the vessels are designed to operate at ice-bound and harsh environment terminals and to withstand temperatures up to minus 30 degrees Celsius. According to Drewry, as of March 2020, only 31 LNG carriers, representing 5.5% of the LNG vessels in the global LNG fleet, have an Ice Class 1A and Ice-class 1A super designation or equivalent rating.

Driving through outstanding performance statistics, Dynagas operates a fleet with an average age of 10.8 years, which is very modern compared to the LNG shipping industry, and focusing on future growth and prioritizing stakeholder's wealth, contracts the vessels under multi-year charters with an average remaining charter term of approximately 7.6 years. All the vessels in Dynagas Fleet are currently employed or contracted to be employed on multi-year time charters with international energy companies such as Gazprom, Equinor and Yanal, enhancing in this way the reputation of the company, predictable cash inflows and high utilization rates.

Dynagas owns and operates a fleet of six LNG carriers, consisting of the three modern steam turbine LNG carriers specifically the Clean Energy, the Ob River and the Amur River (formerly named the Clean Force), and three modern tri-fuel diesel electric (TFDE) propulsion technology Ice Class LNG carriers that are the Arctic Aurora, the Yenisei River, and the Lena River.

Responding to the developing LNG market where there is an increasing trend to send cargoes to the highest paying market, Dynagas Fleet is optimally sized with a carrying capacity of between approximately 150,000 and 155,000 cbm, which enables the company to maximize operational

flexibility. The medium-to-large size LNG vessels are compatible with most existing LNG terminals around the world, fact that enhances the company’s trading capabilities and future employment opportunities as this size of vessel provide greater diversity in the trading routes available to charterers.

In the following table, the Fleet of Dynagas is presented, which is comprised of two sister vessels built at the same shipyard, Hyundai Heavy Industries Co. Ltd and equipped with identical hull and superstructure layout, similar displacement and roughly comparable features. Dynagas’ competitive Fleet is surrounded by fundamental characteristics that the vessels possess such as the utilization of a membrane containment system and double-hull construction, being in line with the current LNG shipping industry standard.

**Table 1. Dynagas LNG Fleet**



Artic Aurora

2013 Year built, 155.000 (cbm)

TFDE Propulsion



Clean Energy

2007 Year built, 149.700 (cbm)

Steam Propulsion



Amur River (ex Clean Force)

2008 Year built, 149.700 (cbm)

Steam Propulsion



Lena River

2013 Year built, 155.000 (cbm)

TFDE Propulsion



Ob River

2007 year built, 149.700 (cbm)

Steam Propulsion



Yenisei River

2013 Year built, 155.000 (cbm)

TFDE Propulsion

Source: Dynagas.com

When it comes for a newbuilding vessel, the company’s policy is to build at high-quality shipyards with proven records of accomplishment. Dynagas’ vessels are outfitted with robust, reliable and proven technology. Moreover, has employed in-house naval architects and engineers who have long and

substantial experience in building LNG carriers to perform all design development work, plan approval, equipment selection and yard site supervision. Thus far, the team has built in total more than 100 commercial vessels including non-LNG carriers.

In addition to Dynagas dedication to safety excellence, runs in house ship shore compatibility studies and allows for continuous terminal compatibility improvements. In this way, it has completed terminal studies with the majority of the world's relevant LNG terminals. The company's technical management is encompassed by qualified and experienced personnel eager to ensure that the vessels are harmonized with the Company's Management System (CMS), class requirements and all further applicable rules and regulations. The company's attention to technical management is substantiated by quite healthy statistics concerning performance claims and off-hire periods. Superintendents accede every vessel on a regularly basis with frequent intervals in order to ensure high levels of operational safety, fact that assist the vessels to be thoroughly prepared for SIRE inspections, which on average are proactively executed with good result.

LNG carriers require technically skilled personnel with specialized training and for that reason; Dynagas has established self-owned Manning Offices in India and the Philippines, which are well versed in all aspects of the company's policies and procedures aiming to ensure continuous access to professional and qualified staff and to have direct contact with its seafarers. Likewise, since LNG carriers are complex, their operation is technically challenging, in order Dynagas experience favourable retention rates, maintains a strong focus on training over and above STCW requirements and utilizes only accredited, and government licenced training facilities, that certifies competent training and safe operations.

Dynagas invests in the LNG industry through having an established cadetship program and supplements its manning pool by utilizing highly reputable certified with ISO 9001 and government-licensed Manning Agencies in Pakistan, Croatia and the Ukraine to assist with sourcing, initial screening and administration of qualified and trained personnel.

A cyber-attack could materially disrupt Dynagas business operation and in order to prevent such an adverse event, has deployed a specialized team of IT architects and programmers who have created a tailor-made IT system that allows detailed performance monitoring. In order to perform day-to-day operations with excellence and accuracy the company is using innovative Ship Management and Communications Applications that allow the automatic input of data from ship to shore, the close monitoring of logistics, human resources, training, safety, maintenance and performance of the Fleet.

### 3.2 GASLOG LTD

GasLog Ltd. owns, manages and operates liquefied natural gas (LNG) carriers worldwide. The company established in 2003 by Mr. Peter G. Livanos who is currently the chairman and is headquartered in Monaco whereas the company's Management Office is placed in Piraeus, Greece. The Company provides LNG shipping services to international energy companies as part of their LNG logistics chain with the aim to drive the world to a lower carbon future. In further to, GasLog Ltd. has a subsidiary GasLog Partners LP, a master limited partnership formed by GasLog to acquire, own and operate liquefied natural gas carriers under multi-year charters. Currently, GasLog owns, manages and operates a fleet comprised of 36 LNG carriers in which 16 of them owned by GasLog Partners LP while a vessel secured under a long-term bareboat charter from Lepta Shipping, which is a subsidiary of Mitsui. GasLog assures its customer's businesses to be more reliable and sustainable, consequently in every operation the company undertakes that is from the design and built of its vessels, to the quality of its personnel and its relentless focus on safety and operational excellence, continuously is committed to protect the value of its customer's cargoes and achieve performance. GasLog provides maritime services for the transportation of LNG on a worldwide basis and vessel management services with the intention to make LNG shipping safer, cleaner and more efficient. GasLog's values define the standards by which the company operates that among others surrounded by safety, teamwork, integrity, reliability, customer orientation and innovation. As regards to safety, the outstanding statistic records indicate that GasLog ensures the safe home return for every one person of its personnel as its lost time injury frequency and total recordable case frequency statistics are constantly better than the industry median. Counting safety GasLog's first priority both for its personnel and the environment, it has achieved various awards and nominations for its records and approach to safety namely some of them the 2019 HIS Safety at Sea Award. The company's core value of reliability is proven to its customers with the highest quality of service on time, setting high standards by building trust, respect and long-term relationships with customers and shareholders. To attain reliability, GasLog provides live updates and risk-based maintenance systems across its fleet with electronic safety management systems and online monitoring of key machinery. GasLog is also innovation-driven, focusing constantly to improvement and through new ideas to attract to new businesses and differentiate from the competition. In view of that, GasLog is privileged in having the infrastructure to use LNG as a primary fuel across the whole fleet, placing the company at the leading edge of the drive to reduce emissions.

GasLog's aspiration to be the leading global provider of LNG shipping services is interpreted to its chartering policy that chooses to generate revenues by chartering its vessels on multi-year time charters and spot/short-term charters. In this way, GasLog ensures the stable cash inflows and exploits the



market opportunities. The ability to generate revenues relies also to fleet flexibility and compatibility with most existing LNG terminals globally, as each vessel is sized at between approximately 145.000-cmb and 180.000-cbm capacity, placing them in medium to large size class of LNG carriers and take advantage of their efficiency and operational flexibility. Additionally, with the delivery of two newbuilding vessels in 2021 the fleet will have an average age of 7.05 years that is the youngest in the industry compared to a current average age of 11 years in the LNG carriers trading worldwide.

In the following tables is illustrated an overview of GasLog's Ltd. and GasLog's Partners LP fleet of vessels. In June 2020, GasLog sold Methane Nile Eagle to Egypt LNG Shipping Ltd where uphold a 25% interest in that vessel and technically managed by GasLog. The vessel is currently operating under a 20-year time charter to a subsidiary of Shell. The majority of the vessels is equipped with the latest propulsion technology such as TFDE and Wartchila's X-DF that allows a significant reduction in fuel consumption per unit of freight carried especially with the larger cargo capacity designs. GasLog is the first company that adopted the GTT Mk3 Flex plus containment system that decreases excessive use of the gas combustion unit and therefore CO2 emissions.

**Table 2. GasLog Ltd fleet**

	Vessel name and identifier	Propulsion	Cargo capacity (cubic metres)	Year built	Charterer
1	Methane Lydon Volney (LYD)	Steam	145.000	2006	Shell
2	Methane Nile Eagle (EAG)	Steam	145.000	2007	Shell
3	GasLog Chelsea (CHE)	TFDE	153.000	2010	Spot market
4	GasLog Savannah (SAV)	TFDE	155.000	2010	Spot market
5	GasLog Singapore (SIN)	TFDE	155.000	2010	Spot market
6	Methane Julia Louise (JUL)	TFDE	170.000	2010	Bareboat on Shell
7	GasLog Skagen (SKA) TFDE	TFDE	155.000	2013	Spot market
8	GasLog Saratoga (SAR)	TFDE	155.000	2014	Spot market
9	GasLog Salem (SLE)	TFDE	155.000	2015	Guvnor
10	GasLog Genoa (GNA)	X-DF	174.000	2018	Shell
11	GasLog Hong Kong (HON)	X-DF	174.000	2018	Total
12	GasLog Houston (HOU)	X-DF	174.000	2018	Shell
13	GasLog Gladstone (GLD)	X-DF	174.000	2019	Shell
14	GasLog Warsaw (WAR)	X-DF	180.000	2019	Cheniere
15	GasLog Windsor (WIS)	X-DF	180.000	2020	Centrica
16	GasLog Wales (WAL)	X-DF	180.000	2020	JERA
17	GasLog Westminster (WES)	X-DF	180.000	2020	Centrica
18	GasLog Georgetown (GEO)	X-DF	174.000	2020	Cheniere
19	GasLog Galveston (GAV)	X-DF	174.000	2020	Cheniere
20	Hull No. 2311	X-DF	180.000	2021	Cheniere
21	Hull No. 2312	X-DF	180.000	2021	Cheniere

Source: gaslogltd.com

**Table 3. GasLog Partners LP fleet**

	Vessel name and identifier	Propulsion	Cargo capacity (cubic metres)	Year built	Charterer
1	Methane Jane Elizabeth (JAN)	Stream	145.000	2006	Trafigura
2	Methane Rita Andrea (RIT)	Stream	145.000	2006	Spot market
3	Methane Alison Victoria (VIC)	Stream	145.000	2007	Spot market
4	Methane Heather Sally (SAL)	Stream	145.000	2007	Shell
5	Methane Shirley Elisabeth (ELI)	Stream	145.000	2007	JOVO
6	Methane Becki Anne (BEC)	TFDE	170.000	2010	Shell
7	GasLog Santiago (SAN)	TFDE	155.000	2013	Trafigura
8	GasLog Seattle (SEA)	TFDE	155.000	2013	Shell
9	GasLog Shanghai (SHA)	TFDE	155.000	2013	Gunvor
10	GasLog Sydney (SYD)	TFDE	155.000	2013	Spot market
11	Solaris	TFDE	155.000	2014	Shell
12	GasLog Geneva (GEN)	TFDE	174.000	2016	Shell
13	GasLog Gibraltar (GIB)	TFDE	174.000	2016	Shell
14	GasLog Glasgow (GLA)	TFDE	174.000	2016	Shell
15	GasLog Greece (GRE)	TFDE	174.000	2016	Shell

Source: gaslogltd.com

When it comes a decision for a newbuilding vessel, the company’s policy is to select shipyard that is certified for environmental protection, safety and care of their workforce. The company reviews the management system of the shipyard as well as the culture to ensure that their priorities are in line. All the vessels of GasLog fleet are constructed in South Korea and specifically in Samsung and Hyundai due to their quality, safety environmental and social performance. GasLog has built strong relationships with shipyards and has a team in South Korea to supervise and manage the construction of the newbuildings and to develop new technologies that improve the existing fleet such as reliquefication plants and super-coolers to manage excess boil-off henceforth creating more trading flexibility, and lead to fuel and efficiency savings. Throughout the vessels’ lifecycle, GasLog strive to minimize the environmental impact on the planet, and to promote fair dealing, anti-bribery and anti-corruption practices being socially responsible and ethical.

From the moment that LNG shipping transportation is a specialized area demanding technically skilled officers and personnel with specialized training, GasLog invests highly in the development and training of its personnel by providing intensive on-board training in simulators, with the intention to embrace them in a culture focused on the highest operational and safety standards. Thus far, the company recognises high retention rates for onshore (94%) and offshore personnel (93%) in 2019 portraying the success of attracting and retaining motivated, well-qualified staff. To respond in the increasing demand for technically skilled officers and crews to serve on LNG carriers, GasLog has

established recruitment agencies in Ukraine, Philippines, Spain and Greece in order to acquire high-quality committed crew encouraging inclusion and diversity.

GasLog's procedures are braced by a culture of continuous improvement where both onshore and off shore personnel are supported by exceptional management practices and advanced technologies in communication and marine safety. Due to this reason, the company ensures that each vessel is maintained in accordance with classification society standards, by performing regular and extraordinary surveys of hull and machinery, including the electrical plant and any special equipment required to be reviewed periodically. Consequently, GasLog operates its vessels in material compliance with the applicable environmental laws and regulations that is denoted by ENVIRO+ notations received by the classification societies.

Moreover, the technical and operational management of GasLog's fleet is carried by its wholly owned certified to ISO 14001 subsidiary GasLog LNG Services Ltd., which performs activities related to crew, training, insurance, maintenance and repair, procurement of supplies and equipment, regulatory and classification compliance, HSSE management and reporting, as well as dry-docking under certain charters. As part of its core values, GasLog continuously assess the risks that every vessel inherent and adapt procedures to keep its safety ratings above the industry average.

## **SECTION 4**

### **FINANCIAL RATIO ANALYSIS**

The following analysis aims to achieve in-depth evaluation of the financial position of the examined companies, the dynamic image of their business endeavor and the determination of the efficient or non-efficient use of their assets in their business activity. The categories of financial ratios calculated are then used to evaluate liquidity, profitability and operating efficiency, the capital structure and viability as well as the valuation of the shares of the examined companies. In the following table is presented the summary of financial ratios for the fiscal year 2019 for the LNG maritime transportation industry, GasLog and Dynagas.

