

RAISING CAPITAL THROUGH ISSUANCE OF COMMON SHARES BY GREEK-CONTROLLED MARITIME COMPANIES IN US CAPITAL MARKETS



BANK OF GREECE
EUROSYSTEM

Economic Bulletin
ISSN 1105 - 9729 (print)
ISSN 2654 - 1904 (online)

Evangelia Kasimati
Economic Analysis and Research Department

Nikolaos Veraros
Investments & Finance Ltd. and
King's College London

ABSTRACT

Our paper reviews the equity offerings of Greek-controlled maritime companies in US capital markets. We specifically examine the percentage of equity funds raised by Greek interests compared to the overall international maritime raisings in the United States, the amount of money raised, the pricing of the offerings, the performance of the stocks when the new shares commenced trading, the offering price in relation to the initial price range, the issuance costs, the existence of overallotments, and the use of the proceeds. We break down the activity per vessel type, company type, and equity issue type.

We find that the US equity issues boosted substantially the growth of the Greek-controlled fleet over the last two decades. We also identify a more intense issuing activity at the peak of the shipping cycle, which could jeopardise the companies' capital structure when freight rates and vessel values correct downwards.

Keywords: equity issues, maritime companies, shipping cycle, world trade, financial leverage

JEL classification: G15, G24, G32

ΑΝΤΛΗΣΗ ΚΕΦΑΛΑΙΩΝ ΜΕΣΩ ΕΚΔΟΣΗΣ ΚΟΙΝΩΝ ΜΕΤΟΧΩΝ ΑΠΟ ΕΛΛΗΝΙΚΕΣ ΝΑΥΤΙΛΙΑΚΕΣ ΕΤΑΙΡΙΕΣ ΣΤΙΣ ΑΓΟΡΕΣ ΚΕΦΑΛΑΙΩΝ ΤΩΝ ΗΠΑ

Ευαγγελία Κασιμάτη
Διεύθυνση Οικονομικής Ανάλυσης και Μελετών

Νικόλαος Βεράρος
Investments & Finance Ltd. και
King's College London

ΠΕΡΙΛΗΨΗ

Η παρούσα μελέτη εξετάζει τη δραστηριότητα άντλησης κεφαλαίων από ελληνικές ναυτιλιακές εταιρίες με προσφορά μετοχών στις κεφαλαιαγορές των ΗΠΑ. Συγκεκριμένα, εξετάζονται

το ποσοστό των κεφαλαίων που αντλήθηκαν από εταιρίες ελληνικών συμφερόντων σε σύγκριση με τα συνολικά κεφάλαια που άντλησαν διεθνείς ναυτιλιακές εταιρίες στις ΗΠΑ, το αντληθέν ποσό, οι τιμές των προσφορών, η απόδοση των μετοχών όταν ξεκίνησε η διαπραγμάτευση των νέων τίτλων, η τιμή προσφοράς σε σχέση με το αρχικό εύρος τιμών, το κόστος έκδοσης, το επίπεδο κάλυψης των προσφορών και η χρήση των προσόδων. Η εκδοτική δραστηριότητα αναλύεται κατά τύπο πλοίου, εταιρίας και έκδοσης μετοχών.

Σύμφωνα με τα ευρήματα της μελέτης, οι εκδόσεις μετοχών στις αγορές των ΗΠΑ ενίσχυσαν σημαντικά τη μεγέθυνση του ελληνόκτητου στόλου κατά την τελευταία εικοσαετία. Επίσης, διαπιστώνεται εντονότερη εκδοτική δραστηριότητα στην υψηλότερη φάση του ναυτιλιακού κύκλου, με αποτέλεσμα η κεφαλαιακή διάρθρωση των εταιριών να χαρακτηρίζεται από υπερβολική μόχλευση όταν η ναυλαγορά εισέρχεται στα χαμηλά επίπεδα του ναυτιλιακού κύκλου.

RAISING CAPITAL THROUGH ISSUANCE OF COMMON SHARES BY GREEK-CONTROLLED MARITIME COMPANIES IN US CAPITAL MARKETS*

Evangelia Kasimati
Economic Analysis and Research Department

Nikolaos Veraros
Investments & Finance Ltd. and
King's College London

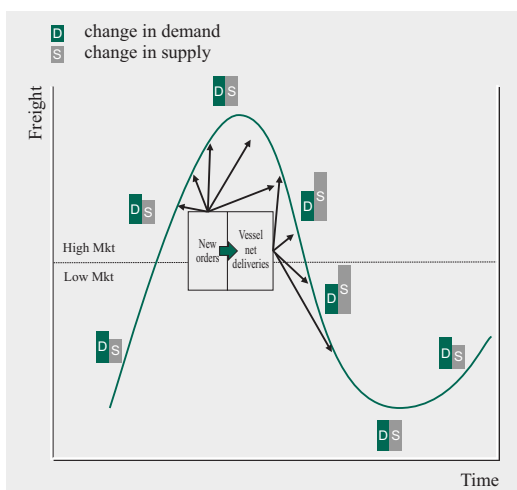
I INTRODUCTION

This article reviews the equity offerings in the US capital markets by Greek-controlled maritime companies. We examine this in the context of the total equity issues by all international maritime companies in the United States, which allows us to evaluate the participation of Greek interests in the overall capital market activity in shipping.

Shipping is a capital intensive industry, historically financed by mortgage-backed bank debt. By the turn of the 21st century, capital markets emerged as an efficient alternative source of financing to traditional mortgage loans (Syriopoulos 2010). Such financing took the form of either bonds (most of them unsecured) or equity offerings. Capital markets offered the opportunity to scale up the investments and the size of the companies to levels far beyond the financial muscles of the traditional shipping families running them. In addition, they provided the opportunity to occasionally price the equity at more attractive terms and to maintain a liquid market for the controlling shareholders. Greek maritime companies were modernised and transformed to meet the transparency and reporting standards required by the most advanced capital markets in the world, including the US market.

