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Thesis advisor: Stig Tenold

Shipping and Private Equity

Authors:

Sven Anders – s144883

Aaron Sanchez – s144834

Abstract

In the aftermath of the financial crisis of 2007-2008 many shipping companies had to find new sources of financing since traditional bank lending, historically shipping's most important form of financing, had dried out. International trade decreased significantly and banks were unwilling to give out substantial loans. Private equity investors and hedge funds filled part of the gap by using their excess funds to inject both equity and debt into the shipping industry. They primarily intended to take advantage of record low asset prices and profit from improving macroeconomic conditions while increasing efficiency on company level. This thesis discusses to what extent shipping is a suitable industry to invest in for private equity funds. One of the most important factors for private equity investors is cash flow stability. In theory, cash flows in shipping are very unpredictable due to their dependence on shipping rates, thus making it difficult for private equity to invest. However, the correct estimation and timing of the shipping cycle can provide certain stability to ship owners. Therefore, private equity firms have to rely heavily on proven management teams as they lack significant sector experience and hence forecasting ability. The asset intensive nature of the business provides some downside protection for invested funds. The case study conducted in this thesis has found that traditional private equity methods worked in the tanker business even though those methods are not very different from traditional ship management practices. Out of the three levers that private equity usually applies, the financial lever, the tax lever and the legal lever, none of those is exclusively used by private equity owners in the shipping sector. Shipping companies traditionally use a high leverage, operate from tax subsidized headquarters and are often private, not facing the scrutiny of public shareholders. In shipping, private equity funds become more passive investors than they have proven to be in other sectors. The authors present two major findings from their investigation of shipping sector investments. The first finding is that private equity will not be able to generate large abnormal returns on a risk-return basis in shipping since their approach is very similar to that of traditional ship owners. The second finding is that in order to fulfill their return targets, private equity funds have taken on increased beta risk with their shipping investments as traditionally average returns in the shipping industry are rather low.

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1 Introduction

"The role of private equity as fiduciaries is certainly to make money"

Thomas G. Stemberg

In the aftermath of the financial crisis of 2007-2008 something remarkable happened to the global shipping industry. As banks withdrew their lending capacities and reduced their credit exposure in most sectors, the retreat from ship transport was particularly noted. Shipping companies were left with large financing needs. Shipping rates plummeted because of the decline in international trade due to the large recession. Consequentially, many shipping companies faced bankruptcy. On the lookout for new financing sources, shipping companies managed to attract the attention of private equity and hedge funds, which before had only very minor interest in the sector. Due to low asset prices, fund managers started to invest in shares, vessels, bonds, and bank debt from shipping companies. Investors speculated on rebounding shipping rates believing global trade would pick up again. They started ordering new large vessels in order to ride the upturning cycle. Today, however, it becomes more and more apparent that the new ship orders of private equity-backed shipping companies created an oversupply in many of the shipping sectors even as global trade has been rising again. This oversupply has extended and exacerbated the low shipping rates seen in most sectors. Only a few factors, like a plummeting oil price and cheaper commodity prices have played into the fund managers' hands. Therefore, many funds are still heavily invested in shipping assets even though their investment horizon of five to seven years has to a large extent been reached.

This thesis deals with the question if shipping is a suitable industry for private equity investments given their traditional methods of creating value. Private equity funds have been increasing their capital under management drastically over the recent past. This is largely due to the excess cash that has been created by government and central bank programs in order to strengthen the global economy. Investors are on the lookout for decent returns and therefore have more and

more turned to alternative investment classes. Hence, private equity investors are struggling to find good investments as prices are bid up by fiercer competition. If the findings of this thesis suggest that shipping is not a suitable industry for private equity after all, it might be a first indicator of private equity funds becoming more speculative investors, trying to earn returns outside their typical areas of expertise. In order to find an answer to the stated question, this thesis is split into seven major parts.

The first part of the thesis is formed by this introduction, which sets the overall framework of the investigation into the shipping and private equity markets. The general topic is introduced, the single components of the thesis are laid out, and the research question is stated.

The second part of the thesis introduces the global shipping markets. The authors put particular focus on the cyclicality of the business, the revenue generation of shipping companies, and their pre-dominant financing structures. This will help to understand the specifics of the industry and explain why some shipping companies are able to succeed while others are not. The authors use Stopford (2009) as a starting point and use the book's structure as a framework for the shipping industry introduction. After having the structure in place, the authors provide the contents from their own knowledge and updated sources from the industry as well as academia in order to get a current picture of the market. This part is important to the overall thesis as the shipping industry in general and shipping companies in particular form the investment environment for engaged private equity firms. An understanding of the basic market principles is thus inevitable to evaluate the actual investments in the sector.