**Table 4.1 Summary of financial ratios for LNG maritime transportation industry, GasLog Ltd and Dynagas LNG Partners LP for the fiscal year 2019**

<b>Financial Ratios</b>	<b>Industry</b>	<b>Dynagas</b>	<b>GasLog</b>
<b>Profitability Ratios</b>	<b>2019</b>	<b>2019</b>	<b>2019</b>
Gross Margin	53.9%	76,3%	79,1%
EBITDA Margin	41.6%	69,2%	69,1%
Operating margin	16.3%	45,8%	18,1%
Pretax Margin	7.4%	2,8%	(17,3%)
Net (profit) margin	6.0%	(6,07%)	(16,56%)
<b>Operating Ratios</b>			
Accounts Receivable Turnover	9.1	205,01	16,9
Average Accounts Receivable Days	40.2	1,78	21,59
Inventories Turnover	14.8	32,05	17,54
Average Inventory Days	24.7	11,39	20,81
Accounts Payable Turnover	5.8	5,53	7,07
Average Accounts Payable Days	62.3	66,0	51,62
Operating Cycle	64.9	13,17	42,4
Cash Conversion (Trade) Cycle	2.9	-52,83	-9,22
Fixed Asset Turnover	0.42	0,14	0,14
Working Capital to Sales	(0.2%)	(34,6%)	(17,6%)
<b>Liquidity Ratios</b>			
Current Ratio	1.00	0,28	0,72
Quick Ratio	0.82	0,27	0,70
Cash Ratio	n/a	0,25	0,61
Operating Cash Flow Ratio	n/a	0,67	0,73
Operating Working Capital Turnover	n/a	-7,45	-6,86
Interest Coverage Ratio	3.3	1,20	1,74
<b>Leverage/Debt Ratios</b>			
Assets to Equity Ratio	2.33	5,29	7,59
Debt to Equity Ratio	0.71	3,49	4,87
Long Term Debt to Total Capital Ratio	32.4%	62,8%	61,7%
Net Debt to EBITDA Ratio	2.19	6,84	6,22
<b>DuPont/Earning Power</b>			
Asset Turnover	0.32	0,13	0,13
x Pretax Margin	7.4%	2,8%	(17,3%)
Pretax ROA	3.7%	0,4%	(2,2%)
x Leverage (Assets/Equity)	2.33	5,29	7,59
Pretax ROE	8.3%	1,1%	(14,7%)
x Tax Complement	0.81	1,00	0,87
Return on Equity (ROE)	7.5%	1,1%	(12,8%)
x Earnings Retention	0.71	-	-
Reinvestment Rate	0.5%	(6,4%)	(24,2%)
Return on Invested Capital (ROIC)	4.71%	0,4%	(3,2%)
<b>Valuation Ratios (Stock Ratios)</b>			
Earnings per Share (EPS)	2.58	-0,22	-1,37
Price to Earnings (P/E)	17.41	0	0
Book Value Per Share (BVPS)	27.32	8,84	8,51
Price to Book (P/B)	1.89	0,23	1,09
Dividend payout ratio	52.12%	454%	-77%
Dividend yield	4.88%	4.48%	6.12%

Source: Thomson Reuters Eikon and Author's calculations

## 4.1 PROFITABILITY RATIO ANALYSIS

**Table 4.2 Dynagas LNG Partners Profitability ratios**

Profitability ratios	Dynagas LNG Partners LP					
	Industry	2019	2018	2017	2016	2015
Gross Margin	53.9%	76,3%	78,1%	77,9%	82,7%	82,1%
EBITDA Margin	41.6%	69,2%	65,5%	67,8%	78,0%	77,5%
Operating Margin	16.3%	45,8%	41,7%	46,0%	60,1%	60,7%
Pretax Margin	7.4%	2,8%	2,8%	12,5%	39,4%	41,4%
Net Profit Margin	6.0%	(6,07%)	(3,18%)	6,69%	20,4%	22,64%

Source: Thomson Reuters Eikon and Author's calculations

**Table 4.3 GasLog Ltd Profitability ratios**

Profitability ratios	GasLog Ltd					
	Industry	2019	2018	2017	2016	2015
Gross Margin	53.9%	79,1%	79,3%	76,7%	75,8%	76,3%
EBITDA Margin	41.6%	69,1%	72,1%	67,5%	64,6%	63,0%
Operating Margin	16.3%	18,1%	47,3%	41,1%	37,4%	37,2%
Pretax Margin	7.4%	(17,3%)	20,4%	16,0%	6,0%	12,9%
Net Margin	6.0%	(16,56%)	6,08%	1,04%	(6,77%)	0,83%

Source: Thomson Reuters Eikon and Author's calculations

### Gross Margin

Gross margin is a valuable metric that help company managers and shareholders to assess the company's financial strength as well as operating efficiency in producing and selling one or more products or services after subtracting the cost of goods sold. What differs in shipping industry is the nature of the business where shipping companies produce transportation services through the employment of vessels. In theory, companies that produce services are prone to have very low or no costs of goods sold. However, in shipping industry the companies in order to produce revenues over the provided transportation services utilize capital-intensive assets that is to say vessels. Therefore, the cost of producing revenues consist of voyage expenses and commissions that stand for vessel's bunker (fuel) consumption when it is unemployed or off-hired or when positioning or repositioning the vessel before or after a time charter as well as commissions paid to unaffiliated shipbrokers. Moreover, the cost of revenues include vessel operating and supervision costs specifically crew wages, insurance cost, repair costs, modification and technical maintenance costs, dry-docking, statutory and classification expenses, lubricants, spare parts and consumable stores and other miscellaneous expenses. Despite the fact that under time charter contracts, charterers bear the substantial cost of voyage expenses that contain bunker fuels, port charges and canal tolls, ship owners bear the vessel's

operating expenses that is also a significant amount. Dynagas and GasLog have remarkable performance in gross margin, as it is stable among the last five years indicating their operational and managerial efficiency in producing revenues. In 2019, Dynagas's gross margin accounted to 76,3% and for GasLog to 79,1% outperforming the industry median of 53,9%. The prevailing reason for Dynagas's and GasLog's performance of constant gross margins is their chartering policy to employ their vessels in time charter contracts providing them the capability to forecast with more accuracy their cash inflows.

### **EBITDA Margin**

EBITDA stands for earnings before depreciation, amortization, financial income and costs, gain/loss on derivatives and taxes. EBITDA margin helps managers and shareholders to assess the amount of cash generated for every dollar of revenue gained and can provide a clear view of a company's operating profitability and cash flow. EBITDA margin is a helpful metric when gauging the effectiveness of a firm's cost-cutting efforts. GasLog after an increase in its general and administrative expenses by 12.9% in 2019, saw its EBITDA margin decrease to 69.1%, compared to about 72.1% the prior year. The increase in general and administrative expenses of GasLog is mainly associated with attributable costs occurred in the fourth quarter of 2019. In further to, vessel operating and supervision costs increased by 9.1% in 2019 for GasLog mainly due to the increase in ownership days by the deliveries of two newbuilding vessels. Similarly, followed an increase in scheduled technical and maintenance costs related to engine maintenance and costs related to dry-dockings, including expenses associated with the preparation for compliance with the IMO 2020 regulations and the increase in insurance costs. As regards to GasLog's voyage expenses and commissions, they increased by 16,7% in 2019, mainly due to bunkers and voyage expenses consumed during certain off-hire and not chartered periods for the vessels that trade in the spot market. In this line, Dynagas after the increased sales revenue in 2019 by nearly 3% and a decrease in operating expenses by 4.27% saw its EBITDA margin from 65.5% in 2018 to 69.2% in 2019 that is again by much higher than the industry median 41.6%.

### **Operating Margin**

Creditors and investors pay close attention to operating margin because it is a good indicator of company's financial health and demonstrates the risk that the company carries. Operating margin measures the proportion of revenues after covering operating expenses that are available to cover non-operating costs such as interest expenses. To that said, operating margin helps managers and investors to gauge the level of income that a company generates from its core operations other than from other

means. It is observed Dynagas to deliver a high quality-operating margin through the last five years being over 40% and surpassing by far the industry median of 16.3% in 2019. Dynagas has accomplished superior operating margins, which indicate that recognizes bigger financial success and viability of services. Also, retains more on each dollar of sales, to arrange its financial costs and obligations. In further to, GasLog delivered a satisfactory operating margin through the last five years being stable among the years 2015 to 2018 but decreased essentially in 2019 to nearly 18% being close to industry median. The key driver behind GasLog's operating expenses upsurge is the recognition of vessels impairment losses in 2019, where the carrying amount of the vessel exceeded its recoverable amount thus Impairment loss occurred because the company no longer expect the vessels to benefit long-run operations. Moreover, depreciation increased by 9.7% in 2019 for GasLog mainly due to the delivery of two newbuilding vessels, the full operation of the newbuilding vessels delivered in 2018 as well as the increase from the depreciation of the right-of-use assets.

### **Pretax Profit Margin**

The pretax profit margin is a financial accounting tool utilized to measure the profitability efficiency of a company before taxes is deducted. In GasLog the pretax margin for 2019 is -17.3% compared to 20.4% in 2018, indicating high volatility through the last five years. The main reason for turning the 2018 high positive pretax margin to a profound negative in 2019 is the increased financial cost by 14.3% in respect to interest expense on loans, bonds and cash flow hedges, unrealized foreign exchange losses, bond repurchases at premium as well as write-off fees. Nonetheless, the huge loss of \$6.1 million on derivatives contributed large to the increase of GasLog's financial cost. Dynagas' pretax margin for 2019 and 2018 was 2.8% noted a decreasing rate over the last five years and lower than the industry median 7.4% in 2019. The significant decrease of pretax margin in 2018 was predominantly due to the increase in the weighted average interest affecting the debt service costs associated with term loan. In 2019 monitored again an increase in interest and finance costs principally due to deferred financing fees accelerated amortization related with the refinancing of term loan incurred in the third quarter of 2019.

### **Net Profit Margin**

Net profit margin determines how much net income is generated as a percentage of revenue and allows investors to gauge the capability of a company's management to produce enough profit from its sales and whether operating and overhead costs are being contained. In the last five years, the average increase in Dynagas revenues was 5,7% where its operating expenses in a five year average increased by 11.7% betoken the shrink in net profit margin. The decrease in cash revenues of Dynagas in both

2019 and 2018 was primarily due to lower revenues earned by three vessels employed under multi-year time charter at a lower charter rate. Despite the fact that Dynagas fleet utilization rate in 2019 was 98.5% and in 2018 was 100% that is quite exceptional, there were factors in the LNG market that resulted in aggregate revenue reduction. GasLog's revenues were five times higher than Dynagas in both 2018 and 2019 but this was not adequate to deliver a positive net profit margin in 2019. Despite an increase by 8% at GasLog's revenues in 2019 deriving from the full operation of the new delivered vessels and from the vessels trading in the spot market this increase were partially offset by a decrease in time charter rates of six vessels and an increase to off-hire days in the remaining vessels. To conclude, in both companies the net profit margin ratio is negative and far below the industry median in 2019 signaling to consider a more strong pricing strategy that will allow both companies to produce effectively profits from sales (i.e. voyages).

## 4.2 OPERATING RATIO ANALYSIS

**Table 4.4 Dynagas LNG Partners LP Operating ratios**

Dynagas LNG Partners LP						
Operating ratios	Industry	2019	2018	2017	2016	2015
Accounts Receivable Turnover	9.1	205,01	117,07	137,89	220,44	200,0
Average Accounts Receivable Days	40.2	1,78	3,12	2,65	1,66	1,82
Inventories Turnover	14.8	32,05	27,58	37,58	49,77	73,9
Average Inventory Days	24.7	11,39	13,23	9,71	7,33	4,94
Accounts Payable Turnover	5.8	5,53	5,44	8,12	7,36	7,13
Average Accounts Payable Days	62.3	66,0	67,07	44,93	49,6	51,17
Operating Cycle	64.9	13,17	16,35	12,36	8,99	6,76
Cash Conversion (Trade) Cycle	2.9	-52,83	-50,72	-32,57	-40,61	-44,41
Fixed Asset Turnover	0.42	0,14	0,13	0,14	0,17	0,15
Working Capital to Sales	(0.2%)	(34,6%)	(63,8%)	25,1%	9,9%	(3,1%)

Source: Thomson Reuters Eikon and Author's calculations

**Table 4.5 GasLog Ltd Operating ratios**

GasLog Ltd						
Operating ratios	Industry	2019	2018	2017	2016	2015
Accounts Receivable Turnover	9.1	16,9	16,94	33,14	31,34	24,7
Average Accounts Receivable Days	40.2	21,59	21,55	11,01	11,65	14,78
Inventories Turnover	14.8	17,54	17,56	16,01	15,06	17,22
Average Inventory Days	24.7	20,81	20,79	22,8	24,24	21,2
Accounts Payable Turnover	5.8	7,07	10,94	13,04	11,47	8,94
Average Accounts Payable Days	62.3	51,62	33,36	27,98	31,83	40,85
Operating Cycle	64.9	42,4	42,34	33,81	35,88	35,98
Cash Conversion (Trade) Cycle	2.9	-9,22	8,98	5,83	4,05	-4,87
Fixed Asset Turnover	0.42	0,14	0,14	0,13	0,12	0,13
Working Capital to Sales	(0.2%)	(17,6%)	(21,1%)	47,6%	(5,3%)	(38,3%)

Source: Thomson Reuters Eikon and Author's calculations



## **Accounts Receivable turnover**

In order a company to achieve operating efficiency, it is extremely important to establish a robust or even a conservative credit policy to its customers. Accounts Receivable turnover quantifies the effectiveness by which a company collects its receivables or the cash owed by customers. Dynagas is a remarkable example of a company that has successfully built a strong relationship with its customers as its accounts receivable turnover was 205 times in 2019 when at the same time GasLog's receivable turnover was about 17 times yet outperforming the industry median. The high receivable turnover indicates that both companies have quality customers that pay their debt immediately.

## **Average Accounts Receivable Days**

Taking into consideration the peculiar characteristics of deep-sea freight transportation companies, Dynagas accomplished outstanding records of collecting its receivables. In 2019, the average days of collecting trade and other receivables due from third parties for services performed was only 1,7 days compared to industry average period of 40 days. Over the last five years, Dynagas has managed to maintain this pattern steady while GasLog's average accounts receivable days realized slight variations. Nevertheless, GasLog outperformed the industry median needed 21 days to collect its trade receivables, indicating operating efficiency.

## **Inventory turnover**

In general, a high inventory turnover ratio outlines that the company manages and controls efficiently its inventories. It can be drawn, that both companies outperformed the industry median (14.8) in 2019, getting Dynagas 32 times on average to use and replace lubricants on its vessels and respectively GasLog 17 times on average in 2019. Dynagas recognizes higher variations in inventory turnover over the last 5 years but keeping the ratio in a higher level than GasLog whose turnover ratio seems to be stable over the las 5 years. Inventories in Deep Sea Transportation Services represent lubricants used on board the vessel and in the event the vessel is in off-hire period then may comprise bunkers. As both companies are using fast their inventories, they have committed smaller amount of capital to inventories therefore, they achieve higher level of sales improving their liquidity and financial strength.

## **Average inventory days**

In the meantime, the average inventory days portray the number of days in a year that a company purchases inventories and convert them into sales. In 2019, Dynagas turned its inventory into revenues in 11,4 days while GasLog converted its inventory into sales in approximately 21 days. From the moment that the industry median inventory days in 2019 was 24.7 it can be concluded that both companies are in position to produce their revenues effectively.

## **Accounts Payable Turnover**

Accounts payable turnover indicate the company's ability to repay its suppliers or creditors among a year period. Dynagas settles the outstanding short-term debt around 5,5 times in 2019 keeping this ratio stable for the last five years, designating the long-term relationship with creditors and suppliers. This also means that Dynagas is a creditworthy company with bargaining power to suppliers able to secure favorable credit terms over purchases. In the same time, GasLog settled the outstanding short-debt 7 times in 2019 decreasing this ratio over the last five years but still performing better than the industry median as well as signaling creditworthiness. The optimal accounts payable turnover ratio is that in which the company does not face liquidity problems and hence a worsening financial condition. The difference between GasLog's and Dynagas's accounts payable turnover in 2019 is slight, but in the previous years (2018-2015) the difference was quite longer. This does not necessarily mean that a company faced financial distress; nonetheless, Dynagas's lower payable turnover would mean that successfully achieved to negotiate better credit terms which allowed to arrange payments less frequently, without any penalty.

## **Average Accounts Payable Days**

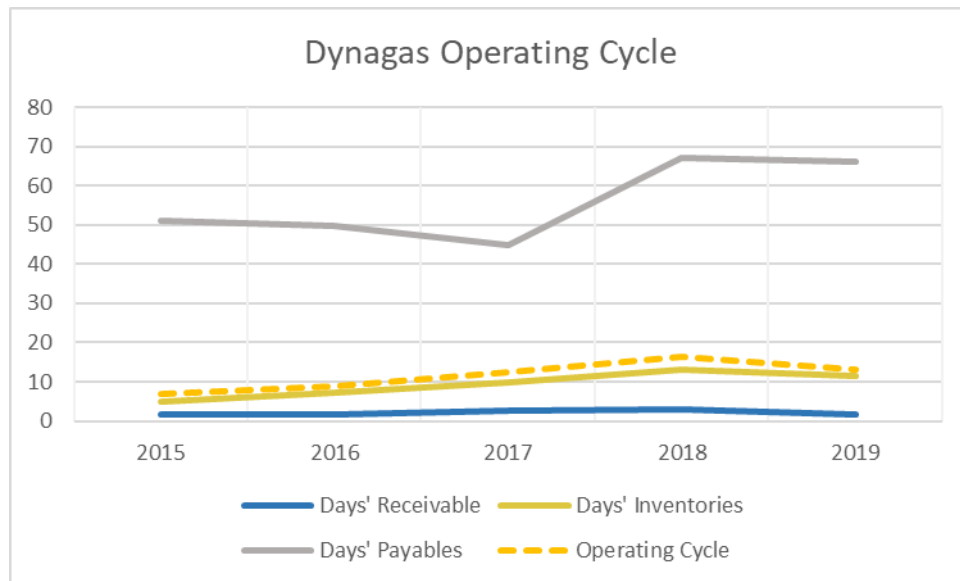
In parallel to Accounts payable turnover, this ratio measures the number of days on average that a company pays its suppliers and creditors. Dynagas took 66 days on average to pay its suppliers in 2019 when at the same time, companies in the same industry took approximately 62 days, which is very close. In a period of five years, Dynagas increased the days of short-term debt payment to suppliers from an average 45 days (2017) to 66 days (2019). Such an increase would indicate that the company pays its creditors more slowly and may be a signal of worsening financial condition. Respectively, GasLog took about 52 days to pay its suppliers 2019 that is 10 days lower than the industry median. An increase in GasLog's average accounts payable days in 2019 compared to previous years (2018 - 2015) possibly is relied on the fact that GasLog was bind to make substantial capital expenditures for the delivery of seven newbuilding vessels.