Our paper measures the amount of money raised, the pricing of the offerings, the performance of the stocks post-offering, and the issuance costs. In addition, we try to relate the intensity of equity issuances to the developments in the shipping cycle. It is widely acknowledged that shipping cycles are the predominant driving force in the industry (Stop-

Chart 1 Shipping cycle's dynamics



ford 2009). The interaction between freight rates and future developments in the fleet size fuels successive market cycles with significant volatility. In Chart 1 we summarise the mechanism through which when changes in demand outgrow changes in supply, freight rates increase, thus triggering excessive new-building orders, which far outpace scrapping of older tonnage (net deliveries). The surge in net vessel deliveries from the shipyards will subsequently cause supply growth to outpace demand growth, this time leading to a fall in freight rates.

The implications of the abovementioned alternative source of shipping funding for the Greek economy are important. Greek shipping is a major contributor to Greece's balance of payments. Its share is historically measured at

* The views expressed in this article are those of the authors and do not necessarily reflect those of the Bank of Greece. Any errors or omissions are the authors' responsibility.

around 43% of total receipts from services (Panagiotou and Bragoudakis 2010, Bragoudakis et al. 2015, Kasimati and Veraros 2011), whereas for 2018 it was estimated at 38%. Its contribution to employment is estimated between 3.6% and 5.0% of total workforce in Greece (IOBE 2013, Harlaftis et al. 2009). An extensive body of literature (Bragoudakis and Panagiotou 2010, Bragoudakis et al. 2015, Panagiotou and Bragoudakis 2010, Kasimati and Veraros 2011) suggests that maritime receipts by the Greek economy are positively affected by high freight rates, the increased size of the Greek-controlled fleet and the availability of debt financing. Capital market proceeds, being an additional source of financing, are expected to further boost the size of the Greek fleet and accordingly the receipts accruing to the Greek economy.

Our article describes the development of equity proceeds from US capital markets, broken down into categories, as well as the pricing of the offerings and the stock performance following the issuance.

2 DATA DESCRIPTION

We derive our data on capital offerings primarily from FactSet (www.factset.com) for a period spanning from January 2004 to October 2018. We keep track of all equity issues¹ of maritime companies in US capital markets (NYSE, AMEX and NASDAQ). We do not include debt issues and at-the-market (ATM)

equity offerings, which could be the subject of another study. Our total sample includes 69 companies and 232 transactions. We break down the companies based on the type of vessels that they operate, so as to analyse the shipping cycle effect on the capital market issuances. We distinguish four major vessel categories, as shown in Table 1.

We further identify those companies representing Greek interests. We define such companies as those established, managed or controlled by Greek shipping families.²

3 OVERALL DEVELOPMENTS

In the period under examination, maritime companies raised \$30.7 billion in equity money (see Table 2). Companies maintaining fleets of dry bulk, tankers and LNG vessels accounted for 77% of total issues (see Chart 2). Greek interests accounted for \$13.5 billion, or 44% of total issues, with their participation ranging from 22% in LNG vessels to 88% in dry bulk. Note that this participation significantly exceeds the overall share of the Greek-controlled fleet in the world fleet, which

- ¹ In the equity offerings under examination we also include Special Purpose Acquisition Companies (SPACs). Such raisings accumulate cash in special vehicles with the caveat that within a specified period of time the management should identify a project for investing the cash and bring it to the shareholders for approval. If the shareholders reject it, they can claim back their cash contribution to the SPAC.
- ² All the Greek-controlled companies in our study are included in the various editions of the Greek Shipping Directory since 2004 (www.greekshipping.gr), whereas the vast majority of the currently existing companies participate in the voluntary tax contribution to the Greek government, as agreed in April 2019.

Table 1 Vessel types

Type of vessel	Cargo	Capacity measurement
Dry bulk	Dry bulk cargoes such as grain, ore, coal	Deadweight tonnage (dwt)
Tankers	Crude, refined oil or chemical products	Deadweight tonnage (dwt)
Containerships	Containers (boxes)	Number of Twenty Feet Equivalent Units (TEU)
LNG vessels	Liquefied natural gas	Cubic Meters (Cbm)

Source: The Baltic Exchange (2014).

Table 2 Equity issues by maritime companies in US capital markets (2004-October 2018)

(USD millions)

	Non-Greek	Greek	Total	% of Greek
Dry bulk	915	6,549	7,464	88%
Tankers	6,315	2,648	8,963	30%
Containerships	1,544	1,139	2,683	42%
LNG vessels	5,634	1,631	7,265	22%
Other ¹	2,813	1,568	4,381	36%
Total	17,221	13,536	30,756	44%

Source: FactSet and authors' calculations.

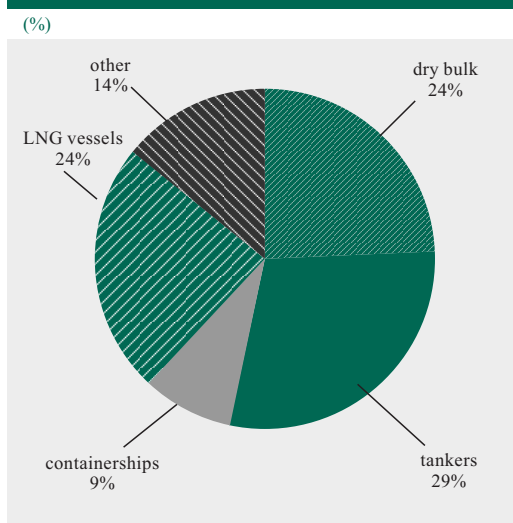
¹ Other includes more specialised vessels such as river barges, drill ships, offshore support vessels and LPGs, along with some companies which maintain a very diversified mix of dry bulk, tanker, LNG and containerships and thus cannot be allocated in one specific category.

ranges between 17% in terms of gross tonnage (Clarksons 2019) and 20% in terms of dead-weight (Union of Greek Shipowners 2018). As we discuss in more detail later, this significant new source of funding facilitated the expansion of the Greek-controlled fleet in the past 15 years.