The third part of the thesis introduces the private equity industry. The authors put particular emphasis on the levers and methodologies typically applied by private equity firms in order to be able to evaluate their performance in the shipping sector. Furthermore, the authors explain the characteristics of companies that private equity typically invests in. This creates a theoretical framework around the private equity involvement in the shipping sector. The authors used Rosenbaum & Pearl (2009) as a starting point to set the structure of the chapter and again provided the contents with updated information from industry and academic sources. This chapter will help the reader to get a broad understanding of the private equity industry and will support a better understanding of financial incentives and goals of private investors.

The fourth part of the thesis theoretically links the private equity and the shipping markets and investigates the current investment and exit climate within shipping. Additionally, the authors introduce the main private equity players in shipping and provide a self-constructed database of meaningful deals over the recent past. This part helps to understand the mindset of private equity going into the shipping sector and investigates the pitfalls as well as the opportunities that the sector presents. Additionally, a link into practice is provided by the database that is constructed by the authors by systematically working through the Tradewinds, Marine Money, Financial Times, and Lloyd's List archives. Furthermore, the authors access Mergermarket and S&P Capital IQ, which provide financial data as well as deal databases in order to filter out shipping deals. The authors search the archives by focusing on the 20 largest private equity funds by assets under management as those are mostly publically listed and provide an easier way of obtaining data on single transactions. Nevertheless, the authors also use the United Nation's yearly reports on the shipping sector in order to incorporate other major transactions in their database.

The fifth part of the thesis contains a literature review of private equity investments in real estate as real estate shows similar industry characteristics as shipping and provides a long track record of private equity engagement. Additionally, the authors construct a case study of one specific shipping company that has already gone through the whole private equity investment cycle. Operational benchmarks with four competitors that were never bought out by private equity single out the contributions made by the new owners and help the authors draw conclusions on a microeconomic basis.

The sixth part of the thesis summarizes the authors' findings from the fourth and fifth part and brings them together in order to draw a complete picture of how suitable the authors perceive the shipping industry to be for private equity investments. This summary is particularly important as it includes theoretical arguments and practical findings that together explain the motives of private equity investors and give an outlook on probable success. The authors rely on several methodologies to find common patterns since prior research and empirical data on the specific topic of this thesis are currently unavailable. Therefore, the authors try to tackle the issue at hand from different angles and draw conclusions that are consistent throughout.

The seventh part of the thesis gives recommendations for future fields of research related to private equity investments in shipping. Future research is particularly important as this thesis mostly gathers data that is available from many different sources and tries to lay the groundwork for future investigations. At the same time the authors use the materials available to present first findings. Those findings can later be tested once more data becomes available. Since this thesis has limitations in terms of data availability, shipping sector coverage, and empirical methodologies, future research can greatly improve on those factors and provide a better understanding of private equity's impact on the shipping industry.

Given the lack of academic literature that addresses the question of this thesis, the authors use various newspaper articles, private equity and shipping journals, financial databases, and company related websites to obtain the information that supports the arguments made in this thesis. Combining the separate academic research covering private equity and shipping, and adding the opinions and insights of industry experts, this thesis attempts to not only describe the current situation regarding private equity investments in the shipping sector, but also offer explanations for the motivations, behaviors and challenges behind these investments. With new developments in the shipping market and consequently new information regarding the subjects of this thesis, the authors attempt to investigate the research question with up-to date information.

Coming back to Stemberg's quote, the purpose of a private equity fund is to make money. This thesis investigates if that is and can be the case in shipping and if traditional private equity measures are able to achieve this goal. Is the shipping industry a suitable investment opportunity for private equity funds?

2 Introduction to the Shipping Markets[1]

Sea transport is the main medium through which to conduct global trade and is in large part responsible for the growth of the world economy. With more than 90% of the world trade, the international shipping industry shadows over ground and air transports (International Chamber of Shipping, 2015). While all forms of transport are interconnected and dependent on the standardization measures that exist between each other, the vast size of sea transport makes shipping the most consequential in the era of global trade. The phenomenon of globalization revolves in a reciprocal nature with the shipping industry as new innovations in the shipping sector usher in an ever-increasing connectedness of nations. These trade links in turn promote agreements between nations that reduce the barriers of trade. Increasing trade has pushed the shipping industry to innovate as the enterprises that make up the industry compete for business and a larger share of the trade market.