## **Operating Cycle**

In the below diagrams are illustrated the operating cycles for Dynagas and GasLog. In general, an operating cycle denotes the time a company takes to buy inventories and receive cash from sale. Both companies have outstanding operating cycles for the reason that collect cash from operations very smoothly. Dynagas has an exceptional operating cycle converting immediately its inventories into revenues, five times faster than the companies in the same industry do. Dynagas with such a short operating cycle require less cash to maintain its operation and this allows the company to grow by

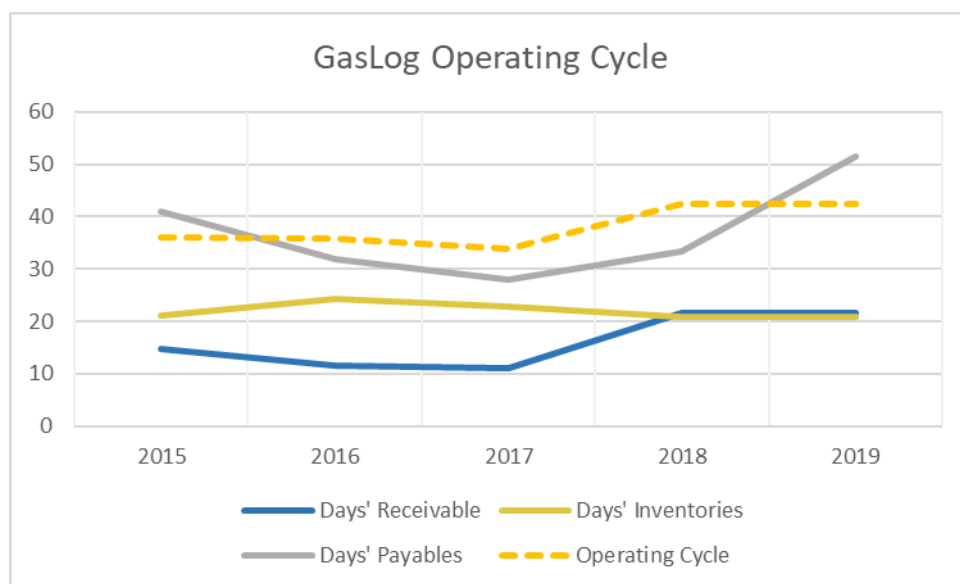
selling at moderately small margins. To mention, this is coherent by the fact that Dynagas owns 6 LNG vessels which is lesser compared to 6 times larger fleet of GasLog. Therefore, GasLog’s longer operating cycle is merely due the bigger size of fleet and the higher percentage of vessels hired in the spot market i.e. 22% that denotes the increasing voyage expenses and the need for additional inventories. Nevertheless, both companies outperformed the industry median operating cycle hence denoting over time operating efficiency and capability to grow their businesses.

**Figure 4.1 Dynagas LNG Partners LP Operating Cycle**



Source: Author’s calculations

**Figure 4.2 GasLog Ltd Operating Cycle**



Source: Author’s calculations

## **Cash Conversion (Trade) Cycle**

The negative cash conversion cycle for the last consecutive five years of Dynagas means that it is able to receive payment from customers before paying suppliers. This is exceptional, because having a negative cash conversion cycle allows Dynagas to finance its operations from its suppliers interest-free. Moreover, due to this fact, Dynagas can use this excess cash to finance growth initiatives. Compared to other companies in the industry, Dynagas has the lowest cash convention cycle in 2019. In this line, Dynagas and GasLog are more effective at moving inventory than the other companies in the industry and are faster at receiving payment from their customers. What renders cash conversion cycle of Dynagas and GasLog outstanding, is their ability to delay disbursements to their creditors. The companies' ability to build strong relationships with their suppliers and ensure favorable terms is the primary reason why they have a negative cash conversion cycle, and thereby allows them to continuously generate positive cash flows. The negative cash conversion cycle could also mean that due all the vessels are contracted under multi-year time charter, Dynagas is not exposed to voyage expenses thus freeing up cash for other businesses. GasLog's cash conversion cycle also outperformed the industry median in 2019 indicating its operating efficiency. The slight positive cash conversion cycle of GasLog of the previous years (2018 to 2016) could be relied on the off-hire periods of the vessels that operate in the spot market thus the company shoulder the significant cost of voyage expenses.

## **Fixed Asset Turnover**

Fixed Asset Turnover is a significant metric of measuring performance efficiency especially in capital-intensive businesses such as deep-sea freight transportation industry. Having invested in capital-intensive assets Dynagas and GasLog rely their production of sales heavily on the performance and efficiency of their LNG fleet of vessels. In general, the higher the fixed asset turnover the better performance realizes the company but this ratio differs from industry to industry. In 2019 Dynagas and GasLog generated 0.14\$ of sales for every dollar invested in fixed asset being very close to industry median. Dynagas's and GasLog's fixed asset turnover are identical and unchanged over the last five years indicating optimal level of capital investment in fixed assets. What is different in shipping industry is the high depreciation costs and the high levels of operating leverage that makes the companies more vulnerable to economic slowdowns such as Covid-19 implications in world economy in 2020. Nonetheless, the six delivered newbuilding vessels enhancing GasLog's fleet in 2020, will affect fixed asset turnover ratio expectantly to upside.

## Working Capital to Sales

A negative working capital to sales is common in the shipping industry because of its special characteristics such as extreme volatility in freight rates, capital-intensive investment in assets and difficulty to raise funds for financing a newbuilding or secondhand vessel due to high risk. As observed, both companies delivered exceptionally volatile working capital to sales ratio being both negative and positive in the last five years. In 2019, Dynagas and GasLog performed a negative working capital to sales as well as the companies in the same industry did. The main reason behind the negative working capital is the increasing proportion of the long term to short-term payment for both companies as the accounts payable and accrued expenses are stable over time. This means that both companies will seek to maintain adequate cash reserves in order to address debt service obligation along with vessels maintenance and running expenses.

### 4.3 LIQUIDITY RATIO ANALYSIS

**Table 4.6 Dynagas LNG Partners LP Liquidity ratios**

Dynagas LNG Partners LP						
Liquidity ratios	Industry	2019	2018	2017	2016	2015
Current Ratio	1.00	0,28	0,41	3,07	1,13	0,50
Quick Ratio	0.82	0,27	0,41	3,04	1,12	0,50
Cash Ratio	n/a	0,25	0,40	2,95	1,09	0,47
Operating Cash Flow Ratio	n/a	0,67	0,16	2,59	1,95	1,89
Operating Working Capital Turnover	n/a	-7,45	-7,21	-7,71	-8,26	-8,64
Interest Coverage Ratio	3.3	1,20	1,06	1,42	2,93	3,21

Source: Thomson Reuters Eikon and Author's calculations

**Table 4.7 GasLog Ltd Liquidity ratios**

GasLog Ltd						
Liquidity ratios	Industry	2019	2018	2017	2016	2015
Current Ratio	1.00	0,72	0,66	1,41	1,03	0,54
Quick Ratio	0.82	0,70	0,64	1,39	1,00	0,53
Cash Ratio	n/a	0,61	0,55	1,29	0,93	0,42
Operating Cash Flow Ratio	n/a	0,73	0,42	0,76	0,98	0,22
Operating Working Capital Turnover	n/a	-6,86	-8,58	-6,68	-10,58	-20,77
Interest Coverage Ratio	3.3	1,74	1,72	1,64	1,93	1,78

Source: Thomson Reuters Eikon and Author's calculations

## Current Ratio

The current ratio is used as a liquidity metric to measure the company's ability to pay short-term liabilities or other payables due within one year. It implies how a company can maximize the current assets on the balance sheet to satisfy current debt and other payables. In the last two consecutive years, Dynagas's current ratio is below than one (0.28); the critical value, compared to the industry median

in 2019, which indicates that the company may not have the adequate financial resources to remain solvent in the short-term. In the same line, GasLog's current ratio (0.72) is slightly below the industry median for the fiscal year 2019 and was even lower (0.66) in 2018 which might indicate the company's difficulty to meet its short-term obligations.

### **Quick Ratio**

The quick ratio measures how many times can the most liquid current assets available to cover current liabilities. This ratio is deemed a more conservative measure than the current ratio, as it designates the company's ability to instantly use assets that can be converted quickly to cash in order to cover its current liabilities. However, in both companies current assets decreased by a higher rate than the current liabilities thus worsening the quick ratio. GasLog seems to have more liquid current assets to cover current liabilities than Dynagas for the fiscal year 2019, since the former delivers a higher quick ratio. The higher the ratio, the more the liquidity the company has and be able to fully address its current liabilities in the short term.

### **Cash Ratio**

In order creditors decide the level of loan amount to be granted to a company, they consider prudently the cash ratio as it measures the ability of the company to repay the short-term debt by cash and cash equivalents. The cash ratio is even stricter than the quick ratio as it only considers how much cash and cash equivalents can cover short-term debt. At a first glance, it seems that both GasLog and Dynagas have insufficient cash available to pay off short-term debt in 2019 but this is not necessarily bad, since both companies have efficiently managed the inventories, have achieved lengthier than normal credit terms with their suppliers, and have very little credit extended to their customers.

### **Operating Cash Flow Ratio**

The operating cash flow ratio helps investors to gauge the company's liquidity in the short term by measuring how many times current liabilities are covered by the cash flows generated from operations. Given the fact that net income can be more easily manipulated this metric uses cash flows as opposed to net income to measure short-term liquidity. Since operating cash flow is the cash equivalent of net income occurring after the deduction of operating expenses, they can provide a good indication of the quality of a firm's earnings. Dynagas operating cash flow ratio was performing better in the fiscal years of 2015 to 2017 but decreased significantly in the fiscal years of 2018 and 2019 interpreting the company's need for more capital. GasLog's operating cash flow ratio performed relatively more steadily in the last five years being below one, however this could not necessarily mean poor financial health of the company.

## Operating Working capital turnover

The operating working capital turnover evaluates how efficiently a company utilizes the working capital to support a given level of sales. It is denoted net sales to working capital and this metric illustrates the relationship between the capital used to finance a company's operations and the revenues a company generates as a result of conducting these operations. Both GasLog's and Dynagas's primary liquidity needs are to fund ship-operating and general and administrative expenses, finance the purchase and construction of newbuilding vessels, purchase secondhand vessels, maintain its vessels on-the-water, service the existing debt and pay dividends. It is observed a decrease in GasLog's and Dynagas negative working capital ratio during the last five fiscal years, however it still remained negative for Dynagas at (-7,45) and for GasLog (-6,86) respectively in 2019. As both companies' working capital turnover is negative it seems that both companies may seek to raise sources of funds by either raising additional common or other forms of equity or producing more revenues to maintain adequate cash reserves in order to satisfy current obligations.

## Interest Coverage Ratio

Interest coverage ratio or times interest earned is a liquidity and debt metric used to assess the company's ability to address interest expenses due on the outstanding debt. Interest coverage ratio indicates how many times a company can cover its interest expenses on a pretax earnings basis. Dynagas' Interest coverage ratio has a decreasing trend over the last five years reaching at a level of (1.2) below the industry median (3.3) in 2019. GasLog' Interest coverage ratio seems to be more stable over time, varying from 1.9 to 1.7 and being below the industry median (3.3) in 2019. Interest coverage ratio is plenty used by investors and creditors to assess the riskiness of a company to service the outstanding debt. Nevertheless, both firms present an adequate interest coverage ratio above 1, which means they can at least one time to cover their interest charges from their pretax earnings.

## 4.4 LEVERAGE RATIO ANALYSIS

**Table 4.8 Dynagas LNG Partners LP Leverage ratios**

Dynagas LNG Partners LP						
Leverage ratios	Industry	2019	2018	2017	2016	2015
Assets to Equity Ratio	2.33	5,29	5,33	4,30	3,76	3,76
Debt to Equity Ratio	0.71	3,49	3,57	2,92	2,43	2,31
Long Term Debt to Total Capital Ratio	32.4%	62,8%	44,4%	68,9%	63,2%	62,3%
Net Debt to EBITDA Ratio	2.19	6,84	7,50	6,93	4,96	5,39
DuPont/Earning Power						
Asset Turnover	0.32	0,13	0,12	0,13	0,15	0,15
x Pretax Margin	7.4%	2,8%	2,8%	12,5%	39,4%	41,4%
Pretax ROA	3.7%	0,4%	0,3%	1,6%	6,0%	6,0%

x Leverage (Assets/Equity)	2.33	5,29	5,33	4,30	3,76	3,76
Pretax ROE	8.3%	1,1%	1,1%	5,1%	18,2%	18,0%
x Tax Complement	0.81	1,00	1,00	1,00	1,00	1,00
Return on Equity (ROE)	7.5%	1,1%	1,1%	5,1%	18,2%	18,0%
x Earnings Retention	0.71	-	-	(5,45)	(0,73)	(0,83)
Reinvestment Rate	0.5%	(6,4%)	(20,5%)	(18,8%)	(8,6%)	(9,2%)
Return on Invested Capital (ROIC)	4.71%	0,4%	0,4%	1,7%	6,3%	6,3%

Source: Thomson Reuters Eikon and Author's calculations

**Table 4.9 GasLog Ltd. Leverage ratios**

GasLog Ltd.						
Leverage ratios	Industry	2019	2018	2017	2016	2015
Assets to Equity Ratio	2.33	7,59	5,88	5,05	4,77	4,03
Debt to Equity Ratio	0.71	4,87	3,45	3,01	3,04	2,37
Long Term Debt to Total Capital Ratio	32.4%	61,7%	50,0%	56,9%	62,0%	44,8%
Net Debt to EBITDA Ratio	2.19	6,22	5,66	7,06	7,81	7,12
DuPont/Earning Power						
Asset Turnover	0.32	0,13	0,13	0,11	0,11	0,11
x Pretax Margin	7.4%	(17,3%)	20,4%	16,0%	6,0%	12,9%
Pretax ROA	3.7%	(2,2%)	2,6%	1,8%	0,7%	1,5%
x Leverage (Assets/Equity)	2.33	7,59	5,88	5,05	4,77	4,03
Pretax ROE	8.3%	(14,7%)	14,1%	9,0%	2,9%	5,6%
x Tax Complement	0.81	0,87	0,38	0,18	(0,77)	0,20
Return on Equity (ROE)	7.5%	(12,8%)	5,3%	1,7%	(2,2%)	1,1%
x Earnings Retention	0.71	-	(1,13)	(7,30)	-	(14,20)
Reinvestment Rate	0.5%	(24,2%)	(4,7%)	(4,3%)	(8,9%)	(5,1%)
Return on Invested Capital (ROIC)	4.71%	(3,2%)	3,7%	2,3%	0,9%	1,9%

Source: Thomson Reuters Eikon and Author's calculations

## Assets to Equity Ratio

The asset to equity ratio indicates how much of the total assets of a company are really owned by shareholders as compared to those that are financed by debt. This ratio is an indicator of the company's leverage used to finance the firm. It is notable that both firms exceed the industry's median by far in 2019 with GasLog being more exposed to debt than Dynagas. GasLog's Assets to Equity ratio is reasonably increased in 2019 because the company made substantial capital expenditures to fund the seven newbuildings that delivered in 2020. In addition to, the existing debt levels of Dynagas may limit the company's liquidity and flexibility to raise additional funds, pursue other business opportunities and pay dividends to shareholders.

## Debt to Equity Ratio

Debt to equity is a financial leverage ratio that measures the degree to which the operations of a company is financed by debt versus shareholders' capital and is a measure of financial health. More



precisely, in the event of a business distress this ratio reveals the degree of shareholders' funds that can cover all outstanding debt. A high debt to equity ratio is in general associated with a risky company and interprets the financing of its growth with debt that is an aggressive strategy. This is quite acceptable in LNG shipping market since it is quite volatile and the companies in this industry are investing in capital-intensive assets. In further to, a potential failure to secure new term charters could adversely affect the future liquidity of both Dynagas and GasLog, as well as their ability to meet certain of debt obligations and covenants. Across the last five fiscal years, both companies are reliant to debt funding, exceeding the industry median with GasLog being financed approximately five times more with debt. Dynagas can be considered a less risky option for an investor as its debt to equity ratio is partially less than GasLog.

### **Long Term Debt to Total Capital**

The long-term debt to capitalization ratio demonstrates the degree of the company's financing represented by long-term debt. Among the advantages of using long-term debt is that can help a company to lower total cost of capital. Dynagas' creditworthiness provided the company with the ability to borrow an additional \$30 million under interest free in 2019. However, since the global financial markets and economic conditions are unstable and volatile due in part to fears associated with the spread of Covid-19, such instability and volatility may negatively affect the willingness of banks and other financial institutions to extend credit thus making it difficult for Dynagas and GasLog to obtain additional financing. It is notable again that both Dynagas's (62.8%) and GasLog's (61.7%) operations and growth are supported by long term debt exceeding by far the industry median (32.4%) in 2019. Considerably, Dynagas has attained stable the ratio over the years with total capital being financed approximately two-thirds by debt while GasLog debt exposure being more volatile among the years.