We distinguish equity issuance activity into initial public offerings (IPOs), where a company is listed on the stock exchange for the first time, and follow-on offerings, where already

listed companies proceed with subsequent share offerings. IPOs accounted for 31% of total proceeds, with the average size being almost twice as much as that of follow-on offerings (see Table 3). Around \$25 billion, or 81% of the transactions, were associated with primary offerings, i.e. new shares were issued and the proceeds were received by the companies to finance new investments. Secondary offerings included sales of existing shares, in which case the proceeds were received by existing selling shareholders.

Chart 2 Equity issues by maritime companies, per type of vessel (2004-October 2018)



Source: FactSet and authors' calculations.

Table 3 Breakdown of types of equity issues by maritime companies in the United States

Breakdown A	USD millions	% of total	Average size
IPOs	9,597	31%	213
Follow-on	21,159	69%	113
Total	30,756		133

Breakdown B	USD millions	% of total	Average size
Primary	24,935	81%	123
Secondary	3,657	12%	192
Combination	2,164	7%	216
Total	30,756		133

Source: FactSet.

Table 4 Equity issues by maritime companies in the United States, MLPs versus ordinary companies (2004-October 2018)

(USD millions)

	MLP	Non-MLP	Total	% of MLPs
Dry bulk	1,098	6,366	7,464	15%
Tankers	967	7,996	8,963	11%
Containerships ¹	0	2,683	2,683	0%
LNG vessels	4,184	3,081	7,265	58%
Other	1,043	3,338	4,381	24%
Total	7,292	23,465	30,756	24%

Source: FactSet and authors' calculations.

¹ Note that although the category of Containerships does not include a pure MLP listing, such kind of ships with long-term charters are observed to have been included in more diversified MLP vehicles.

An interesting distinction among the issuing companies is between Master Limited Partnerships (MLPs) and ordinary companies. The former are publicly traded entities which are taxed as partnerships and employed primarily by companies maintaining well-contracted future revenue streams that provide substantial visibility in their dividend capacity. Such companies are normally priced on a dividend yield basis, adjusted for their ability to maintain their dividend over a long period, if not to increase it further (Goldman Sachs 2019). As depicted in Table 4, MLPs account for 24% of total proceeds. However, when broken down by type of vessel category their participation

surges to 58% for LNG vessels, the main reason being that such vessels normally command long-term charters. We will make use of this distinction throughout our analysis, as MLP equity issues are not expected to be similarly affected by short-term fluctuations of the shipping cycle relative to the rest of the companies, which have a significantly higher exposure to spot freight rates.

Table 5 and Chart 3 present the evolution of total maritime equity issues over time. We can observe that after 2015 the overall issuance activity subsided. Note that 2014 data are inflated due to one huge secondary offering for

Table 5 Evolution of equity issues by maritime companies in the United States over time (2004-October 2018)

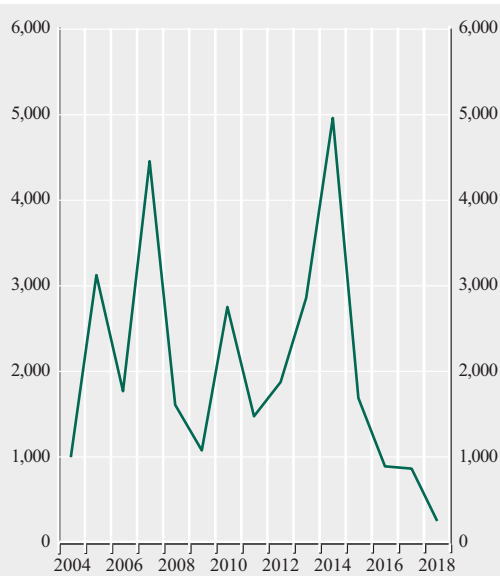
(USD millions)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
Dry bulk	0	1,083	154	2,347	472	452	685	191	163	799	152	505	202	81	181	7,464
Tankers	998	373	510	982	509	357	1,244	348	244	968	884	797	193	459	98	8,963
Containerships	0	606	463	310	219	0	160	259	307	98	10	0	157	96	0	2,683
LNG vessels	0	278	0	88	155	168	0	660	859	750	3,391	394	345	179	0	7,265
Other	0	804	643	743	265	107	668	17	304	244	534	0	0	52	0	4,381
Total	998	3,143	1,769	4,470	1,620	1,083	2,756	1,474	1,877	2,859	4,971	1,695	897	866	279	30,756
Greek interests	295	1,352	573	2,909	725	452	1,526	502	863	969	1,881	860	194	253	181	13,536
% of Greek interests	30%	43%	32%	65%	45%	42%	55%	34%	46%	34%	38%	51%	22%	29%	65%	44%

Sources: FactSet and authors' calculations.

Chart 3 Total maritime equity issues in the United States (2004-October 2018)

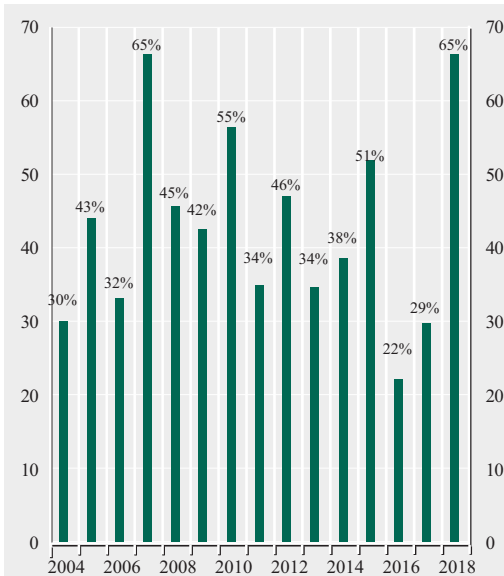
(USD millions)



Source: FactSet and authors' calculations.