With over 50,000 merchant ships transporting all types of cargo and more than 150 nations with registered fleets, the shipping industry makes up the infrastructure of the world (International Chamber of Shipping, 2015). While the term shipping industry describes the broad economic sector in which global maritime trade takes place, it actually consists of segments that are complex and distinct in key ways. This section serves to explain the industry by first giving an overview of the economic organization of the shipping market. Hence, it explains the basic purpose and components that make up sea transport, while also covering the shipping market cycles and the four main markets that define the shipping industry. Following this, the authors give an explanation of how shipping companies operate within those markets while also giving insight into the traditional forms of financing. Lastly, as market cycle timing is a key determinant to the success in this industry, an introduction to the importance and complexities of market forecasting will be discussed.

[1] This section has to a large extent been structured after Stopford, 2009. However, new and updated sources have been used to provide the contents

a. The Economic Organization of the Shipping Market

i. The Dynamics of Sea Transport

When attempting to understand the maritime transportation sector and its intricacies, it is important to begin with the underlying reason for the existence of the shipping industry. Shipping's purpose is simply to move cargo from a place of supply to a place of demand. As a result, the motivation of the companies that exist in this sector is to compete for the right to move cargo by offering clients value. This value is defined as a low cost of transport and quality service. This section serves to explain the key factors in the competition between companies in the maritime industry while also introducing how the maritime industry is structured through a brief look at the classifications of the various cargos and the ships that transport them.

Customer demands

In order to successfully operate as a shipper, a shipper must meet the various needs of the organizations which demand or supply the cargoes that require transport. Meeting the demands of customers involves many factors but the key items to consider are price, speed, reliability and security.

Four Determining Factors in Shipping

Price	Form of cargo, weight, distance to destination
Speed	Affects inventory costs, commercial needs
Reliability	Provide the service promised in the time needed
Security	Secure transportation without risk of damage

***Table 1**: Four Determining Factors in Shipping (Stopford, Maritime Economics, 2009, p. 61)*

These factors combine with the needs of customers and the type of goods required to determine the function of the shipping sector.

Cargo classifications

The cargo of the 9.84 billion tons of seaborne trade that occurred in 2014 includes a wide variety of commodities (UNCTAD, 2015). While the actual goods that are traded vary extensively, the various types of trades that dominate the sea can be categorized by the following:

1) **Energy:** This trade depends on the world energy economy and is affected by the supply and demand of the world's energy resources.

   Ex. Crude oil, oil products, liquefied gases, and thermal coal

2) **Agricultural:** This trade depends on income, population, agriculture and land-use as this is based on the supply and demand of global trade in foodstuffs.

   Ex. Cereals, animal feedstuffs, sugar, molasses

3) **Metal industry:** This trade represents the raw materials and products of the various metals typically used in industrial production.

   Ex. Iron ore, metallurgical grade coal, non-ferrous metal ores, steel products and scrap

4) **Forest products trades:** This trade is primarily in industrial materials; it depends on the availability of forestry resources.

   Ex. Timber, wood pulp, plywood, paper

5) **Other industrial material:** This trade covers the rest of the industrial materials not considered metals or forest products.

   Ex. Cement, mineral sands, gypsum, salt, chemicals

6) **Other Manufactures:** These high value goods constitute the manufactured goods trade.

   Ex. Textiles, machinery, capital goods, vehicles.

Cargo size classifications

While the prior section provided a breakdown of the types of cargos that make up the shipping sector, this part describes how those goods are shipped.

In short, two types of cargo size classifications generally exist: 'bulk cargo' and 'general cargo'. The size of the cargo is important because it defines the different industries within shipping: bulk shipping and liner shipping. Bulk consists of a large shipment of a single type of commodity commonly filling a carrier at capacity. Liner shipping consists of carriers that have smaller shipments of a variety of items. Figure 1 shows the general organization of the shipping market.