### **Net Debt to EBITDA Ratio**

Net Debt to EBITDA ratio indicates how many years it would take the company to pay its debt with the condition that net debt and EBITDA were held constant. This ratio is extensively used to assess the creditworthiness of a company both by rating agencies and in debt-financed takeovers. It is observed that both Dynagas and GasLog exceed by far the industry median in 2019 with comparable results. GasLog, with slight fluctuations needs at least six years to payback its debt, where Dynagas with trifling fluctuations during the last five years needs less about 7 years overweighting the industry median of 2 years. It is worth to mention that a ratio higher than 4 or 5 typically set off alarm bells to investors and creditors because this intimates that a company is less likely to be able to repay its debt

burden, and thus is less likely to be able to raise additional funding to grow the business. Having that said, if GasLog or Dynagas are unable to raise adequate funds, then they may be incapable to meet obligations or to develop existing business such as the acquisition of newbuilding vessels or otherwise take advantage of business opportunities as they arise.

### **Asset Turnover**

The asset turnover ratio measures how efficiently a company generate revenues relative to the value of its assets. The asset turnover ratio can be utilized as an indicator of the efficiency by which a company employs its assets to generate revenue. Both firms have an asset turnover ratio below and close to the industry median, which is acceptable. If we take into consideration the fleet utilization rate of Dynagas in 2019 that was 98.5% and 97% for GasLog respectively these metrics indicate efficient utilization of assets. Generally, the higher the asset turnover ratio the better the company is performing, since higher ratios indicate that the company is generating more revenue per dollar of assets. Conversely, if a company experiences a low asset turnover ratio, this would indicate not efficient use of assets to generate sales.

### **Return on Assets (ROA)**

In the assessment of a company's management efficiency, the return on assets ratio is commonly deliberated for the appraisal of a company's efficiency to employ its assets to produce profit. Given the results in the tables, Dynagas was performing a higher ROA for the years 2015-2016 but in 2018 reached its lowest historical rate at 0.3% enduring this level at 0.4% in 2019. In general, this ratio is better interpreted in the banking industry than in shipping industry, as the components in the balance sheet are nominated at market values while in the shipping industry are presented at historical values. It is accepted in industries that require expensive property, plant, and equipment (PP&E) deliver a lower ROA. Considering GasLog's return on assets, it certainly not exceeded the industry median in 2019 being -2.2%, ranging at a lower level than Dynagas from 2015 until 2019 and presenting a volatility through the years. Therefore, Dynagas seemed to generate more efficiently income from its assets instead of its competitor GasLog.

### **Return on Equity (ROE)**

The return on equity ratio quantifies how sufficiently a company is employing its equity to generate profit. It delivers the percentage of profit resulting for every dollar of shareholders' equity. Return on equity is another one metric expansively inspected by stock analysts and investors as it provides evidence into how the company is using its equity to grow its core business. Dynagas's return on equity in 2015 and 2016 conveyed exceptional performance 18% while it intensely decreased in the followed

years reaching at 1.1% in 2019 and far below the industry’s median 7.5%. The decrease in ROE is principally due to the intensive decline in the net income by on average three-year rate of 51%. According to Dynagas Annual report, in the years to come, the company will seek to raise equity capital by exploiting its reputation, expertise and relationships with charterers in order to grow its core business and growth opportunities in the transportation of energy maintain cost-efficient operations. Instead, GasLog’s ROE presents large fluctuations in the last five years either being positive or negative and most of the times being lower than Dynagas mostly because of net income’s instability and the heavily finance of its assets by debt instead of equity. If GasLog decide to issue additional equity securities it may result in significant shareholder dilution and would increase the aggregate amount of cash required to maintain its quarterly dividend payments to shareholders.

### **Return on Invested Capital (ROIC)**

Return on invested capital is a common utilized ratio to assess a company's competence at allocating the capital under its control to profitable investments. Return on invested capital is extensively applied in finance, valuation and accounting as a gauge of companies' profitability and value creation in relation to the amount of capital invested by shareholders and other debtors. Comparing Dynagas’ return on invested capital (0.4%) with its weighted average cost of capital (WACC) (6.4%) reveals that the company has no excess capital to invest in future growth as its invested capital did not produce sufficient return for the years 2018 and 2019. The decrease in return on invested capital was predominantly due to the increase in the weighted average cost to 6.4% in 2018 compared to 5.4% in 2017 and Dynagas’ business strategy to focus its capital allocation on debt repayment, prioritizing balance sheet strength, in order to reposition themselves for potential future growth. However, for the years 2015 and 2016 Dynagas had a return more than 2% of the firm's cost of capital, which is an evidence of value creation. At the same time, GasLog' ROIC in 2019 was (-3.2%) compared to its WACC (7%), which clearly indicates that the firm is a value destroyer. The negative return on invested capital was primarily due the losses that GasLog delivered in 2019 however in 2018 and 2017 the company conceded more than a sufficient ROIC. As an investor, it is quite essential to know that if your investment in a company recognizes an adequate return.

## **4.5 VALUATION RATIO ANALYSIS**

**Table 4.10 Dynagas LNG Partners LP Valuation ratios**

Dynagas LNG Partners LP							
Valuation ratios	Industry	2020 Q3	2019	2018	2017	2016	2015
Earnings per Share (EPS)	2.58	0,21	-0,22	-0,11	0,27	1,69	1,60
Price to Earnings (P/E)	17.41	11,90	0	0	40,22	9,16	5,61

Book Value Per Share (BVPS)	27.32	9,23	8,84	9,20	8,97	17,94	17,94
Price to Book (P/B)	1.89	0,27	0,23	0,36	1,21	0,88	0,50
Dividend payout ratio	52.12%	-	454%	1340%	395%	100%	103%
Dividend yield	4.88%	-	4.48%	34.79%	15.56%	10.57%	17.42%

Source: Thomson Reuters Eikon and Author's calculations

**Table 4.11 GasLog Ltd. Valuation ratios**

Valuation ratios	GasLog Ltd.						
	Industry	2020	2019	2018	2017	2016	2015
Earnings per Share (EPS)	2.58	-0,63	-1,37	0,47	0,07	-0,39	0,04
Price to Earnings (P/E)	17.41	17,07	0	35,02	317,86	0	207,5
Book Value Per Share (BVPS)	27.32	6,54	8,51	10,89	11,38	11,74	12,44
Price to Book (P/B)	1.89	0,55	1,09	1,48	1,91	1,38	0,67
Dividend payout ratio	52.12%	-47.6%	-77%	71%	65%	353%	157%
Dividend yield	4.88%	4.41%	6.12%	3.72%	2.66%	3.68%	7.15%

Source: Thomson Reuters Eikon and Author's calculations

## Earnings per share (EPS)

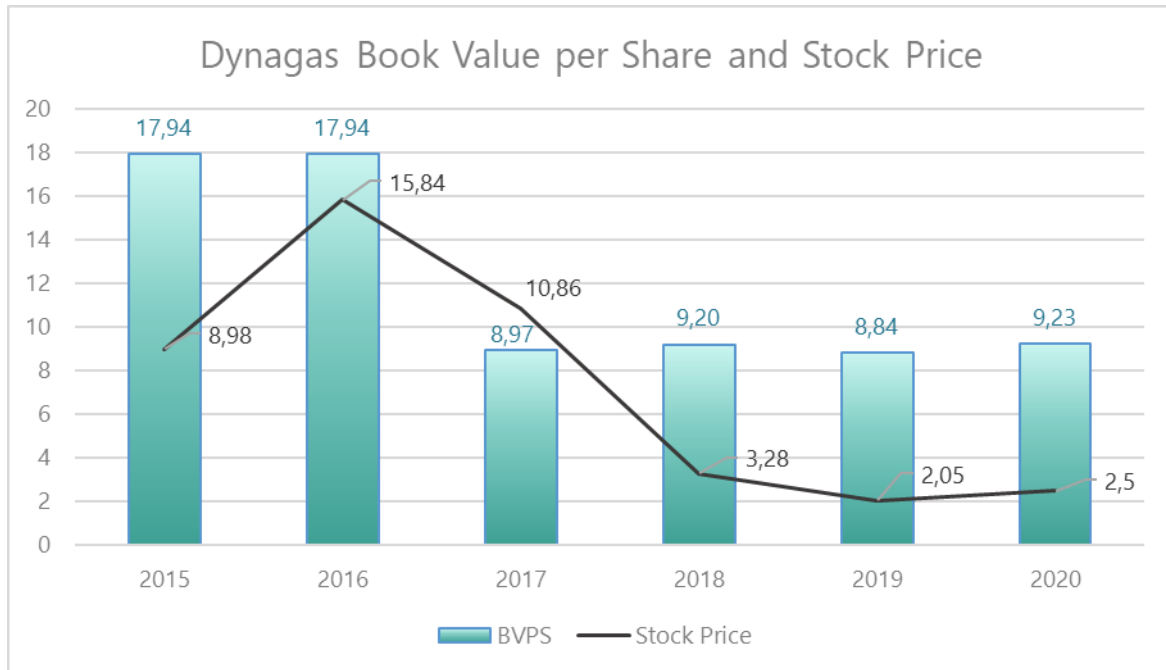
In the attempt investors to estimate a corporate value and choose a stock to invest, they predominantly advice Earnings per share for the indication of how much money a company produces for each share of stock. Preferably, investors wish to invest in stocks that deliver high EPS because they are willing to pay more for a company's stock with potential greater value, if they reckon that the company makes higher profits relative to its share price. As illustrated in the above tables, both Dynagas and GasLog delivered EPS close to zero and quite below the industry median in 2020. In third quarter of 2020 Dynagas received \$0,21 earnings per share of outstanding stock while GasLog received \$0,02 earnings per share. Dynagas's EPS followed a shrinking course in the last five years, while at the same time GasLog's EPS was more volatile and most of the times lower than Dynagas's EPS. Because these two companies are different in size and delivered similar EPS in 2020, it is important to judge EPS in relation to ROE because Dynagas generates higher EPS by utilizing fewer assets than GasLog which indicates better efficiency.

## Price-earnings (P/E) ratio

The price to earnings ratio (P/E) is utilized for a stock valuation and is calculated by dividing the stock's current price relative to its earnings per share (EPS). Since Dynagas and GasLog delivered negative EPS in the past years, P/E cannot be interpreted as it meaningless hence reported zero. In 2020 Dynagas's P/E is 11,90 lower than the industry median (14,41) demonstrating that it would cost \$11,90 to an investor to purchase \$1 of Dynagas earnings. The higher the P/E the more expensive is considered to be a stock and possibly overvalued. Equally, GasLog delivered a higher P/E (17,07) designating that the stock price is high relative to earnings as well as an investor is willing to pay

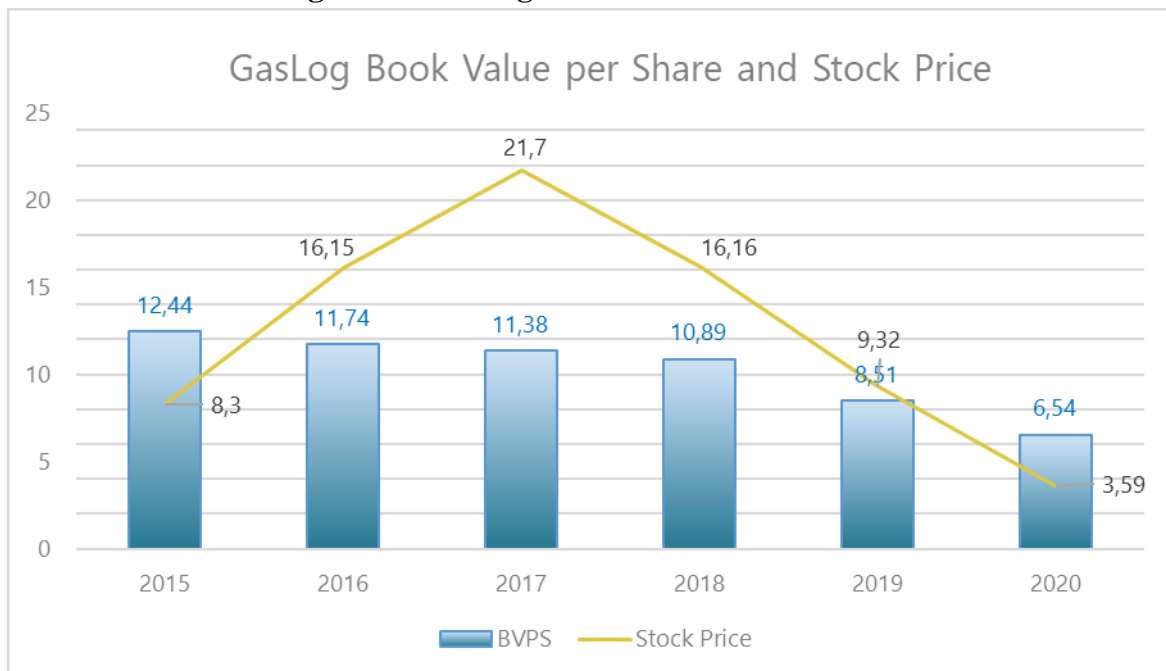
\$17,07 for \$1 of earnings. Considering GasLog’s share price essential decline in the last five years, the identical decrease in P/E would indicate that the stock was overvalued in the past and at the current level is performing well. Conversely, the increasing course of Dynagas P/E could point toward to an undervalued stock with expected future growth by investors.

**Figure 4.3 Dynagas LNG Partners LP BVPS and Stock Price**



Source: Author’s calculations

**Figure 4.4 GasLog Ltd BVPS and Stock Price**



Source: Author’s calculations

## **Book value per share (BVPS)**

Book value of equity per share (BVPS) is the theoretical price of stock and calculated by dividing the equity available to common shareholders by the number of outstanding shares. The book value per share (BVPS) is a useful metric to compare the fundamental price with the market price of the stock in order to determine if a stock is undervalued. As it is observed in the above figures, Dynagas's BVPS is most of the times higher than the stock market price in the end of every fiscal year, leading as a consequence deem undervalued. In both companies' stock prices declined significantly in the last three years and may continue to be volatile due to factors such as repurchases of common shares, fluctuations in quarterly or annual results or oil and natural gas prices as well as in governmental regulations and evidently the recent outbreak of Covid-19 virus. In this evidence, being the company's future growth and earnings projections less stable, value investors prefer to utilize BVPS to estimate the stock's potential value. As the market price of stock represents the amount that an investor is willing to pay, BVPS can be used to predict the potential market price of a share in the future. The increased GasLog's stock market price in the four consecutive years (2016 - 2019) reflected the potential future growth of the company perceived by investors, conversely the significant stock price decline in 2020 lead investors be less convinced for potential growth.

## **Price to Book ratio (P/B)**

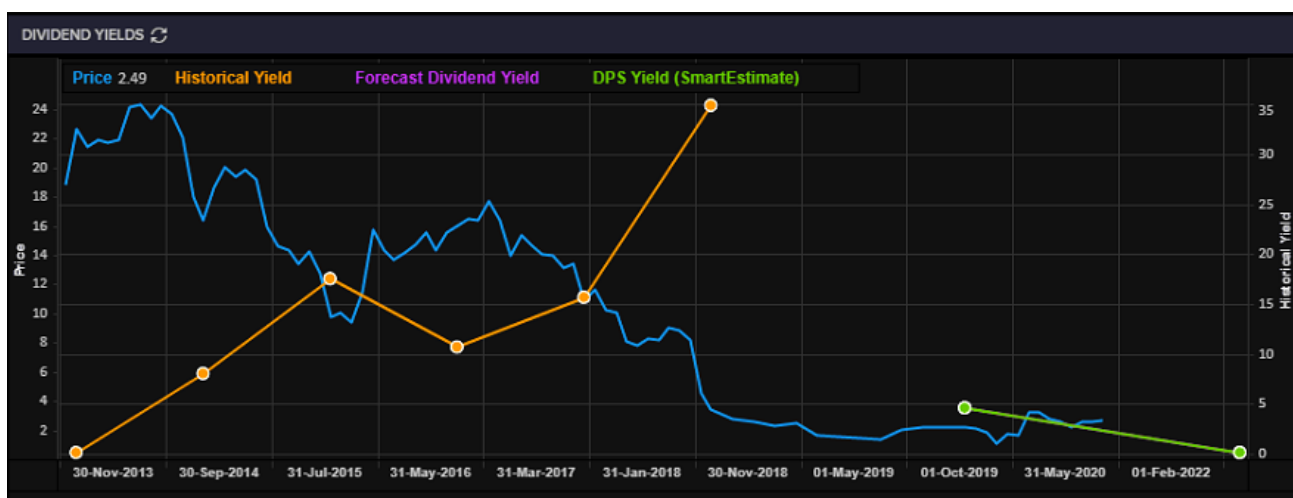
Price to book ratio is commonly used by investors to pursue potential investment opportunities. The price to book ratio aids investors determine the value of a company by associating the firm's book value to its market value. As Dynagas's and GasLog's P/B ratios in 2020 are under 1 this means that typically considered solid investments. In general, investors prefer investing in undervalued stocks with the potential to future growth but this ratio should not stand alone in screening potential investment opportunities. An investor should relate the evolvement of P/B ratio in relation to ROE for a more reliable value indication. What appeared to do investors in Dynagas's and GasLog's stock were to buy these stocks with low P/B ratio and high ROE to advantage the potential growth and sell them as soon as the market adjusted its opinion about the true worth of these companies.