Chart 5 Greek interests in maritime equity issues in the United States (2004-October 2018)

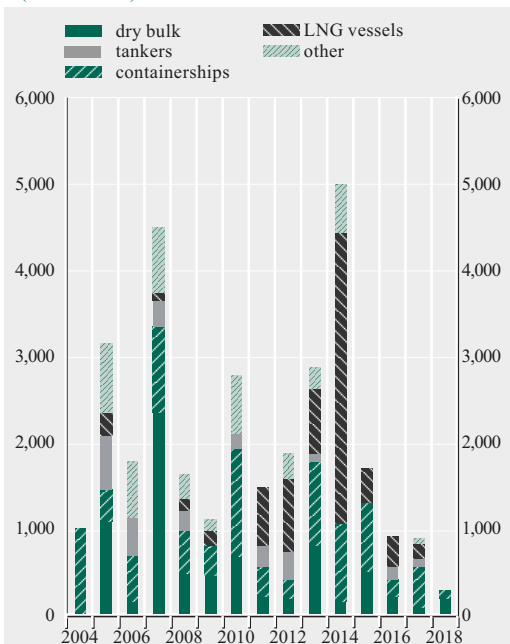
(% of total)



Source: FactSet and authors' calculations.

Chart 4 Breakdown of maritime equity issues by vessel category (2004-October 2018)

(USD millions)



Source: FactSet and authors' calculations.

existing shares of \$1.6 billion by a LNG company. Chart 4 describes the participation of each sector in total issues. Dry bulk and tankers dominated in the period 2004-2010, whereas the LNG sector has taken the lead since 2011. Finally, Chart 5 suggests that the participation of Greek interests fluctuated over time around its value-weighted average of 44%.

4 MARITIME ISSUES PER VESSEL CATEGORY

As already discussed, we categorise the companies per type of vessels that they operate in order to relate developments in the relevant freight market segment to the intensity of the respective capital market activity. We exclude the issues from the MLPs which are not expected to correlate significantly with the shipping cycle. Charts 6 to 9 present our findings. In most of the market segments, high freight rates go hand-in-hand with higher activity in the capital market issues. Table 6 summarises correlation coefficients between proceeds from equity offerings and freight rate

developments in all segments, save LNGs on which we have very limited observations. In all cases the correlations are positive, ranging between 0.34 and 0.63.

In almost all vessel categories we observe that the contraction in freight rates and equity issues started in 2008-2009, which coincides with the global economic crisis of 2009 when, according to the IMF, the world economy contracted by 0.1% and the advanced economies by 3.3%. More importantly, it coincides with the surge in the supply of maritime tonnage, fuelled by the euphoria of the previous record years. Focusing on the dry bulk sector, we see in Chart 10 that newbuilding orders represented 65%-77% of the vessels on the water in the period 2008-2010. No matter how promising demand prospects might have been at that time, it is hard to anticipate that almost doubling the fleet in the following 2-3 years could provoke anything else than an overturn of the balance in the demand and supply of maritime

Table 6 Correlation coefficients between proceeds from equity raisings and freight rate developments

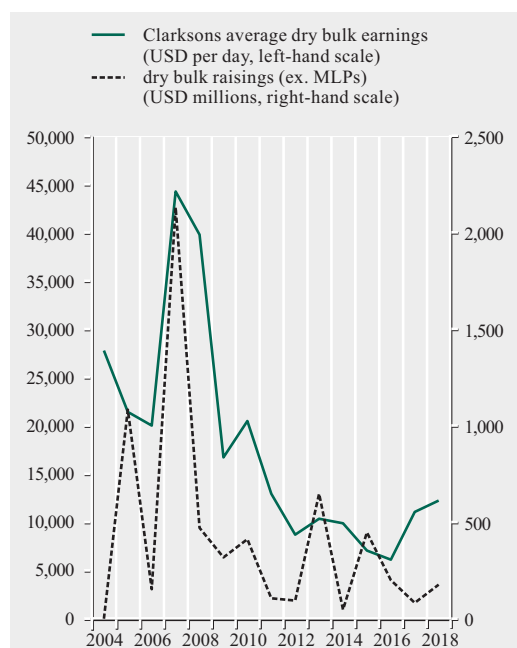
Dry bulk	0.63
Tankers	0.34
Containerships	0.58

Sources: FactSet, Clarksons and authors' calculations.

tonnage. "The history of world shipping is fraught with examples of crises that can be blamed on excessive ordering more than any other factor" (Thanopoulou 2010). Chart 11 further demonstrates how growth in supply (fleet size) was decoupled from growth in demand (world seaborne dry bulk trade), resulting in the collapse of the dry bulk freight rates.

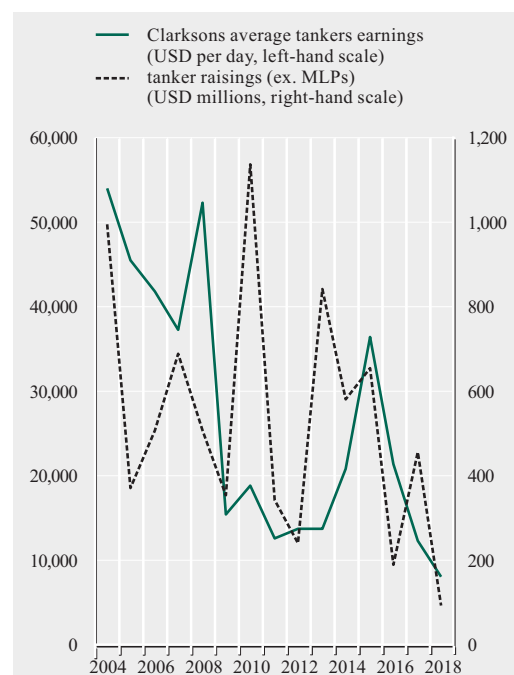
The above discussion raises the concern that most of the new equity capital accrues to mar-

Chart 6 Dry bulk equity issues versus vessels' earnings (2004-October 2018)



Source: FactSet and authors' calculations.