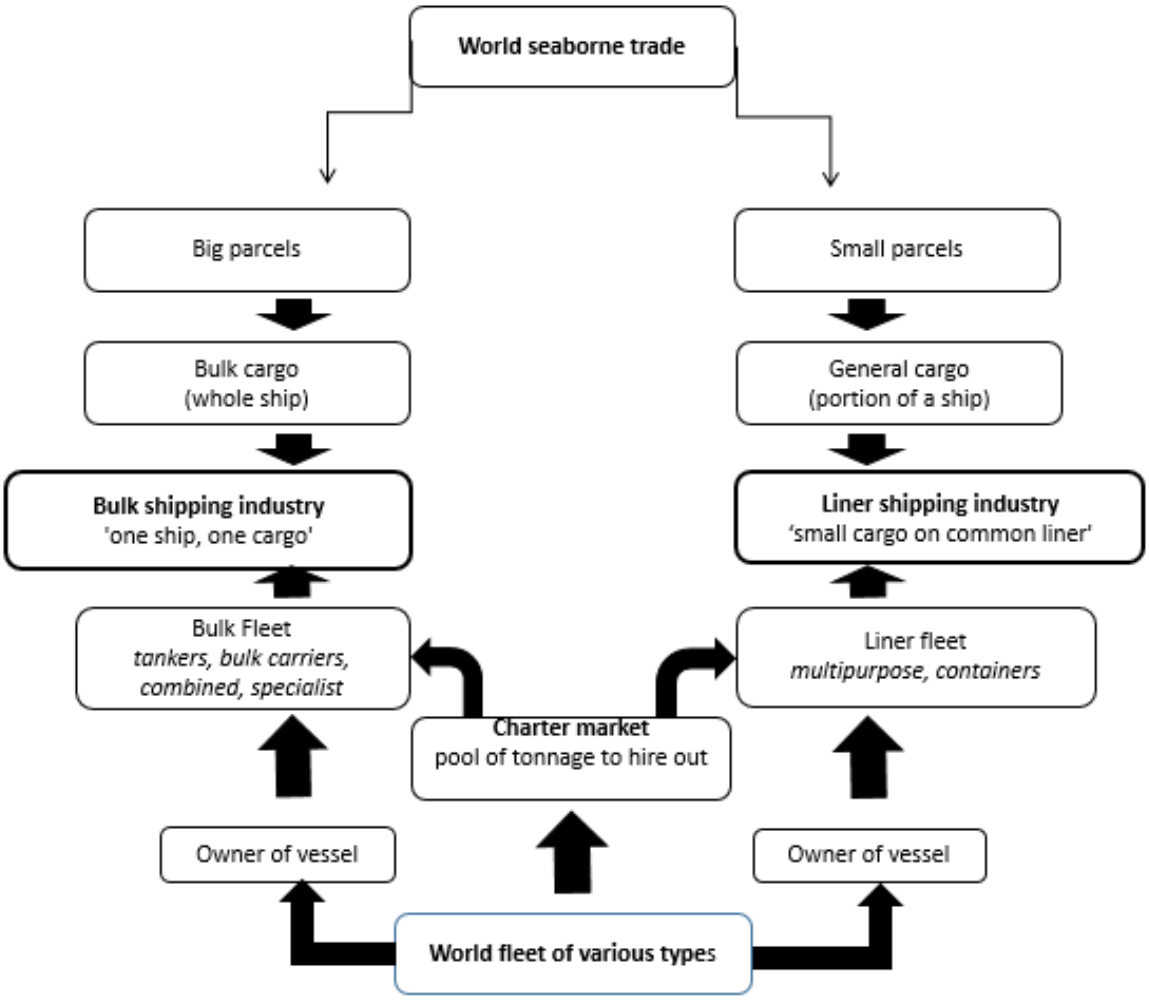

***Figure 1**: World Seaborne Trade (Stopford, Maritime Economics, 2005, p. 16)*

To further describe the bulk trade, it can be divided into four main categories of cargo:

1) **Liquid Bulk:** This cargo requires tanker transportation and has a large range of size.

   Ex. Crude oil, oil products, liquid chemicals, vegetables oils

2) **The 'five major bulk':** This cargo consists of the largest quantities of dry products traded in the global economy and involves the use of a conventional dry bulk carrier.

   Ex. Grain, coal, iron ore, phosphates, bauxite

3) **Minor bulk:** This cargo covers the rest of the commodities that trade in sufficient amount to require an entire shipload.

   Ex. Steel products, salt, Sulphur, forest products, chemicals

4) **Specialist bulk cargoes:** These cargos require special handling or storage requirements.