## **Dividend payout**

The dividend payout ratio measures the total amount of dividends paid out to shareholders relative to the net income of the company. The dividend payout ratio is greatly associated to a company's cash flow. Dynagas's dividend payout ratio until 2019 was increasing continuously reaching at 454% hence, the company gives back more money to investors than it is receiving. The last dividend payment of Dynagas was in May of 2019 and the next dividend payment did not announced yet. Dynagas is the

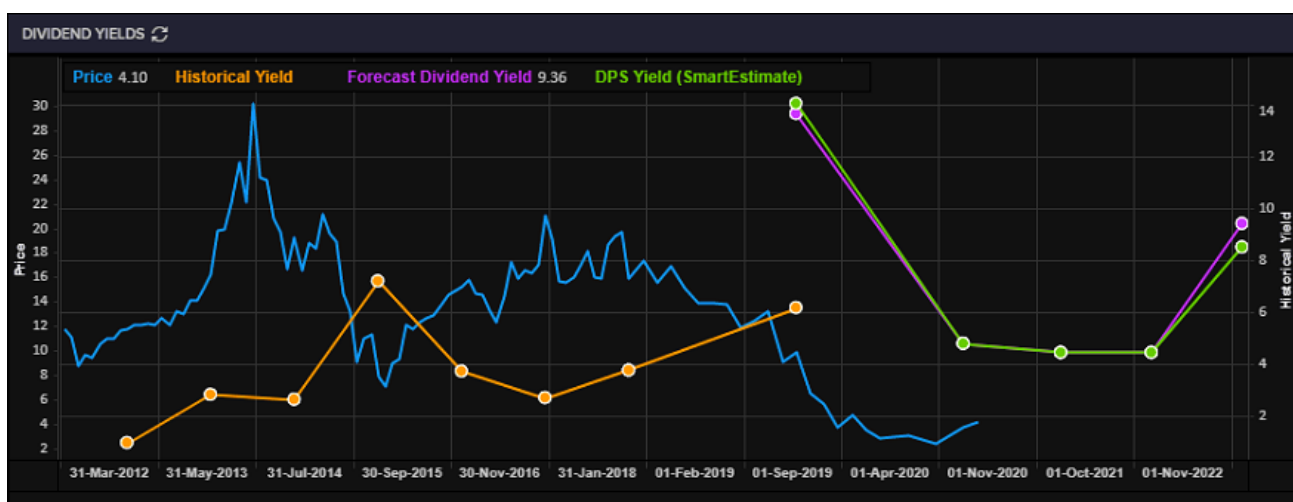
preferable company for income-oriented investors as its dividend payout is increasing over time. However, GasLog’s dividend payout ratio performed a more fluctuate course decreasing the last years and turning at a negative level of -47.6% indicating the company’s earnings are insufficient to cover dividends payouts. According to GasLog’s business strategy, since its fleet expands the company will evaluate changes to the quarterly dividend dependable to its cash flow in order to retain sufficient liquidity to finance obligations and future growth. Currently, oil and gas industry is the most vulnerable to negative forward payout ratios primarily due to the massive collapse in commodity prices, thus many companies in the energy sector are anticipated to deliver losses over the next 12 months.

**Figure 4.5 Dynagas LNG Partners LP Actual and estimated Dividend yields**



Source: Thomson Reuters Eikon

**Figure 4.6 GasLog Ltd Actual and estimated Dividend yields**



Source: Thomson Reuters Eikon

## Dividend yield

The dividend yield is a valuation metric to illustrate the total return from dividend payments figured by dividing dividend per share to the current market price expressed in percentage. As illustrated in

the above figures, Dynagas dividend yield is higher than GasLog's designating that Dynagas could be a more attractive option for investor. However, both Dynagas and GasLog stock price declined significantly in the last two years leading to higher dividend yields. The aforementioned could be described as income stocks as both GasLog and Dynagas do not keep a substantial portion of their profits as retained earnings to invest in business growth. Since risk averse investors use dividend yield to determine which stocks fit their investment strategy, usually stocks with high dividend yield are suitable options during volatile periods, as these companies offer good payoff options. In fact, this ratio allows investors to measure how much return they can expect to receive per dollar invested. Between the examined companies, Dynagas seems to be a more reliable and less risky company to invest.

## **SECTION 5**

### **VALUATION OF ENTREPRISES**

#### **5.1 VALUATION OF ENTERPRISES**

When "enterprise valuation" is referred, there is a lot conversation about the process through which the terminal value of each company is widely known. Occasionally, there are many opinions about the valuation process as well as academics debate on whether valuation is a technique or a science. In order to achieve the desired result, it is necessary to utilize accounting data and forecasts made by the company so to achieve an accurate result as possible.

According to Damodaran<sup>10</sup>, valuation of enterprises is a matter of both science and art, since there is need for creativity to draw a subjective judgement. Professors teach science and the technique to value enterprises but they cannot teach art. Especially for new companies and emerging markets, the part that valuation is art prevails, because it is not enough only to assess quantitative and qualitative data but also the capability to connect them to make predictions for the future.

The valuation process determines a specific price for the value of the enterprise or stock so that if:

- a) the market value is equal to the estimated, the stock has a fair price
- b) the market value is lower than estimated, the stock is undervalued
- c) the market value is higher than the estimated, the stock is overvalued

---

<sup>10</sup> Damodaran, A. (2002) *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset (3<sup>rd</sup> Edition)*, John Wiley & Sons, New York, United States.



Among the abundant objectives that valuation achieves is that initially provides the information to buyers and sellers, to know the maximum price they have to pay and the minimum price at which they have to sell respectively. Correspondingly, the valuation of listed companies allow the investor to compare the value he acquires with the share price, then to focus on those shares that are undervalued, and finally to make comparisons between companies.

In addition, the price at which a share is offered to the public is fully justified as well as valuation facilitates the comparison of the value of the shares with the value of other assets. Similarly, compensation or reward schemes are formulated more accurately, as company valuation helps to quantify the added value attained by its executives and identify the factors that determine the value. Finally, top-level strategic decisions of a company and strategic planning are facilitated (Fernandez, 2002)<sup>11</sup>.

As already mentioned, the purpose of any valuation method is to calculate the present value of the enterprise and to identify forecasts concerning the risks inherent to business operation. Periodically, there has been a lot of research on valuation methods as to which is best and most cost effective for a company. The researchers did not come up with a conclusion on how to discriminate the methods according to their efficiency, but were unanimous on the objectives that each method should meet.

The objectives that each method of enterprise valuation should met are the following:

- The information provided by the methods should always be objective and documented.
- The terminal value of each company should be determined as satisfactorily as possible through each method.
- Every result and every element used should be documented. In case some data are not clear and easy to use, the exact reason that they were not used should be documented.

The result of the valuation is always accompanied by forecasts for the future of the company. Researchers follow some steps in order their predictions to be objective and to not deviate much from reality, including analysis of the characteristics and properties of each company as well as determining and disclosing the level of risk of each investment.

The correct processing of financial statements with the aim to understand the financial performance of the company. Through the financial statements, it is observed whether the company is growing as well

---

<sup>11</sup> Fernandez, P. (2002), "*Company Valuation Methods. The most common errors in valuations*", IESE Business School, University of Navarra, pp. 449

as its growth rates compared to its competitors. Choosing the right companies for comparison is another factor that affects valuation. The comparison of companies should be made between companies operating in the same industry and the data should be approximately the same in the attempt to make an objective comparison.

Moreover, the duration of a company often plays an important role in valuation. When a company goes through the first years of its operation, it usually delivers losses than profit. Either this is mainly due to the inexperience of the company's executives, or the wrong forecasts they have made, or to losses that have occurred due to incompetence to properly depreciate the assets held by the company, as well as the lack of past financial data and statements.

An additional significant step in valuation is to comprehend the environment and the prospects of the company itself, in relation to its development in the market, possible fluctuations, the risks it will have to face, as well as additional factors that may affect its operation. For example, during a financial crisis, the financial performance of the company is not objective as its profits are characterized by recurring fluctuation.

It is fundamental to make forecasts in the context of the performance and development of the company that are feasible to realize. Each forecast contributes in its own way and its content to the development of a profit model for the future (usually for a period of 3-5 years) through which the existence of the company is sustained. Executives aim to maximize profits and in their forecasts, they use methods that will endorse their decisions and will avoid mistakes that will harm the company. Thus, the management of the company enters the process of evaluating the forecasts to see if the profits that it will have, will be able to cover the future losses that may exist.

## 5.2 STOCK VALUE

At this point, a reference should be made to the three types of stock values and the differences between them so as not to confuse their definition. In view of that, for each share there is one:

**Nominal Value** is the theoretical share price that results by dividing paid-up share capital of the company to the total number of shares outstanding at the particular point of time.

**Book Value** is the price of the share that results if we divide the shareholder's equity by the total number of shares and it may be greater, less than or equal to the Nominal Value.

**Market Value** is the representative value of the share at any given time. It is essentially the price one is willing to pay to acquire ownership of a company. The Market Value in most cases differs significantly from both the Book and Nominal Value of the Share.

Therefore, the market value is the price registered on the stock exchange for a listed company or the estimated price for a non-listed company. In the stock market, the price changes daily, responding to actual or expected results and market sentiment for all or sub-sectors of companies as reflected in the stock market indices. In this line, some of the advantages that a company appreciates when it is listed in the stock market are the acquisition of new equity capital to finance and develop its activities, the ability to raise capital in the future and the facilitation of valuation for future collaborations, acquisitions or mergers. In any case, the main objective is to evaluate the share price in order to identify investment opportunities. This can be achieved through the application of various company valuation methods.

### 5.3 EFFICIENT MARKET HYPOTHESES

One topic that is the subject of extensive discussions among academics and financial executives is the Efficient Market Theory.

Fama (1970)<sup>12</sup> defines the stock market "efficient" where the value of the stock reflects all the available information, so that it is impossible for an investor to both buy undervalued shares and sell overvalued ones. It is a market where current information is available to everyone. In an efficient market, competition creates a situation where security prices reflect information that stems from both events that have already taken place and events that are expected to take place. More specifically, in an efficient market, the real price of a security will constantly be a good estimate of its intrinsic value.

According to Fama, there are three alternative forms of effectiveness, the weak, the semi-strong and the strong. In the weak form of efficiency, stock prices reflect all the historical information available. In the semi-strong form, prices not only reflect all the information but also automatically react to the availability of any new information (company balance sheets, profit announcements, dividends, etc.) Finally, in the strong form of market efficiency, there is an additional assumption that stock prices reflect even internal company information, not available to the public.

The implications of efficient market theory are profound. Most investors who buy and sell securities do so by considering that the securities they buy worth more than they are paying for, while the

---

<sup>12</sup> Fama, Eugene (1970) "Efficient Capital Markets: A Review of Theory and Empirical Work", *Journal of Finance*, Vol. 25, pp. 383–417.

securities they are selling worth less than the sale price. However, if the market is efficient and the current prices fully reflect all the information, then buying and selling securities in an effort to exceed market performance will be a matter of luck rather than ability.

However, as stock markets do not operate efficiently, Valuation Models aim to identify Overvalued or Undervalued Shares (absolute or comparative), which is the final aim of this research by evaluating Dynagas and GasLog.

#### 5.4 DCF VALUATION METHOD

In recent decades, more and more analysts and companies use cash flows as the main measurement tool for the performance and value of the enterprises. Valuation methods based on the discounting of cash flows (DCF) of the company are generally the most common for estimating the performance and value of both listed and unlisted companies on Stock Exchange. By applying DCF method, the company is examined in depth, thus analyzing its performance over the years and its ability to generate cash. Therefore, according to discount future cash flows model, the determination of the Equity Value (otherwise Intrinsic or Fair Value) of a share or a company at a given point in time is the Present Value of Future Cash Flows, discounted by minimum required return (cost of capital).

Equity Value = PV of free cash flows to equity claim holders

$$Equity\ Value = \frac{Net\ profit_1 - \Delta BVA_1 + \Delta BVND_1}{(1 + r_e)} + \frac{Net\ profit_2 - \Delta BVA_2 + \Delta BVND_2}{(1 + r_e)^2} + \dots$$

$$+ \frac{Net\ profit_n - \Delta BVA_n + \Delta BVND_n}{(1 + r_e)^n}$$

Where,

$\Delta BVA$  is the change in book value of net assets

$\Delta BVND$  is the change in book value of net debt

$r_e$  is the target weighted average cost of capital (WACC) and commensurate business and financial risk.

To implement DCF method it is required to make forecasts of free cash flow for usually 5 to 10 years and beyond terminal value as well as to calculate the cost of equity. Usually, free cash flows are projected for a period of five years and may be longer depending on company's sector, stage of development, and underlying predictability of its financial performance. Terminal value is used to capture the remaining value of the target beyond the projection period and is summed with Present value of the projected FCF to determine an enterprise value.

From an economic point of view, enterprise value is determined by future cash flows and not by historical profit or balance sheet calculations. Cash is invested today in order to have a surplus in the future. This future cash flow must fully repay the initial investment and cover the cost of capital for the entire period of the investment. The logic of discounting future cash flows is based on the theory of time value of money, where future cash flows, after being discounted at the appropriate interest rate, give the present values. Overall, the value of a business equals the sum of these discounted flows, where the discount rate represents their risk.

The concept of accounting profit is not implied in this method, because the investor is interested in the possibility to collect profit from the company or to reinvest. Consider a company that makes huge sales while providing huge credits. If this company can not obtain similar credits to its suppliers, then despite its accounting profitability, it may go bankrupt or be forced to excessive borrowing to meet its working capital needs, ultimately burdening the results due to debt interest. Many consider cash flow to be a more reliable tool for comparing and valuing companies. This is because cash flows provide more information, are not affected by tax distortions, depreciation, inventory valuation, do not create creative cash flow statements, are more understandable as a valuation measure and are focused to the objectives of most stakeholders.

## 5.5 COST OF EQUITY

In company valuation, the cost of capital incorporates the returns required by both shareholders and creditors of the company and therefore incorporates two variables: the cost of equity and the cost of debt after taxes.

The cost of debt is simply the cost of interest after taxes. The cost of equity is not so easy to determine. When a shareholder invests, the valuation of expected return will be based on the investor's view of the following benefits: the flow of annual dividends and the increase of the market price of the share. In addition, the higher the risk undertaken, the higher the return the investor will require. An investor has many investment opportunities that are distinguished in low risk investments, which yield relatively low returns e.g. government bonds, and higher risk investments, which should provide optimism for higher returns such as common shares.

Since it is difficult to quantify the determinants that concern investors, Nobelist William F. Sharpe<sup>13</sup> observed the market behavior and constructed a model to interpret this behavior. In 1964, he introduced

---

<sup>13</sup> Sharpe, W. F., (1964) "Capital asset prices: A theory of market equilibrium under conditions of risk", *Journal of Finance*, Vol. 19, pp. 425–442.

the most durable model to estimate the cost of equity of a particular company the so-called "Capital Asset Pricing Model" (CAPM).

The CAPM model is based on the assumption that investors require a minimum return even when no risk is involved and that the required return increases as the apparent risk increases.

$$R_e = R_f + \beta \times (R_m - R_f) \text{ or}$$

$$\text{Cost of Equity} = \text{Risk Free Rate} + \text{Beta} \times \text{Risk Premium}$$

The variables incorporated in the model are:

**The interest-free risk ( $R_f$ ):** is the yield considered to be offered by the U.S. Treasury Bonds with duration corresponding to that of the investment to be valued. The common practice in calculating the Risk Free Rate is to use the yield on a ten-year government bond. Certainly, it is at analyst's discretion to use any alternative deemed most appropriate for the company under consideration, as long as it contains the elimination of investment risk and the correct recording of returns.

**Beta coefficient** is the measure of systematic risk of a specific stock, compared to the entire market. It counts the degree to which the returns of a particular stock moved according to the entire market. In addition, a model hypothesis is the ability of investors to borrow and lend money at the level of the risk-free security. In a real economy, of course, the interest rate for an investor who granted a loan is higher than the interest rate he receives when he lends money. If the beta coefficient in the CAPM equation is equal to zero, then the expected return on equity equals the interest rate on the risk-free security. If the beta of a stock is equal to 1 then the expected price of the stock is equal to the market return. On average, when an investor invests his capital in shares with a higher systematic risk ( $\beta > 1$ ) expects a higher return than the return of a share with a lower systematic risk ( $\beta < 1$ ).