Chart 7 Tanker equity raisings versus vessels' earnings (2004-October 2018)

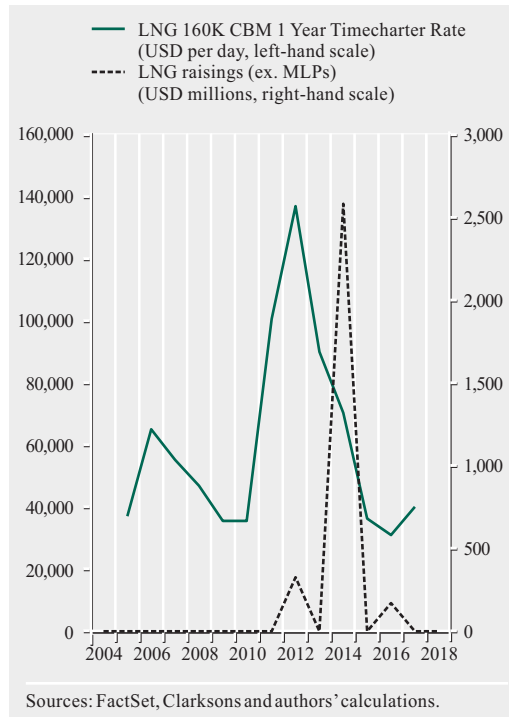


Source: FactSet and authors' calculations.

Chart 8 Container ship equity raisings versus vessels' earnings (2004-October 2018)



Chart 9 LNG vessel equity raisings versus vessels' earnings (2004-October 2018)



itime companies at the peak of the shipping cycle, when vessel prices are mostly inflated. As a consequence, the companies are bound to invest in new assets at rather elevated prices. In order to further elaborate on our argument, we compare the amount of annual issues in the dry bulk sector with the price of a 5-year old Capesize vessel (see Chart 12). Such vessels are the largest dry bulk carriers, able to transport around 180,000 metric tonnes (Kasimati and Veraros 2018). We selected the dry bulk sector because its capital issues have a substantial representation throughout the period under examination, during which the sector also experienced a quite intense shipping cycle. In only three years, between 2005 and 2007, the dry bulk companies raised cumulatively \$3.4 billion, or approximately 53% of their total issues throughout the 15 years of our review. In the same three-year period, the price of a 5-year old Capesize vessel averaged \$96 mil-

Chart 10 Dry bulk vessels orderbook as percentage of existing fleet (2000-2018)

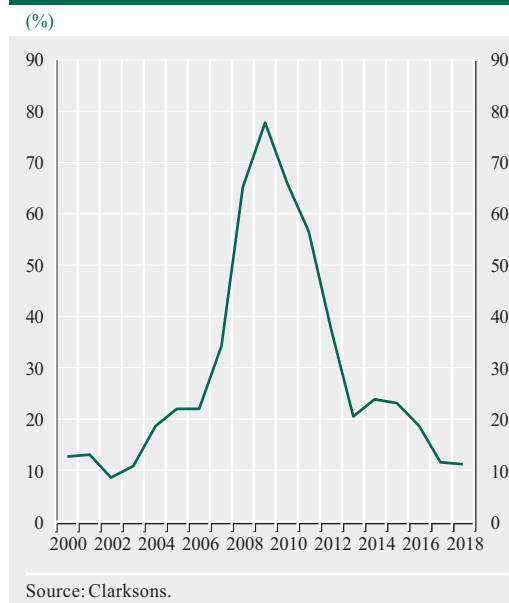
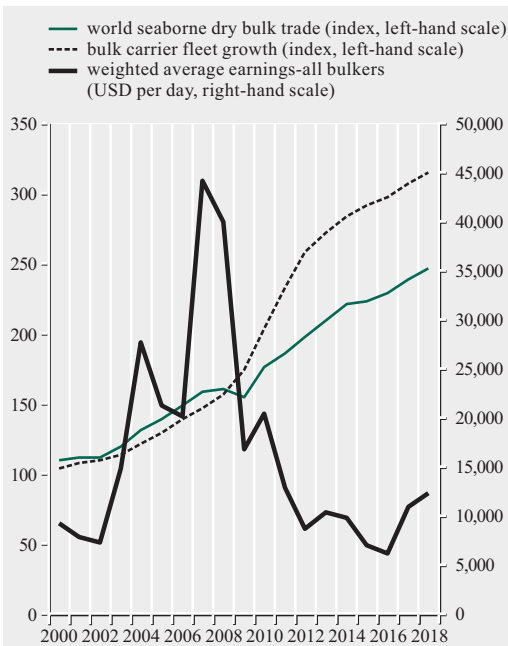


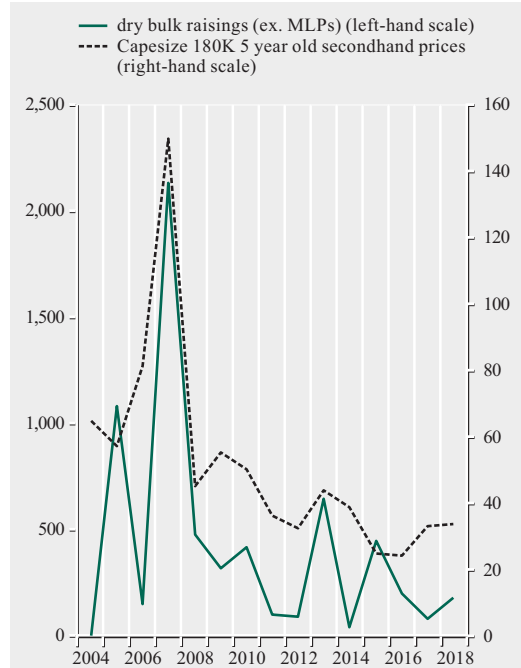
Chart 11 Dry bulk growth in supply and demand versus freight rates (2000-2018)



Source: Clarksons.

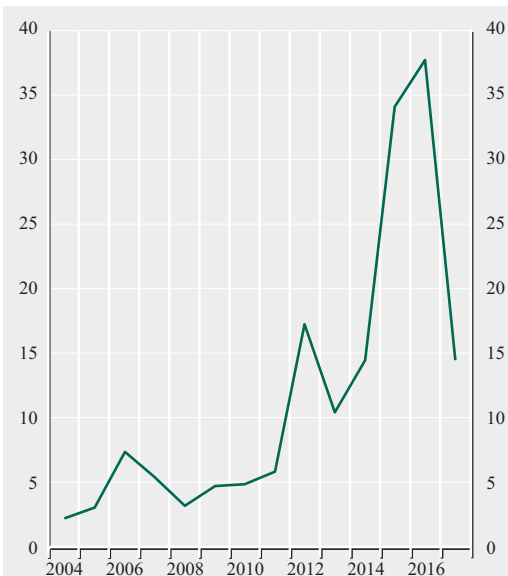
Chart 12 Dry bulk equity raisings versus vessel prices (2004-October 2018)

(USD millions)



Sources: FactSet, Clarksons and authors' calculations.