   Ex. Motor vehicles, steel products, refrigerated cargo

'General cargo' consists of consignments that include a mix of individual shipments. This assortment of products inherently requires more organization. The main classes of cargo in this industry consist of loose cargo, containerized cargo, palletized cargo, pre-slung cargo, liquid cargo, refrigerated cargo, heavy cargo and awkward cargo. (Rodrigue & Notteboom, 2008).

Figure 3 provides further illumination of the structure of the seaborne trades.

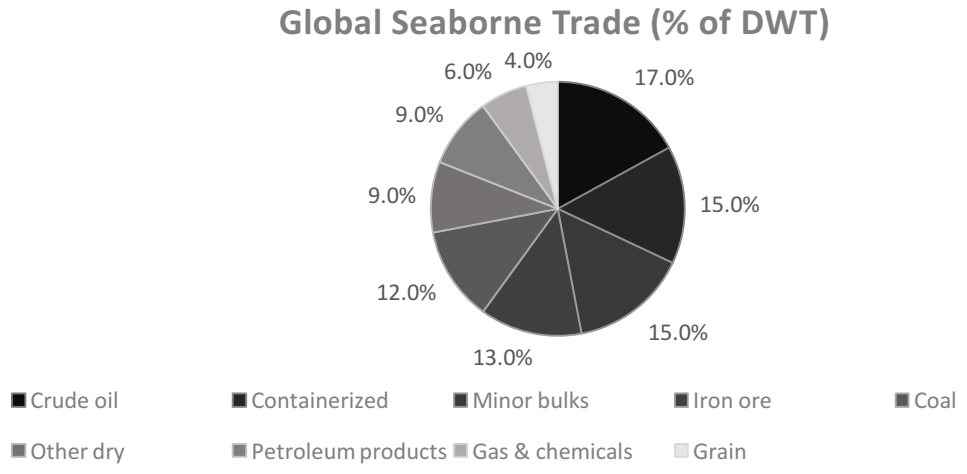

***Figure 2**: Breakdown of global seaborne trade in percent of dwt, 2014 (UNCTAD, 2015)*

Ship classifications

With a baseline definition of the customer demands, cargo sizes and cargo classifications, the authors will now examine the different types of ships that are used for transport.

As no 'standard' ship exists, it is difficult to classify the ships that carry each cargo. Each ship is constructed for a specific owner's needs and therefore ships come in a variety of designs. Nevertheless, Clarkson Research has categorized the world fleet into these principle types: oil tankers, bulk carriers, general cargo ships, container, gas carriers, chemical tankers, offshore, passenger, and other (Clarkson Research, 2016). Furthermore, in the discussion of the shipping industry, ships are often categorized by vessel size. As technologies improve and economies of scale are realized, ship sizes increase. Today, a variety of ships exists with diverse specifications with regards to size, equipment, and speed among other factors. Shippers can use these specifications to determine which ship best matches their customers' transportation needs. As ship sizes have increased, so has the need for larger canals to accommodate these new sizes. The near finished panama canal expansion is one such example that is currently underway and is being enlarged to not only allow ship traffic to go through it faster, but to allow larger ships such as the Post-Panamax container ships to efficiently pass through the canal (Hellenic Shipping News, 2016).

Table 2 shows the different vessel sizes that exist in the global shipping market.

Approximate Vessel Size Groups	
Crude oil tankers	
Very large crude carrier	200,000 dead-weight-tons (dwt) plus
Suezmax crude tanker	120,000 – 199,999 dwt
Aframax crude tanker	80,000 – 119,999 dwt
Panamax crude tanker	60,000 – 79,999 dwt
Dry bulk and ore carriers	
Capesize bulk carrier	100,000 dwt plus
Panamax bulk carrier	60,000 – 99,999 dwt
Handymax bulk carrier	40,000 – 59,999 dwt
Handysize bulk carrier	10,000 – 39,999 dwt
Container ships	
Post-Panamax container ship	Beam of >32.3 meters
Panamax container ship	Beam of <32.3 meters

***Table 2**: Approximate Vessel Size Groups (Clarkson Research, 2016)*

Based on the 2015 global supply of the deadweight ton capacity of 1.75 billion (UNCTAD, 2015), it becomes evident that of the principle vessel types, bulk carriers, oil tankers, and container ships make up the majority of the shipping sector. These ship types account for 43.5%, 28.0%, and 13.0%, respectively, accounting for 84.5% of the total shipping market supply.

Table 3 shows the further breakdown of the shipping sector by vessel type.