Since unlisted companies do not have beta, an alternative way to calculate the cost of equity, is to choose a group of listed companies operating in the same or similar industry and export the average beta. A more in-depth analysis is to weight beta based on companies' capitalization or to select one or more companies that share common characteristics with the examined company and to calculate their beta. In addition, Beta coefficient is calculated by a regression analysis between the daily returns of the stock and the daily returns of the Stock Index in which the share of the company is traded.

The weakness of beta coefficient is laid up in the fact that is measured by using historical data thus; it is less meaningful for investors who want to predict a stock's future movements. Beta is also less

suitable for long-term investments since a stock's volatility varies considerably from year to year, and is relied upon the company's growth stage and other factors.

**The average rate of return on the entire capital market during a given period of time ( $R_m$ ):** Market return is figured by the returns of a representative sample of shares of the market in a period of time considered normal, that is when prices are not artificially raised or fallen. Therefore, this variable commonly refers to the expected portfolio performance of the entire market and is determined based on a Stock Index indicatively S&P 500.

**Risk Premium ( $R_m - R_f$ ):** Risk premium is the additional percentage of expected return that an investor needs to be persuaded to make more risky investments. The different types of investments usually differ quite a bit in terms of their degree of financial risk. The increase in capital market risk depends on many factors, the most important of which is related to the returns of the entire capital market and the general state of the economy. Historically market risk premium was increasing by the passage of time as in the 1802 – 1870 period was 2.9% then from 1871 – 1925 market risk premium was 4.6% and from 1926 – 2002 escalated to 8.4%. In recent years, the risk premium averages to 5.4%<sup>14</sup>

## 5.6 COST OF DEBT

The cost of debt is the minimum rate of return that debt holder acquires for the undertaken risk. Cost of debt is the effective interest rate that corporation recompenses on its current liabilities to creditors.

Cost of Debt ( $r_d$ ) = Interest Expense x (1 – Tax Rate)

The reason why the cost of debt after taxes is used is because the interest actually reduces the profit, and therefore the amount of tax with which the company is charged. The amount of tax that the company earns due to interest is thus incorporated into the cost of borrowing.

An alternative way of calculating cost of debt ( $r_d$ ) is the following formula:

Cost of Debt = Risk Free Rate + Company Default Spread + Country Default Spread

Where the Risk Free Rate is the return gained in a risk-free security, Company Default Spread is variance of the bond yield issued by the company and Country Default Spread is variance of the yield of U.S. treasury 10-year bond.

---

<sup>14</sup> Stephen Ross, Randolph Westerfield, Bradford Jordan, Jeffrey Jaffe, "Corporate Finance (12<sup>th</sup> edition)", McGraw-Hill Higher Education

## 5.7 WEIGHTED AVERAGE COST OF CAPITAL (WACC)

The capital of a corporation usually consists of two components: (a) debt capital and (b) equity capital. Loan funds are provided by financial institutions (e.g. banks), and equity comes from shareholders such as owners and investors (through the stock exchange). Certainly, both creditors and shareholders look forward to a certain return on the funds they invest in the business. The cost of capital therefore characterizes the expected return that both shareholders and creditors expect. Because shareholders anticipate a return on equity ( $r_e$ ), while creditors expect a return on debt ( $r_d$ ), the weigh of these two capital costs are expressed collectively through the WACC.

Therefore, the following formula emerges:

$$\text{WACC} = r_e \times \left( \frac{E}{V} \right) + r_d \times \left( \frac{D}{V} \right) \times (1 - T)$$

Where,

$r_e$  is the cost of equity

$r_d$  is the cost of debt

D is the market value of company's debt

E is the market value of company's equity

V is the total value of capital otherwise equity plus debt

T is tax rate

The main aim of WACC is to define the cost of each part of the corporation's capital structure based on the amount of equity, debt, and preferred stock and is integral part of a DCF valuation model. Each component lays a cost to the company. The corporation reimbursements a fixed rate of interest on its debt and a fixed yield on its preferred stock. Despite the fact a firm does not pay a fixed rate of return on common equity, it does regularly pay dividends in the form of cash to shareholders.



## SECTION 6

### VALUATION OF GREEK LNG SHIPPING COMPANIES

#### 6.1 DYNAGAS LNG PARTNERS LP VALUATION

Before apply the DCF method to evaluate Dynagas Partners it is essential to reformulate the financial statements. The primary reason behind is that normal financial statements are created by using generally accepted accounting principles GAAP, whereas there is the need to highlight the most important information and to provide the most accurate representation in order to conclude the analysis. In the below table is illustrated the reformulated Income Statement and Balance Sheet of Dynagas for 2014 – 2019 period.

**Table 6.1 Dynagas LNG Partners LP Reformulated Statements**

DYNAGAS LNG PARTNERS LP						
Reformulated Income Statement	2014	2015	2016	2017	2018	2019
Sales	107.088	145.202	169.851	138.990	127.135	130.901
Net Operating Profit After Tax	42.225	60.314	69.523	54.261	45.052	39.564
Net Interest Expense After Tax	-13.902	-27.436	-34.871	-44.959	-49.094	-47.506
Net Income	28.323	32.878	34.652	9.302	-4.042	-7.942
Reformulated Balance Sheet	2014	2015	2016	2017	2018	2019
Net Non-Current Assets	864.522	1.046.195	1.045.445	982.510	947.326	967.842
Net Working Capital	-11.266	-22.365	-18.768	-17.303	-17.942	-17.187
<b>Net Operating Assets</b>	<b>853.256</b>	<b>1.023.830</b>	<b>1.026.677</b>	<b>965.207</b>	<b>929.384</b>	<b>950.655</b>
Equity	297.598	294.527	294.523	245.055	199.400	187.021
Net Debt	555.658	729.303	732.154	720.152	729.984	763.634
<b>Net Capital</b>	<b>853.256</b>	<b>1.023.830</b>	<b>1.026.677</b>	<b>965.207</b>	<b>929.384</b>	<b>950.655</b>

Source: Author's Calculations

In the implementation of the first part, as key accounting ratios used the historic sales growth rate, NOPAT margin and Operating Asset Turnover from 2018 to 2019. Then assumptions made for the next five years, using analyst's forecasts retrieved from Thomson Reuters Eikon about the sales growth rate up to 2023 and then allowed the ratio to gradually decrease to a 2% terminal growth rate. As regards to NOPAT margin, once again used the analysts' forecast for the next three years and on the remaining two years of the forecast horizon, allowed the ratio to gradually decrease due to competitive forces. As a result, the implied Operating Return on Assets decreases to a more sustainable level closer to WACC estimates. Concerning Operating Asset Turnover, used the average of the previous three years that is 0,15 and assumed constant for the whole period of forecast estimation.

In the following table are presented the historical and forecasted key accounting ratios for the period of estimation as well as the summary of financial statement data based on the assumptions made.

**Table 6.2 Dynagas LNG Partners LP Key Accounting Ratios Forecasts**

DYNAGAS LNG PARTNERS LP									
I. KEY ACCOUNTING RATIOS	2018	2019	2020	2021	2022	2023	2024	2025	TV
SALES GROWTH RATE	-8,53%	2,96%	4,31%	-1,59%	-2,66%	-4,21%	-6,28%	-9,05%	2,00%
NET OPERATING PROFIT AFTER TAX MARGIN	35,44%	30,22%	46,65%	46,17%	44,59%	44,07%	43,89%	43,84%	43,84%
OPERATING ASSET TURNOVER	0,13	0,14	0,14	0,15	0,15	0,15	0,15	0,15	0,15
OPERATING RETURN ON ASSETS		4,26%	6,70%	6,93%	6,69%	6,61%	6,58%	6,58%	6,58%
II. SUMMARY FINANCIAL STATEMENT DATA	2018	2019	2020	2021	2022	2023	2024	2025	TV
SALES	127.135	130.901	136.543	134.372	130.798	125.287	117.413	106.792	108.928
NET OPERATING PROFIT AFTER TAX	45.052	39.564	63.697	62.039	58.328	55.212	51.537	46.812	47.749
NET OPERATING ASSETS	929.384	950.655	895.812	871.983	835.244	782.753	711.946	726.185	740.709

Source: Author's calculations

Succeeding to the third part of the analysis, is to calculate WACC of Dynagas, which later will be used as a discount rate to the future free cash flows. As a risk free rate, is applied the current yield on 10-year U.S. Treasury bond (1.415%) as of 26 February 2021. Dynagas's stock beta equals 2.05 on a 5-year average period thus applied the Blume<sup>15</sup> adjustment of historical beta of the stock in order to bring it closer to 1. The market risk premium utilized for the calculation of WACC is 5,4% according to Ross et al. (2019) as referred in previous section. Accordingly, the outcome referring to Dynagas's cost of equity is 10,5%. Additionally, the target debt to capital is measured by the using book value of debt and market value of equity as of 26 February 2021, an outcome nearly to 86,5%. As regards to cost of debt calculation, it is applied Damodaran's<sup>16</sup> synthetic rating, which relates the latest interest coverage ratio of the firm to a synthetic credit rating and demonstrates the default spread from the risk-free rate. Dynagas cost of debt after tax is 7.36% assuming its 5.94% default spread. Finally, incorporating all the aforementioned variables to WACC equation and presented in the following table, Dynagas WACC is 7.78%.

<sup>15</sup> The "market" by definition has a beta of 1.0; a usual way of adjusting a company's beta to the market beta of 1.0 is the "Blume" adjustment, also known (informally) as the "1/3, 2/3" adjustment. The adjustment, in plain terms, adds a 2/3 weighting to the company's historic beta, and a 1/3 weighting to the market's beta of 1.0. A company beta adjusted in this way will move toward 1.0 (company betas below 1.0 are adjusted upward, while company betas above 1.0 are adjusted downward). (Duff & Phelps (2010), "Client Alert: Delaware Chancery Court Fails to Adopt the Morningstar/Ibbotson Historical Equity Risk Premium (ERP) Opts for Lower Estimate, Effectively Increasing Valuation", July 8, 2010

<sup>16</sup> Ratings, Interest Coverage Ratios and Default Spread ([http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/datafile/ratings.html](http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/ratings.html))

**Table 6.3 Dynagas LNG Partners LP WACC estimation**

<b>DYNAGAS LNG PARTNERS LP</b>	
<b>III. WEIGHTED AVERAGE COST OF CAPITAL</b>	
RISK FREE RATE	1,415%
EQUITY BETA (Adjusted)	1,683
MARKET RISK PREMIUM	5,40%
<b>COST OF EQUITY CAPITAL</b>	<b>10,50%</b>
TARGET DEBT TO CAPITAL RATIO (MARKET VALUES)	86,47%
<b>COST OF DEBT AFTER TAX</b>	<b>7,36%</b>
<b>WEIGHTED AVERAGE COST OF CAPITAL</b>	<b>7,78%</b>

Source: Author's calculations

The last part of the analysis includes the estimation of the fundamental value of Dynagas according to DCF method by discounting the forecasted FCF to capital. The DCF valuation approach is based on determining the present value of all future FCF produced by a company. Dynagas terminal value beyond the projection period is \$574,727 thousand and in terms of present value is \$366,614 thousand. Accordingly, the fundamental value of net operating assets is \$842,703 thousand and deducting the book value of debt \$763,634 as of the end of FY 2019, outcomes to the fundamental value equity \$88,693 thousand as of 28 February 2021, the date of valuation.

**Table 6.4 Estimation of Dynagas LNG Partners LP Fundamental Value – DCF method**

DYNAGAS LNG PARTNERS LP								
IV. ESTIMATION OF FUNDAMENTAL VALUE - DCF METHOD	2019	2020	2021	2022	2023	2024	2025	TV
FREE CASH FLOWS TO CAPITAL		118.540,22	85.868,06	95.067,41	107.702,56	122.344,04	32.573,51	33.224,98
PRESENT VALUE OF FREE CASH FLOWS TO CAPITAL		109982,49	73917,50	75928,55	79809,99	84114,70	20778,37	
TERMINAL VALUE (AFTER FORECAST HORIZON)							574.727,82	
PRESENT VALUE OF TERMINAL VALUE (31 DECEMBER 2019)	366.614,05	45,20%						
VALUE FROM FORECAST HORIZON - SUM OF DISCOUNTED FREE CASH FLOWS TO CAPITAL	444.531,60	54,80%						
<b>FUNDAMENTAL VALUE OF NET OPERATING ASSETS (31 DECEMBER 2019)</b>	<b>811.145,65</b>							
MID-YEAR DISCOUNTING ADJUSTMENT: $x [1 + (WACC/2)]$	1,039							
<b>FUNDAMENTAL VALUE OF NET OPERATING ASSETS (31 DECEMBER 2019)</b>	<b>842.703,25</b>							
BOOK VALUE OF NET DEBT (31 DECEMBER 2019)	763.634,00							
<b>FUNDAMENTAL VALUE OF EQUITY (31 DECEMBER 2019)</b>	<b>79.069,25</b>							
VALUATION DATE ADJUSTMENT: $x 1 + [COST OF EQUITY x (NUMBER OF DAYS/365)]$	1,122							
<b>FUNDAMENTAL VALUE OF EQUITY (28 FEBRUARY 2021)</b>	<b>88.693,72</b>							
NUMBER OF COMMON SHARES OUTSTANDING	35.490							
<b>FUNDAMENTAL VALUE OF STOCK (28 FEBRUARY 2021)</b>	<b>2,50</b>							
CURRENT STOCK PRICE (26 FEBRUARY 2021)	2,88							
<b>UPSIDE (DOWNSIDE) POTENTIAL</b>	<b>-13,23%</b>							
<b>RECOMMENDATION</b>	<b>HOLD</b>							

Source: Author's calculations

The ultimate purpose of the present research is to appraise the fundamental value of Dynagas' stock and to propose the corresponding investment recommendation to potential and prevailing shareholders. As observed in the above table, the target price for the share of Dynagas (NYSE:DLNG) in the near term is \$2,50 representing a -13.23% decrease from the last price \$2.88 as of 26 February 2021. Dynagas is expected to perform at the same pace as similar companies or in-line with the market in the next 12 months, thus is recommended to shareholders to HOLD.

**Table 6.5 Dynagas LNG Partners LP Price Target Summary**

DYNAGAS LNG PARTNERS LP					
Price Target Summary					
Price Target	Target				Current Share Price
	04-Nov-2020	04-Dec-2020	04-Jan-2021	04-Feb-2021	26-Feb-2021
Median	\$2.50	\$2.50	\$2.50	\$2.75	\$2.88
Mean	\$2.50	\$2.50	\$2.50	\$2.75	\$2.88

Source: Thomson Reuters Eikon

The two analysts offering 12-month price forecast for Dynagas LNG Partners LP have a median target of \$2.75, with a high estimate of \$3.00 and a low estimate of \$2.50. The median estimate represents a -4.51% decrease from the last price of \$2.88.

**Figure 6.1 Dynagas LNG Partners LP (DLNG) stock price forecasts**



Source: CNN Business

**Table 6.6 Dynagas LNG Partners LP Recommendation Summary**

DYNAGAS LNG PARTNERS LP				
Recommendation Summary				
	Analysts Per level			
	04-Nov-2020	04-Dec-2020	04-Jan-2021	04-Feb-2021
1 - StrongBuy	-	-	-	-
2 - Buy	-	-	-	-
3 - Hold	2	2	2	2
4 - Sell	-	-	-	-
5 - StrongSell	-	-	-	-
<b>Rec Mean</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>

Source: Thomson Reuters Eikon

The current consensus concerning the above investment analysis is to hold share in Dynagas LNG Partners LP. This rating has held unchanged since November 2020, and is in line with our research analysis.

## 6.2 GASLOG LTD VALUATION

Similar to previous company, before apply the DCF method to evaluate GasLog Ltd., prepared the reformulated Income Statement and Balance Sheet for the period 2014 to 2020. Fortunately, in GasLog's valuation are provided the latest financial data allowing to more accurate FCF estimates.