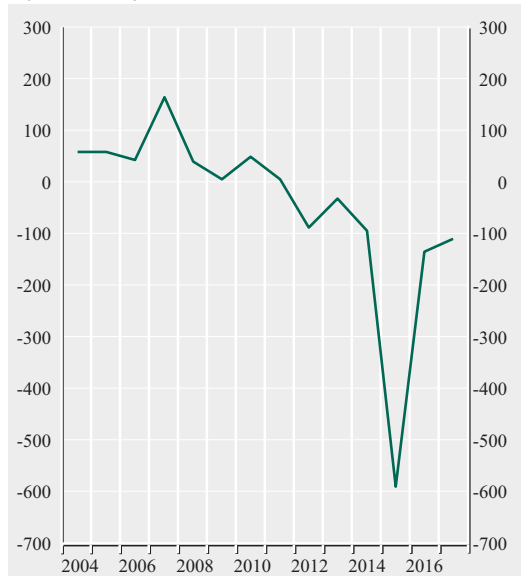
Chart 13 Debt/EBITDA ratio for dry bulk companies listed in the United States (2004-2017)



Source: FactSet and authors' calculations.

Chart 14 Average net income of dry bulk companies listed in the United States (2004-2017)

(USD millions)



Source: FactSet and authors' calculations.

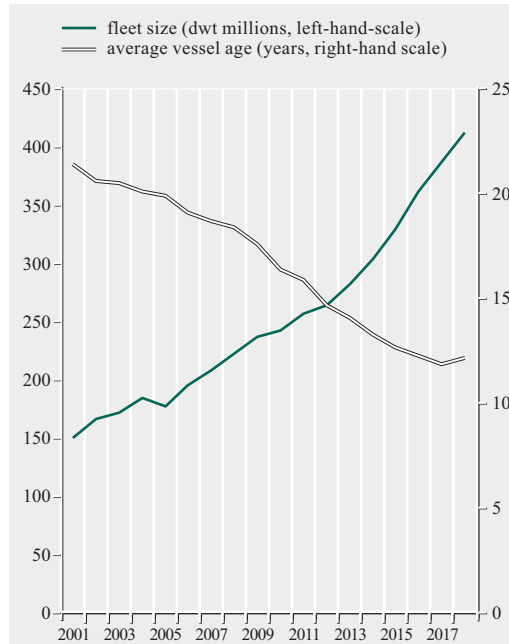
Chart 15 Amount of bank debt to Greek-controlled fleet (2001-2018)

(USD billions)



Source: Petrofin Research (2019).

Chart 16 Growth of Greek-controlled fleet (2001-2018)



Source: Petrofin Research (2019).

lion, and topped \$150 million in 2007. In the period from 2008 to 2018, the average price for the same vessel declined to \$38 million, whereas in the last four years it averaged only \$29 million. For assets on which the industry practice is to employ debt leverage of no less than 60% to the vessel price, it is quite likely that investments at prices prevailing in 2005-2007 would have resulted in overleveraged financial structures following the downward correction of the market at the low phase of the cycle. This can be further demonstrated by Chart 13, which averages the debt/EBITDA ratio per year for all dry bulk companies of our report. It is evident that the financial leverage compared to the cash flow capacity substantially deteriorated after 2011.

It should be noted that, when asset prices reached historically attractive levels in the last four years (see Chart 12 above), the dry bulk capital issues bottomed down, since investors did not consider the companies as attractive as

they did in the period 2005-2007. This could be primarily attributed to their reduced profitability, as shown in Chart 14.³

The surge in investments at elevated asset prices is further evidenced by Chart 15, which illustrates the amount of bank debt financing to the whole Greek shipping community. In the period 2004-2008, debt financing effectively more than doubled. The subsequent fall in freight rates and asset values described in Charts 6-9 and 12 is accompanied by a decline in debt financing, which however takes place at a much slower pace.

The significant participation of Greek interests in equity issues facilitated the expansion and modernisation of the Greek-controlled fleet, as shown in Chart 16 (Petrofin Research 2019). On the basis of the estimated value of

³ The figure for 2015 is distorted by a huge loss sustained by one dry bulk company. Nevertheless, even if we exclude this observation, the year is negative and ranks as the worst in our total time sample.

vessels controlled by Greeks in early 2019 (VesselsValue 2019), the equity proceeds of the listed Greek companies on the US market accounted for 13% of the current value of the Greek-controlled fleet as a whole. They also accounted for 25% of total outstanding debt by the end of 2017. Such a significant equity injection is certain to have played a key role in the expansion and modernisation of Greek shipping.

5 TERMS AND PERFORMANCE OF OFFERINGS

We now shift our analysis to the pricing and cost of the offerings, as well as to the trading performance of the issued shares. Chart 17 shows the extent to which the offering pricing has been within the price range marketed toward the investors before the closing date. Our analysis is limited to only 39 cases on which we have relevant information. We can see that a share of 38% was finally priced below range, indicating some softness in the selling process for those particular cases. By breaking down this share over time in Chart 18, we observe that below-range pricing increased in the second half of our review period, indicating more challenging conditions for capital issues.

Almost all of the transactions included lock-up provisions. These are restrictions prohibiting the insiders of the companies from selling or buying shares for a period of time following the capital market transaction. Chart 19 presents the distribution of lock-up periods, with the highest frequency (45%) being at 90 days. Only seven out of a total of 232 transactions did not include a lock-up restriction.