World Fleet by Principal Vessel Types in 2015 ('000 dwt)

Oil tanker	489,388	28.0%
Bulk carrier	769,468	43.5%
General cargo ships	76,731	4.4%
Container ships	227,741	13.0%
Gas carrier	49,675	2.8%
Chemical tanker	42,181	2.4%
Offshore	74,174	4.2%
Passenger	5,797	0.3%
Other (n/a)	23,066	1.3%
World total	1,749,222	100.0%

***Table 3**: World Fleet by Principal Vessel Types (UNCTAD, 2015)*

Shipping company types

As the bulk and liner industries differ greatly, so do the companies that operate in them. Many different types of businesses exist, each with their own objectives and structure. From family owned private companies to international public organizations with as many diverse interests outside shipping as within, the organizational structure varies greatly. With that variation comes a unique set of commercial aims and strategies. While the following list is by no means exhaustive, it serves to give an overview of the types of shipping players within the industry.

1) **Single-ship company:** A small player in the industry with the focus on a single ship. Single-ship holding companies are often used to facilitate investment in single ships and offer greater variability for advanced financing schemes.
2) **Family-owned shipping company:** This type of company is typically passed down throughout family generations and can vary in quantity of ships and type of fleet. Many

have great experience in the industry and as it is a family-owned business, decision making can differ for more 'personal' reasons as opposed to larger companies with a strict corporate structure.

3) **Specialized private shipping company:** The ownership of private companies may vary from individuals to complex groups of managers and investors. As private companies, their investments, decisions and operating details are not subject to public scrutiny. Strategies can vary across most maritime sectors and companies may operate in a specific sector or even focus solely on one aspect of the shipping markets such as asset play.
4) **Shipping division of a Multinational Corporation ('MNC'):** The purpose of a shipping division of a multinational company is to provide the MNC a controlling percentage of its shipping requirements. As all major decisions typically come from the corporate office, the strategy employed may be aligned to interests outside the maritime industry.
5) **Diversified private shipping company:** A diversified company is organized into different shipping divisions such as bulk, liner, tanker, etc. It may also diversify into other interests not necessarily in the shipping sector to protect against the cyclicality of the shipping industry.
6) **Listed shipping company:** The shares of a listed company are traded publicly on a stock exchange. The company can be diversified or focused within the sub-industries of the whole shipping sector. A listed shipping company shows characteristics of large corporations and its decision making follows pre-determined structures as it is subject to the scrutiny of its shareholders.

Each type of shipping operation has specific objectives and conducts business in their respective manners to meet those objectives. Despite the various structures the shipping industry is a cyclical industry and no matter the management style of a company they all can fall prey to the feast and famine nature of the various periods of a cycle. While each market within the shipping industry is connected, the factors that determine the market's situation differ. One segment of the shipping industry may be in a slump, while another is securing steady profits for its operators. The next section will give an introduction to the shipping cycle and its relationship with the industry.

ii. The Shipping Market Cycles

The purpose of the shipping industry is to transport goods from an area of supply to an area of demand. As such, this makes the industry dependent on the global market health. While the business cycle affects all industries, the maritime industry is particularly subject to its ups and downs. A description of this cycle will assist in understanding the shipping industry and will provide insight into those business cycle factors, which distinguish this industry from others.

It is important to distinguish between the cyclical natures of the dry bulk sector as compared to the other sectors. As dry bulk constitutes the majority of seaborne trade, it is particularly volatile compared to other shipping sectors. Therefore, much of the research into the cyclical nature of the shipping industry tends to focus on the dry trade, as does much of the data in this introduction. While what happens in one sector affects the others, significant discrepancies between their cycle timings do exist (Chistè & van Vuuren, 2014).

The shipping cycle is caused by an unbalance in the supply and demand of transport. When a shortage of ships exists or demand for trade is particularly high, companies operating in the market can charge higher freight rates. This happens because companies with cargo to transport bid up freight rates in order to secure the limited transportation for their own goods. As freight rates are a key determinant in the profit of shipping operations, this may in turn, affect investment decisions in the supply of shipping services (Chistè & van Vuuren, 2014). Conversely, if demand for trade slows down and results in a glut of ships available for the limited remaining transportation requirements, the shipping companies must compete with lower freight rates in order to secure the limited cargos that are available. This industry defining cycle creates uncertainty about the risk of investment and considering that the cost of a new Very Large Crude Carrier ('VLCC') can be hundreds of millions of dollars, the need to accurately predict the cycle becomes apparent. In today's maritime climate, evidence of the relationship between an economic unbalance and freight rates is revealed. Ships transporting dry bulk cargos are experiencing low freight rates chiefly due to China's drop in demand for raw materials. Conversely, highlighting the difference between the cycles of sub-sectors, the oil tanker industry has remained relatively healthy due to the oil surplus causing low prices and a subsequent increase of demand for oil and its transportation (Einhorn, 2016).