**Table 6.7 GasLog Ltd. Reformulated Statements**

GASLOG Ltd.							
Reformulated Income Statement	2014	2015	2016	2017	2018	2019	2020
Sales	328.679	415.078	466.059	525.229	618.344	668.637	674.089
Net Operating Profit After Tax	133.815	110.457	122.517	145.843	211.918	129.921	204.991
Net Interest Expense After Tax	-91.654	-107.007	-154.066	-140.401	-174.298	-240.645	-260.002
Net Income	42.161	3.450	-31.549	5.442	37.620	-110.724	-55.011

Reformulated Balance Sheet	2014	2015	2016	2017	2018	2019	2020
Net Non-Current Assets	2.621.112	3.075.421	3.657.255	3.371.130	3.617.592	3.897.617	4.381.305
Net Working Capital	-35.237	-4.724	-83.368	-73.815	-70.306	-124.603	-133.814
<b>Net Operating Assets</b>	<b>2.585.875</b>	<b>3.070.697</b>	<b>3.573.887</b>	<b>3.297.315</b>	<b>3.547.286</b>	<b>3.773.014</b>	<b>4.247.491</b>
Equity	929.391	1.001.628	945.597	917.983	879.696	688.289	645.323
Net Debt	1.656.484	2.069.069	2.628.290	2.379.332	2.667.590	3.084.725	3.602.168
<b>Net Capital</b>	<b>2.585.875</b>	<b>3.070.697</b>	<b>3.573.887</b>	<b>3.297.315</b>	<b>3.547.286</b>	<b>3.773.014</b>	<b>4.247.491</b>

Source: Author's Calculations

As previously, in the execution of the first part, used historical financial data to fill key accounting ratios (i.e. Sales growth rate, NOPAT margin and Operating Asset Turnover) for fiscal years 2018 to 2020. Subsequently, once again used the analyst's forecasts retrieved from Thomson Reuters Eikon about sales growth rates until 2022 and then allowed the ratio to gradually decrease to a 2% terminal growth rate. As regards to NOPAT margin, afresh used the analysts' forecast for the next two years and on the remaining three years of the forecast horizon, allowed the ratio to gradually decrease due to competitive forces. As a result, the implied Operating Return on Assets decreases to a more sustainable level closer to WACC estimates. Concerning Operating Asset Turnover, used the average of the previous three years that is 0,18 and assumed constant for the whole period of forecast horizon. In the following table are presented the historical and forecasted key accounting ratios for the period of estimation as well as the summary of financial statement data based on the assumptions made.

**Table 6.8 GasLog Ltd. Key Accounting Ratios Forecasts**

GASLOG Ltd.									
I. KEY ACCOUNTING RATIOS	2018	2019	2020	2021	2022	2023	2024	2025	TV
SALES GROWTH RATE	17,73%	8,13%	0,82%	13,28%	10,05%	7,37%	5,58%	4,39%	2,00%
NOPAT MARGIN	34,27%	19,43%	30,41%	41,68%	45,62%	41,68%	38,76%	36,60%	36,60%
OPERATING ASSET TURNOVER	0,19	0,19	0,18	0,18	0,18	0,18	0,18	0,18	0,18
OPERATING ROA		3,66%	5,43%	7,49%	8,21%	7,50%	6,98%	6,59%	6,59%
II. SUMMARY FINANCIAL STATEMENT DATA	2018	2019	2020	2021	2022	2023	2024	2025	TV
SALES	618.344	668.637	674.089	763.628	840.373	902.280	952.608	994.381	1.014.269
NOPAT	211.918	129.921	204.991	318.280	383.378	376.070	369.245	363.940	371.218
NET OPERATING ASSETS	3.547.286	3.773.014	4.247.491	4.668.738	5.012.669	5.292.264	5.524.340	5.634.826	5.747.523

Source: Author's Calculations

Afterward, it is essential to determine GasLog's WACC in order to use it as a discount rate to the future free cash flows. As a risk free rate, is applied the current yield on 10-year U.S. Treasury bond (1.415%) as of 26 February 2021. The 5-year average stock beta of GasLog equals 1.36 according to the company's factsheet consequently applied the Blume adjustment as explained previously, in order to bring it closer to 1. The market risk premium is 5,4% according to Ross et al. (2019) as referred in previous section. Accordingly, shall all variables incorporated to the CAPM equation, the outcome refers GasLog's cost of equity at 8.04%. Then, followed GasLog's cost of debt estimation aiming to reflect its credit profile at the target capital structure. The target debt to capital is measured by the using book value of debt as of the end of fiscal year 2020 and market value of equity as of 26 February 2021, giving an outcome of 88.5%. As regards to cost of debt calculation, it is used also the Damodaran's synthetic rating, where in a B credit rating company the risk default spread from the risk-free rate stands 4.86%. Consequently, GasLog's cost of debt after tax is 6.28%. Finally, incorporating all the aforementioned variables to WACC equation, provides GasLog's weighted average cost of capital of 6.48% as presented in the following table.

**Table 6.9 GasLog Ltd. WACC estimation**

<b>GASLOG Ltd.</b>	
<b>III. WEIGHTED AVERAGE COST OF CAPITAL</b>	
RISK FREE RATE	1,415%
EQUITY BETA (Adjusted)	1,23
MARKET RISK PREMIUM	5,40%
<b>COST OF EQUITY CAPITAL</b>	<b>8,04%</b>
TARGET DEBT TO CAPITAL RATIO (MARKET VALUES)	88,52%
COST OF DEBT AFTER TAX	6,28%
<b>WEIGHTED AVERAGE COST OF CAPITAL</b>	<b>6,48%</b>

Source: Author's Calculations

The last part of the analysis includes the estimation of the fundamental value of GasLog Ltd. according to DCF method by discounting the forecasted FCF to capital. The DCF valuation approach is based on determining the present value of all future FCF produced by a company. GasLog's terminal value beyond the forecast horizon is \$5,773 million and in terms of present value is \$3,961 million. Accordingly, the fundamental value of net operating assets is \$4,128 million and subtracting the book value of net debt \$3,602 million as of the end of FY 2020, outcomes to the fundamental equity value \$533,264 thousand as of 28 February 2021, the date of valuation. Therefore, dividing the fundamental value of Equity by the total number of shares outstanding, it is concluded that the fair price for the share of GasLog Ltd. is \$6,06.

**Table 6.10 Estimation of GaSLog Ltd. Fundamental Value – DCF method**

GASLOG Ltd.								
IV. ESTIMATION OF FUNDAMENTAL VALUE - DCF METHOD	2019	2020	2021	2022	2023	2024	2025	TV
FREE CASH FLOWS TO CAPITAL		-269.486	-102.967	39.448	96.475	137.169	253.453	258.522
PRESENT VALUE OF FREE CASH FLOWS TO CAPITAL		-253.091	-90.819	32.677	75.054	100.220	173.914	
TERMINAL VALUE (AFTER FORECAST HORIZON)							5.773.009	
PRESENT VALUE OF TERMINAL VALUE (31 DECEMBER 2020)	3.961.322	99,05%						
VALUE FROM FORECAST HORIZON - SUM OF DISCOUNTED FREE CASH FLOWS TO CAPITAL	37.956	0,95%						
<b>FUNDAMENTAL VALUE OF NET OPERATING ASSETS (31 DECEMBER 2020)</b>	<b>3.999.277</b>							
MID-YEAR DISCOUNTING ADJUSTMENT: $x [1 + (WACC/2)]$	1,032							
<b>FUNDAMENTAL VALUE OF NET OPERATING ASSETS (31 DECEMBER 2020)</b>	<b>4.128.816</b>							
BOOK VALUE OF NET DEBT (31 DECEMBER 2020)	3.602.168							
<b>FUNDAMENTAL VALUE OF EQUITY (31 DECEMBER 2020)</b>	<b>526.648</b>							
VALUATION DATE ADJUSTMENT: $x 1 + [COST OF EQUITY \times (NUMBER OF DAYS/365)]$	1,013							
<b>FUNDAMENTAL VALUE OF EQUITY (28 FEBRUARY 2021)</b>	<b>533.264</b>							
NUMBER OF COMMON SHARES OUTSTANDING	88.011							
<b>FUNDAMENTAL VALUE OF STOCK (28 FEBRUARY 2021)</b>	<b>6,06</b>							
CURRENT STOCK PRICE (26 FEBRUARY 2021)	5,89							
<b>UPSIDE (DOWNSIDE) POTENTIAL</b>	<b>2,60%</b>							
<b>RECOMMENDATION</b>	<b>BUY</b>							

Source: Author's Calculations

As observed in the above table, the target price for the share of GasLog (NYSE:GLOG) in a forecast horizon of five years is \$6.06 representing a 2,60% increase from the last price \$5.89 as of 26 February 2021. GasLog seems to be undervalued and is expected to outperform similar companies or the market in the near term, thus shareholders is recommended to BUY.



**Table 6.11 GasLog Ltd. Price Target Summary**

GASLOG Ltd.					
Price Target Summary					
Price Target	Target				Current Share Price
	04-Nov-2020	04-Dec-2020	04-Jan-2021	04-Feb-2021	26-Feb-2021
Median	\$6.00	\$4.05	\$4.05	\$4.50	\$5.89
Mean	\$8.49	\$4.64	\$4.64	\$4.98	\$5.89

Source: Thomson Reuters Eikon

The 10 analysts offering 12-month price forecasts for GasLog Ltd have a median target of \$4.50, with a high estimate of \$6.00 and a low estimate of \$5.80. The median estimate represents a -0.85% decrease from the last price of \$5.89.

**Figure 6.2 GasLog Ltd (GLOG) stock price forecasts**



Source: CNN Business

**Table 6.12 GasLog Ltd. Recommendation Summary**

GASLOG Ltd.				
Recommendation Summary				
	Analysts Per level			
	04-Nov-2020	04-Dec-2020	04-Jan-2021	04-Feb-2021
1 - StrongBuy	4	4	4	4
2 - Buy	2	2	2	1
3 - Hold	3	4	4	3
4 - Sell	-	-	-	1
5 - StrongSell	1	-	-	1
<b>Rec Mean</b>	<b>2,2</b>	<b>2</b>	<b>2</b>	<b>2,4</b>

Source: Thomson Reuters Eikon

The current consensus among 10 investment analysts is to strong buy stock in GasLog Ltd. This rating has held steady since November 2020.

## **SECTION 7**

### **CONCLUSION**

In the present study, investigated the financial performance of Dynagas LNG Partners LP and GasLog Ltd for the period 2015 to 2019. Compared to LNG transportation industry, both companies outperformed the industry in terms of Gross and EBITDA margins indicating their commitment to generate profits and capability to grow their businesses. As regards to operating efficiency, once again both Dynagas and GasLog surpassed the industry median in 2019 having smaller operating cycles thus revealing the companies' ability to build robust long-term relationships with customers and suppliers achieving favorable credit terms. In further to liquidity, both companies appear to face difficulties to meet their short-term obligations as they underperformed the industry median in 2019. Their negative working capital turnover indicate that both companies may seek to raise additional funds in order to satisfy current obligations. Examining companies' debt leverage, there was found that both Dynagas and GasLog use extensively funds of debt to finance their financial expenses including dividend payments to shareholders and interest expenses as well as to finance their business growth through the purchase of newbuilding vessels. Dynagas' and GasLog' ROA, ROE and ROIC were significantly lower than the industry median in 2019 with GasLog delivering negative figures due to losses in the year. Subsequently, the valuation ratios revealed significant insight as regard to the shares of the companies. Both companies' Earnings per Share (EPS) underperformed the industry median as both companies delivered losses in 2020 semiannual results.

Subsequently the valuation of Dynagas and GasLog followed using the Discounted Free Cash Flow method. Based on forecasts made up to 2025 concerning sales growth rates, net operating profit after tax (nopat) margins, asset turnover and weighted average cost of capital (wacc) along with the application of the DCF method the fundamental value of the Dynagas stock is set at \$2.50 at the valuation date 28 February 2021. The latest market price of the share on 26 February 2021 was \$2.88. Therefore, it can concluded that the share of Dynagas (NYSE:DLNG) exhibit a downside potential by -13.23% and the investment recommendation is to neither buy nor sell Dynagas share. As Dynagas performance in 2019 and half 2020 was moderate mainly due to Covid-19 implications to global economy, it is expected to perform with the market of at the same pace as similar companies, thus assumed a Hold recommendation. In a hold recommendation, there are two potential options to investors. Existing investors owing shares of Dynagas should hold onto the equity and observe how the share perform over the short to medium-term. If an investor does not possess shares of Dynagas, then should wait to purchase until the future prospects become clearer.

Correspondingly, the DCF method applied for GasLog' valuation presented a fundamental price to its share at \$6.06 while the latest market value of the share (NYSE:GLOG) on 26 February 2021 was \$5.89. The upside potential for the share of GasLog is +2.60% in the near term and the investment recommendation concluded in this study is to Buy the share. As GasLog received five newbuilding LNG vessels in 2020 it is anticipated to increase its revenues in the near future as the majority of them are contracted under time charters and some of them in the spot/term charter market. Moreover, of GasLog Ltd. on 22 February 2021 announced that it has entered into an agreement and plan of merger with BlackRock's Global Energy & Power Infrastructure team (collectively, "GEPIF"), which focuses on essential, long-term infrastructure investments in the energy and power sector. The recent announcement by GasLog created more investment interest or positive investment expectations to investors escalating the share price at \$5.90 on 22 February 2021 realizing an actual return of 19,19%. Finally, as the LNG market suffered losses in 2020 due to pandemic implications, it is expected in 2021 LNG demand to be recovered fostered by the economic rebound, and having the potential to grow steadily in the following years driven by fast-growing markets in the Asia Pacific region.

## REFERENCES

- BP (2019), “*Statistical Review of World Energy*”.
- BP (2020), “*Statistical Review of World Energy*”.
- Damodaran, A. (2002) “*Investment Valuation: Tools and Techniques for Determining the Value of Any Asset (3<sup>rd</sup> Edition)*”, John Wiley & Sons, New York, United States.
- Damodaran, A., (2015) “*Applied Corporate Finance (4<sup>th</sup> Edition)*”, John Wiley & Sons, New York, United States.
- Duff & Phelps (2010), “*Client Alert: Delaware Chancery Court Fails to Adopt the Morningstar/Ibbotson Historical Equity Risk Premium (ERP) Opts for Lower Estimate, Effectively Increasing Valuation*”, July 8, 2010
- Dynagas LNG Partners LP Annual Report (for the fiscal years 2014, 2015, 2016, 2017, 2018, 2019, Q2 2020)
- Dynagas LNG Partners LP website (<http://www.dynagas.com/>) (Access: 15 February 2021)
- Fama, Eugene (1970) “Efficient Capital Markets: A Review of Theory and Empirical Work”, *Journal of Finance*, Vol. 25, pp. 383–417.
- Fernandez, P. (2002), “*Company Valuation Methods. The most common errors in valuations*”, IESE Business School, University of Navarra, pp. 449
- GasLog Ltd Annual Report (for the fiscal years 2014, 2015, 2016, 2017, 2018, 2019, 2020)
- GasLog Ltd official website (<https://www.gaslogltd.com/>) (Access: 15 February 2021)
- International Group of Liquefied Natural Gas Importers (GIIGNL) (2020), Annual Report
- Norton Rose Fulbright (2021), “*Global LNG Outlook*”
- Poten & Partners (2020), “*LNG in Market Outlook*“, February 2020
- Ratings, Interest Coverage Ratios and Default Spread  
([http://people.stern.nyu.edu/adamodar/New\\_Home\\_Page/datafile/ratings.html](http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/ratings.html))
- Refinitiv Natural Gas & LNG Research (2021), “*LNG Outlook 2021: Recovery underway*”
- Sharpe, W. F., (1964) “Capital asset prices: A theory of market equilibrium under conditions of risk”, *Journal of Finance*, Vol. 19, pp. 425–442.
- Stephen Ross, Randolph Westerfield, Bradford Jordan, Jeffrey Jaffe, “*Corporate Finance (12<sup>th</sup> edition)*”, McGraw-Hill Higher Education
- U.S. Energy Information Administration (2020), “*Short-Term Energy Outlook*”, December 2020
- U.S. Energy Information Administration (2021), “*Short-term Energy Outlook*” February 2021
- UNCTAD (2020), “*Review of Maritime Transport*”

## APPENDIX

**Table 1. GasLog Ltd. Balance Sheet from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>12</b>	<b>29</b>	<b>26</b>	<b>60</b>	<b>11</b>	<b>37</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
<b>Assets (\$ Thousands)</b>						
Cash and Short Term Investments	238.792	305.464	244.183	381.698	367.014	267.646
Accounts Receivable - Trade, Net	1.237	4.405	2.253	4.034	9.473	8.274
Total Receivables, Net	16.186	17.424	12.321	19.372	53.639	25.473
Total Inventory	4.953	6.496	8.461	6.839	7.753	8.172
Prepaid Expenses	4.443	2.519	4.326	4.569	3.680	13.475
Other Current Assets, Total	24.111	66.242	965	4.593	6.802	1.030
Total Current Assets	288.485	398.145	270.256	417.071	438.888	315.796
<b>Property/Plant/Equipment, Total - Gross</b>						
Property/Plant/Equipment, Total - Net	3.086.263	3.810.036	4.545.710	4.618.074	5.082.663	5.759.670
Goodwill, Net	2.953.467	3.578.736	4.207.407	4.153.550	4.689.610	4.836.883
Intangibles, Net	9.511	9.511	9.511	9.511	9.511	9.511
Long Term Investments	0	0	0	0	0	0
Note Receivable - Long Term	6.603	6.274	6.265	20.800	20.713	21.620
Other Long Term Assets, Total	0	0	0	0	0	0
Total Assets	11.905	46.955	21.725	33.959	16.085	39.385
<b>Liabilities (\$ Thousands)</b>						
Accounts Payable	9.668	12.391	7.255	11.526	11.890	27.615
Payable/Accrued	0	0	0	0	0	0
Accrued Expenses	33.467	36.925	55.864	58.492	88.770	88.059
Notes Payable/Short Term Debt	0	0	0	0	0	0
Current Port. of LT Debt/Capital Leases	116.431	636.987	153.394	185.669	527.225	264.785
Other Current liabilities, Total	41.795	48.089	46.322	39.170	41.520	57.079