Table 7 presents the gross spread as a percentage of the amount of the total offerings. The gross spread refers to the difference between the price received by the issuing company and the actual price offered to the public. This is the amount that the underwriters are paid as fee for underwriting the deal. The average gross spread amounts to

Chart 17 Offering prices versus indicative price range of maritime equity issues in the United States

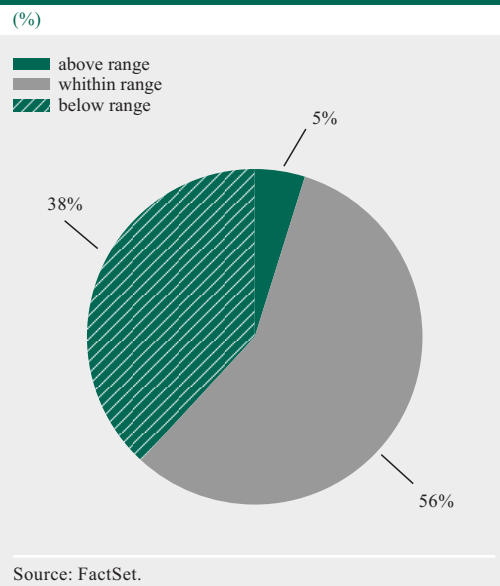
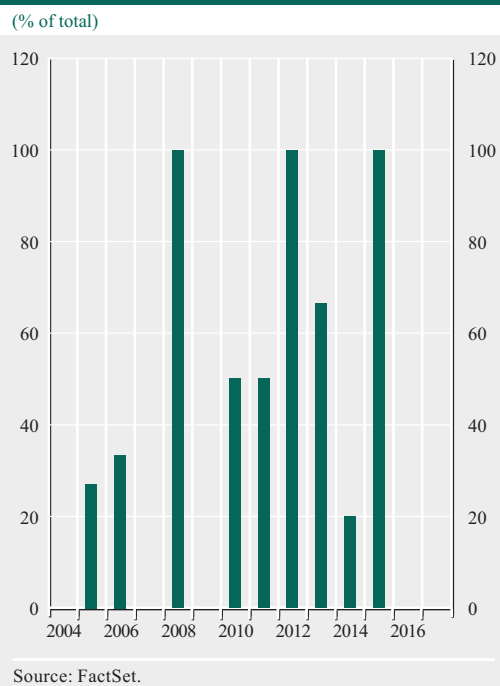


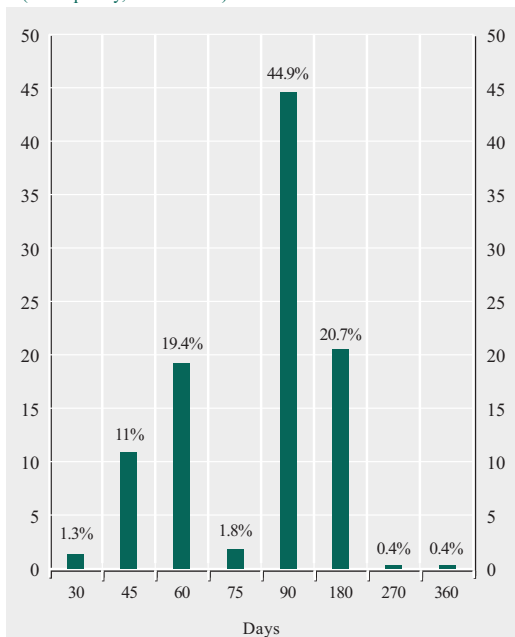
Chart 18 Breakdown of offering prices below indicative price range of maritime equity issues in the United States



4.88%, whereas for the IPOs it is significantly higher due to the more challenging nature of

Chart 19 Days of lock-up period of maritime equity issues in the United States

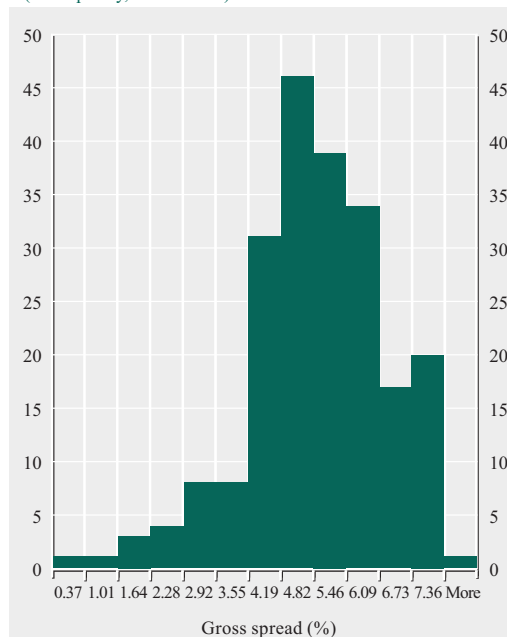
(% frequency, vertical axis)



Source: FactSet.

Chart 20 Distribution of gross spreads of maritime equity issues in the United States

(% frequency, vertical axis)



Source: FactSet.

the transaction. Chart 20 presents the distribution of such spreads for 213 transactions on which we have available data. Note that the numbers are arithmetic averages, placing equal weight on small and large transactions. If we estimate the amounts of fees on a per transaction basis (value weighted), we get an overall gross spread average of 3.4%. Lower transactions come at higher gross spreads, thus inflating the arithmetic averages discussed above.

We next examine the performance of the stocks following the equity raising. For this purpose, we measure the return one month after the date of the offering. Table 8 and Chart 21 summarise our result. As expected, the distribution of returns is quite diverse; nevertheless, the average return is positive at 3.1%, suggesting a sound performance of the new shares issued. The median is also positive, at 0.9%. The breakdown of the average return over time indicates a better performance in the

Table 7 Gross spread of maritime equity issues in the United States

	IPOs	Follow-on	Total
Average	6.48	4.45	4.88
Min	3.75	0.37	
Max	7.00	8.00	
Transactions	45	168	213

Source: FactSet.

Table 8 Stock returns one month after the equity raising

Average	3.1
Median	0.9
Min	-90.2
Max	289.1
% of negative	43%
Transactions	231

Source: FactSet.