Total Current Liabilities	201.361	734.392	262.835	294.857	669.405	437.538
Total Long Term Debt	1.778.845	1.737.500	2.719.033	2.575.315	2.507.333	3.087.540
Total Debt	1.895.276	2.374.487	2.872.427	2.760.984	3.034.558	3.352.325
Deferred Income Tax	0	0	0	0	0	0
Minority Interest	323.646	506.246	564.039	845.105	1.103.380	961.518
Other Liabilities, Total	36.728	59.809	23.614	1.585	14.947	48.264
Total Liabilities	2.340.580	3.037.947	3.569.521	3.716.862	4.295.065	4.534.860
<b>Shareholders Equity (\$ Thousands)</b>						
Redeemable Preferred Stock, Total	0	46	46	46	46	46
Preferred Stock - Non Redeemable, Net	0	0	0	0	0	0
Common Stock, Total	810	810	810	810	810	810
Additional Paid-In Capital	923.470	1.020.292	966.974	911.766	850.576	760.671
Retained Earnings (Accumulated Deficit)	17.687	(6.983)	(11.326)	12.367	31.576	(67.805)
Treasury Stock - Common	(12.576)	(12.491)	(10.861)	(6.960)	(3.266)	(2.315)
ESOP Debt Guarantee	--	--	--	--	--	--
Unrealized Gain (Loss)	--	--	--	--	--	--
Other Equity, Total	--	--	--	--	--	(3.072)
Total Equity	929.391	1.001.674	945.643	918.029	879.742	688.335
Total Liabilities & Shareholders' Equity	3.269.971	4.039.621	4.515.164	4.634.891	5.174.807	5.223.195

Source: Thomson Reuters Eikon

**Table 2. GasLog Ltd. Income Statement from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>12</b>	<b>29</b>	<b>26</b>	<b>60</b>	<b>11</b>	<b>37</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
Revenue	328.679	415.078	466.059	525.229	618.344	668.637
Other Revenue, Total	--	--	--	--	--	--
Total Revenue	328.679	415.078	466.059	525.229	618.344	668.637
Cost of Revenue, Total	78.470	98.552	112.632	122.486	128.084	139.662
Gross Profit	250.209	316.526	353.427	402.743	490.260	528.975
Selling/General/Admin. Expenses, Total	34.425	54.883	52.585	47.997	44.549	71.446
Research & Development	--	--	--	--	--	--
Depreciation/Amortization	70.695	106.641	122.957	137.187	153.193	168.041
Interest Expense, Net - Operating	--	--	--	--	--	--
Interest/Investment Income - Operating	(271)	689	1.241	3	--	--
Interest Expense(Income) - Net Operating	--	--	--	--	--	--
Interest Exp.(Inc.),Net-Operating, Total	(271)	689	1.241	3	--	--
Unusual Expense (Income)	--	--	2.120	1.459	0	168.243
Other Operating Expenses, Total	--	--	--	--	--	--
Total Operating Expense	183.319	260.765	291.535	309.132	325.826	547.392
Operating Income	145.360	154.313	174.524	216.097	292.518	121.245
Interest Expense, Net Non-Operating	(68.638)	(90.939)	(132.726)	(136.171)	(164.742)	(182.086)
Interest/Invest Income - Non-Operating	(23.016)	(8.689)	(11.277)	5.834	507	(48.496)
Interest Income(Exp), Net Non-Operating	--	--	--	--	--	--
Interest Inc.(Exp.),Net-Non-Op., Total	(91.654)	(99.628)	(144.003)	(130.337)	(164.235)	(230.582)
Gain (Loss) on Sale of Assets	--	--	--	--	--	--
Other, Net	(2.941)	(1.017)	(2.470)	(1.551)	(1.885)	(6.276)
Net Income Before Taxes	50.765	53.668	28.051	84.209	126.398	(115.613)
Provision for Income Taxes	0	0	0	0	0	0
Net Income After Taxes	50.765	53.668	28.051	84.209	126.398	(115.613)
Minority Interest	(8.604)	(42.839)	(49.537)	(68.703)	(78.715)	14.952
Equity In Affiliates	--	--	--	--	--	--
U.S. GAAP Adjustment	--	--	--	--	--	--
Net Income Before Extra. Items	42.161	10.829	(21.486)	15.506	47.683	(100.661)
Accounting Change	--	--	--	--	--	--
Discontinued Operations	--	--	--	--	--	--
Extraordinary Item	--	--	--	--	--	--
Tax on Extraordinary Items	--	--	--	--	--	--
Total Extraordinary Items	--	--	--	--	--	--
Net Income	42.161	10.829	(21.486)	15.506	47.683	(100.661)

Source: Thomson Reuters Eikon

**Table 3. GasLog Ltd. Cash Flow Statement from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>12</b>	<b>29</b>	<b>26</b>	<b>60</b>	<b>11</b>	<b>37</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
<b>Cash Flow-Operating Activities (\$ Thousands)</b>						
Net Income/Starting Line	50.765	53.668	28.051	84.209	126.398	(115.613)
Depreciation/Depletion	70.695	106.641	122.957	137.187	153.193	168.041
Amortization	--	--	--	--	--	--
Deferred Taxes	--	--	--	--	--	--
Non-Cash Items	86.157	95.157	145.022	133.028	173.748	406.803
Changes in Working Capital	(59.329)	(93.887)	(39.498)	(130.794)	(169.629)	(141.808)
Cash from Operating Activities	148.288	161.579	256.532	223.630	283.710	317.423
<b>Cash Flow-Investing Activities (\$ Thousands)</b>						
Capital Expenditures	(1.364.283)	(728.446)	(761.513)	(82.352)	(673.823)	(479.618)
Other Investing Cash Flow Items, Total	(22.373)	24.394	(9.729)	7.753	(19.176)	36.640
Cash from Investing Activities	(1.386.656)	(704.052)	(771.242)	(74.599)	(692.999)	(442.978)
<b>Cash Flow-Financing Activities (\$ Thousands)</b>						
Financing Cash Flow Items	(50.006)	(67.700)	197.620	(97.328)	(96.320)	(135.439)
Total Cash Dividends Paid	(47.140)	(84.527)	(99.207)	(55.208)	(90.074)	(89.310)
Issuance (Retirement) of Stock, Net	620.379	284.253	52.731	281.840	269.431	(73.214)
Issuance (Retirement) of Debt, Net	823.529	502.291	288.622	(122.039)	285.083	348.029
Cash from Financing Activities	1.346.762	634.317	439.766	7.265	368.120	50.066
Foreign Exchange Effects	(218)	(830)	(1.020)	772	(329)	(3.358)
Net Change in Cash	108.176	91.014	(75.964)	157.068	(41.498)	(78.847)
Net Cash - Beginning Balance	103.798	211.974	302.988	227.024	384.092	342.594
Net Cash - Ending Balance	211.974	302.988	227.024	384.092	342.594	263.747
Cash Interest Paid	64.011	78.916	78.788	126.631	141.921	171.825
Cash Taxes Paid	--	--	--	--	--	--
Reported Cash from Operating Activities	--	--	--	--	--	--
Reported Cash from Investing Activities	--	--	--	--	--	--
Reported Cash from Financing Activities	--	--	--	--	--	--
Free Cash Flow	(1.215.995)	(566.867)	(504.981)	141.278	(390.113)	(162.195)

Source: Thomson Reuters Eikon



**Table 4. Dynagas LNG Partners LP Balance Sheet from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>7</b>	<b>30</b>	<b>69</b>	<b>63</b>	<b>53</b>	<b>61</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
<b>Assets (\$ Thousands)</b>						
Cash and Short Term Investments	11.949	24.293	57.595	67.464	109.917	16.206
Accounts Receivable - Trade, Net	0	103	100	155	48	143
Total Receivables, Net	889	563	978	1.038	1.134	143
Total Inventory	357	348	834	799	1.220	718
Prepaid Expenses	737	610	788	1.103	692	1.105
Other Current Assets, Total	0	0	0	0	0	0
Total Current Assets	13.932	25.814	60.195	70.404	112.963	18.172
<b>Property/Plant/Equipment, Total - Gross</b>						
Property/Plant/Equipment, Total - Gross	944.984	1.165.645	1.167.500	1.167.500	1.167.909	1.167.909
Property/Plant/Equipment, Total - Net	839.883	1.036.157	1.007.617	977.298	947.377	916.697
Goodwill, Net	0	0	0	0	0	0
Intangibles, Net	0	0	0	0	0	0
Long Term Investments	0	0	0	0	0	0
Note Receivable - Long Term	0	0	0	0	0	0
Other Long Term Assets, Total	26.068	46.132	38.864	6.617	3.096	54.318
Total Assets	879.883	1.108.103	1.106.676	1.054.319	1.063.436	989.187
<b>Liabilities (\$ Thousands)</b>						
Accounts Payable	2.369	4.935	3.058	4.497	5.736	5.496
Payable/Accrued	0	0	0	0	0	0
Accrued Expenses	3.716	3.595	3.750	4.051	4.206	1.641
Notes Payable/Short Term Debt	0	0	0	0	0	0
Current Port. of LT Debt/Capital Leases	19.584	27.467	31.688	2.655	251.754	45.482

Other Current liabilities, Total	7.164	15.356	14.560	11.695	11.046	12.016
Total Current Liabilities	32.833	51.353	53.056	22.898	272.742	64.635
Total Long Term Debt	547.923	652.818	684.748	711.698	461.062	607.672
Total Debt	567.507	680.285	716.436	714.353	712.816	653.154
Deferred Income Tax	0	0	0	0	0	0
Minority Interest	0	0	0	0	0	0
Other Liabilities, Total	1.429	36.094	1.036	1.405	3.147	3.173
Total Liabilities	582.185	740.265	738.840	736.001	736.951	675.480
<b>Shareholders Equity (\$ Thousands)</b>						
Redeemable Preferred Stock, Total	0	73.216	73.216	73.216	127.101	126.714
Preferred Stock - Non Redeemable, Net	100	95	97	47	(16)	(28)
Common Stock, Total	304.729	302.954	302.952	245.055	199.400	187.021
Additional Paid-In Capital	--	--	--	--	--	--
Retained Earnings (Accumulated Deficit)	--	--	--	--	--	--
Treasury Stock - Common	--	--	--	--	--	--
ESOP Debt Guarantee	--	--	--	--	--	--
Unrealized Gain (Loss)	--	--	--	--	--	--
Other Equity, Total	(7.131)	(8.427)	(8.429)	0	--	--
Total Equity	297.698	367.838	367.836	318.318	326.485	313.707
Total Liabilities & Shareholders' Equity	879.883	1.108.103	1.106.676	1.054.319	1.063.436	989.187

Source: Thomson Reuters Eikon

**Table 5. Dynagas LNG Partners LP Income Statement from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>7</b>	<b>30</b>	<b>69</b>	<b>63</b>	<b>53</b>	<b>61</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
Revenue	107.088	145.202	169.851	138.990	127.135	130.901
Other Revenue, Total	--	--	--	--	--	--
Total Revenue	107.088	145.202	169.851	138.990	127.135	130.901
Cost of Revenue, Total	19.086	26.048	29.412	30.686	27.844	31.060
Gross Profit	88.002	119.154	140.439	108.304	99.291	99.841
Selling/General/Admin. Expenses, Total	5.517	6.675	7.884	7.848	8.556	9.245
Research & Development	--	--	--	--	--	--
Depreciation/Amortization	17.822	24.387	30.395	30.319	30.330	30.680
Interest Expense, Net - Operating	--	--	--	--	--	--
Interest/Investment Income - Operating	--	--	--	--	--	--
Interest Expense(Income) - Net Operating	--	--	--	--	--	--
Interest Exp.(Inc.),Net-Operating, Total	--	--	--	--	--	--
Unusual Expense (Income)	--	--	--	--	--	--
Other Operating Expenses, Total	0	--	81	6.193	7.422	0
Total Operating Expense	42.425	57.110	67.772	75.046	74.152	70.985
Operating Income	64.663	88.092	102.079	63.944	52.983	59.916
Interest Expense, Net Non-Operating	(14.123)	(27.471)	(34.871)	(45.162)	(50.145)	(49.837)
Interest/Invest Income - Non-Operating	221	35	0	203	1.051	2.331
Interest Income(Exp), Net Non-Operating	--	--	--	--	--	--
Interest Inc.(Exp.),Net-Non-Op., Total	(13.902)	(27.436)	(34.871)	(44.959)	(49.094)	(47.506)
Gain (Loss) on Sale of Assets	--	--	--	--	--	--
Other, Net	(200)	(606)	(354)	(1.646)	(276)	(8.797)
Net Income Before Taxes	50.561	60.050	66.854	17.339	3.613	3.613
Provision for Income Taxes	0	0	0	0	0	0
Net Income After Taxes	50.561	60.050	66.854	17.339	3.613	3.613
Minority Interest	0	0	0	0	0	0
Equity In Affiliates	0	0	0	0	0	0
U.S. GAAP Adjustment	0	0	0	0	0	0
Net Income Before Extra. Items	50.561	60.050	66.854	17.339	3.613	3.613
Accounting Change	--	--	--	--	--	--
Discontinued Operations	--	--	--	--	--	--
Extraordinary Item	--	--	--	--	--	--
Tax on Extraordinary Items	--	--	--	--	--	--
Total Extraordinary Items	--	--	--	--	--	--
Net Income	50.561	60.050	66.854	17.339	3.613	3.613

Source: Thomson Reuters Eikon

**Table 6. Dynagas LNG Partners LP Cash Flow Statement from 2014 to 2019**

	2014	2015	2016	2017	2018	2019
<b>Earnings Quality Score</b>	<b>7</b>	<b>30</b>	<b>69</b>	<b>63</b>	<b>53</b>	<b>61</b>
Period End Date	31-Dec-2014	31-Dec-2015	31-Dec-2016	31-Dec-2017	31-Dec-2018	31-Dec-2019
<b>Cash Flow-Operating Activities (\$ Thousands)</b>						
Net Income/Starting Line	50.561	60.050	66.854	17.339	3.613	3.613
Depreciation/Depletion	17.822	24.387	30.395	30.319	30.330	30.680
Amortization	0	0	0	0	0	0
Deferred Taxes	0	0	0	0	0	0
Non-Cash Items	2.850	2.371	9.194	13.003	8.551	10.500
Changes in Working Capital	5.210	10.136	(2.825)	(1.322)	500	(1.616)
Cash from Operating Activities	76.443	96.944	103.618	59.339	42.994	43.177
<b>Cash Flow-Investing Activities (\$ Thousands)</b>						
Capital Expenditures	(404.530)	(205.045)	(37.472)	0	(409)	0
Other Investing Cash Flow Items, Total	0	0	0	0	0	0
Cash from Investing Activities	(404.530)	(205.045)	(37.472)	0	(409)	0
<b>Cash Flow-Financing Activities (\$ Thousands)</b>						
Financing Cash Flow Items	(10.564)	(3.127)	(155)	12.287	(48)	(10.697)
Total Cash Dividends Paid	(131.132)	(62.207)	(66.856)	(66.857)	(48.422)	(16.391)
Issuance (Retirement) of Stock, Net	120.640	72.446	0	0	53.138	0
Issuance (Retirement) of Debt, Net	355.415	113.333	34.167	5.100	(4.800)	(59.800)
Cash from Financing Activities	334.359	120.445	(32.844)	(49.470)	(132)	(86.888)
Foreign Exchange Effects	--	--	--	--	--	--
Net Change in Cash	6.272	12.344	33.302	9.869	42.453	(43.711)
Net Cash - Beginning Balance	5.677	11.949	24.293	57.595	67.464	109.917
Net Cash - Ending Balance	11.949	24.293	57.595	67.464	109.917	66.206
Cash Interest Paid	--	--	--	--	--	--
Cash Taxes Paid	--	--	--	--	--	--
Reported Cash from Operating Activities	--	--	--	--	--	--
Reported Cash from Investing Activities	--	--	--	--	--	--
Reported Cash from Financing Activities	--	--	--	--	--	--
Free Cash Flow	(328.087)	(108.101)	66.146	59.339	42.585	43.177

Source: Thomson Reuters Eikon