Chart 21 Distribution of stock returns one month after the equity raising

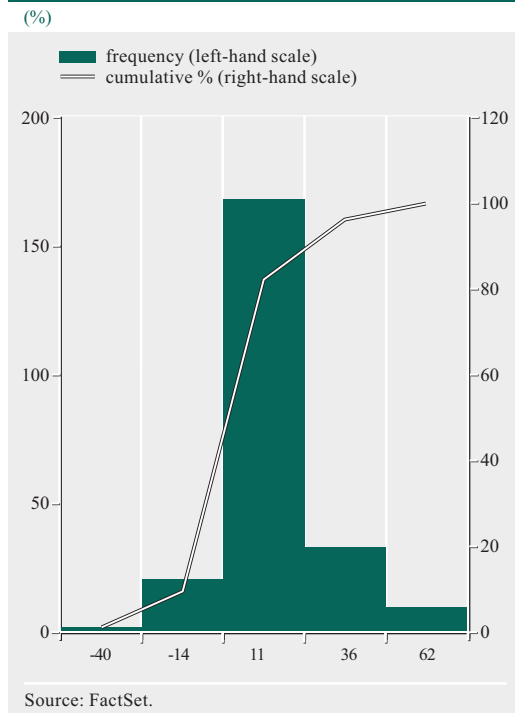
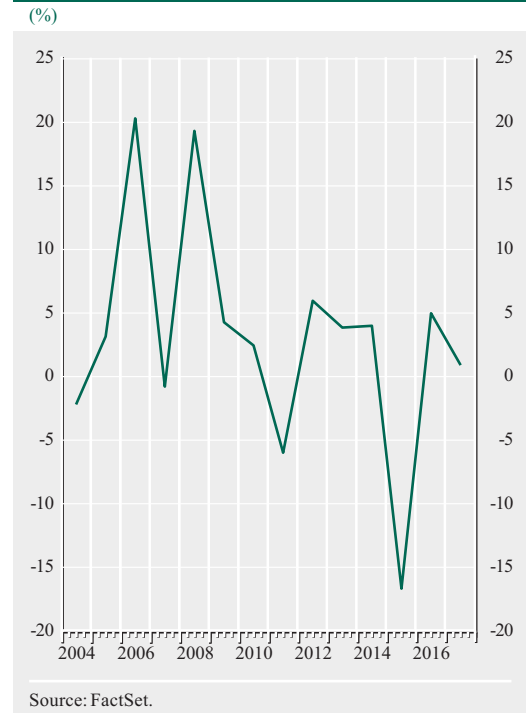


Chart 22 Average stock returns one month after the equity raising



first half of the reviewed period (see Chart 22), when shipping market conditions were better. In any event, only four out of 14 years averaged a negative return.

6 CONCLUSIONS

Greek-controlled maritime companies raised \$13.5 billion, or 44% of total maritime equity issues, on the US capital markets in the period January 2004-October 2018. This activity substantially facilitated the growth of the Greek-controlled fleet over the past two decades, as the vast majority of the equity proceeds were used to fund new investments.

The intensity of the equity issues was found to be positively correlated with the phase of the shipping cycle. When freight rates were high and the financial performance of the listed companies extraordinary, the ability to raise new equity was also above average. This encouraged investing at the high phase of the shipping cycle, which creates risks of overleveraging when freight rates fall.

On average, the equity issues were associated with positive stock performance one month after issuance, a value-weighted gross spread of 3.4% and lock-up restrictions of 90 days for the main shareholders. In most of the cases, the raising price was registered within the initial indicative range of prices.

REFERENCES

- Bragoudakis, Z. and S. Panagiotou (2010), “Determinants of the receipts from shipping services: the case of Greece”, Bank of Greece, *Economic Bulletin*, 34, 41-55.
- Bragoudakis, Z., S. Panagiotou and H. Thanopoulou (2015), “Greek shipping earnings and investment expenditure: exploring the pre & post ‘ordering-frenzy’ period”, *Spoudai Journal of Economics and Business*, 65(3-4), 3-28.
- Clarksons Research (2019), *World Fleet Monitor*, Volume 10, No. 1.
- Goldman Sachs (2019), “American Pipelines and MLPs Week midstream fund flows to end 2018 but sentiment appears to have bottomed”.
- Harlaftis, G., H. Thanopoulou and I. Theotokas (2009), “The Present and the Future of Greek Shipping”, Study No. 10, Athens: Academy of Athens (in Greek).
- IOBE (2013), “The Contribution of Ocean-Going Shipping to the Greek Economy: Performance and Outlook”, Foundation for Economic and Industrial Research, January.
- Kasimati, E. and N. Veraros (2011), “Contribution of the Greek merchant fleet in the Greek economy: Evaluation and policy suggestions”, Centre of Planning and Economic Research, *Greek Economic Outlook*, 16, 57-64.
- Kasimati, E. and N. Veraros (2018), “Accuracy of forward freight agreements in forecasting future freight rates”, *Applied Economics*, 50(7), 743-756.
- Panagiotou, S. and Z. Bragoudakis (2010), “Maritime transportation and ocean-going shipping”, Bank of Greece, *The Greek current account: causes for imbalances and policy suggestions*, July, 221-234 (in Greek).
- Petrofin Research (2018), “Greek fleet statistics January 2018 based on data as of end December 2017”.
- Petrofin Research (2019), “Petrofin Bank Research – Greek Shipping Portfolios 2018”.
- Stopford, M. (2009), *Maritime Economics*, 3rd edition, Routledge.
- Syriopoulos, Th. (2010) “Shipping Finance and International Capital Markets”, *The Handbook of Maritime Economics and Business*, 2nd edition, Lloyd’s List.
- Thanopoulou, H. (2010), “Investing in twenty-first century shipping: An essay on perennial constraints, risks and great expectations”, in Grammenos, C. (ed), *The Handbook of Maritime Economics and Business*, 2nd edition, London: Informa.
- The Baltic Exchange (2014), *The Baltic Code*.
- Union of Greek Shipowners (2018), *Annual Report 2017-2018*.
- VesselsValue (2019), Top 10 Ship Owning Nations.