The stages of the shipping market cycle can be summarized as follows:

1) **Trough:** Primarily, one will begin to notice evidence of a surplus in shipping capacity in relation to demand. Subsequently, freight rates fall to the operating cost of the least efficient ships in the fleet, requiring owners to move them into layup. Finally, sustained low freight rates and the lack of credit create an increasingly negative cash flow. As few buyers exist at this stage, companies that are short on cash may be forced to sell ships at distressed prices. Old ships that have no value in operations or whose owners need cash may find more value as scrap metal than in waiting for better conditions.
2) **Recovery:** As the market rebalances, freight rates show signs of recovery. Market sentiment remains uncertain and during this time the possibility of 'false recovery' stages exists as the market has not yet truly rebalanced supply and demand. Eventually, the liquidity improves and laid up tonnage decreases as freight rates progressively increase.
3) **Peak:** When the entire surplus has been absorbed, demand and supply are in a tight balance. Freight rates can be very high and provide substantial profits to operators. Similar to trough periods, this stage can last from a few weeks to several years. Financing is cheap and shipbuilding expands. Secondhand prices move above book value as speculators, investors and owners try to capture a larger share of profits.
4) **Collapse:** A collapse occurs when supply overtakes demand and freight rates begin to fall. Oversupply is caused by a business cycle downturn, market confusion and the lag between vessel orders and delivery.

Figure 3 depicts the different stages of the shipping market cycle graphically.

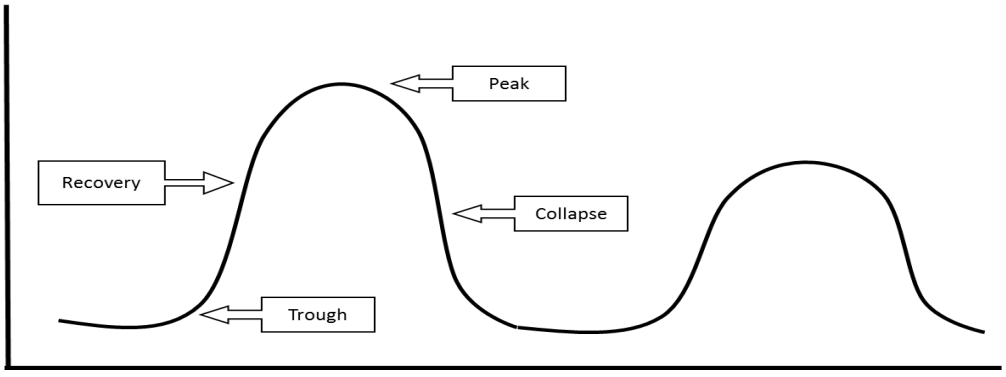

***Figure 3**: Sample course of a shipping cycle*

The current analysis of the sector indicates that the industry, and the dry bulk market especially, has been hit with a large oversupply of ships. This results in low performance of the sector and one of the longest slumps since the industrial innovation of container technology in the 1960's (Pierce, Pacific Basin keeps eye on distressed deals , 2016).

The previous dry cargo freight cycles are shown in table 4 and include the current cycle. While it is obvious to experts that current industry status is in a downturn, the exact position of the market cycle is in debate. While the average length of these market cycles is around eight years, the actual length varies significantly from around three years to around fifteen. This variation proves to cause great confusion in the industry when considering a large scale investment such as a ship or other strategic decisions that are dependent on cycle timing.

Bulk Shipping Market Cycles 1945 - Present

Cycle no	*Start*	*End*	*Length (years)*
1	1945	1951	7
2	1952	1955	4
3	1957	1969	13
4	1970	1972	3
5	1973	1978	6
6	1979	1987	9
7	1988	2002	15
8	2003	2007	5
9	2008	Present	n/a
Average			8

***Table 4**: Dry Cargo Freight Cycles 1945-Present (Stopford, Maritime Economics, 2009, pp. 118-130)*

While the rules of selling high and buying low also apply to the shipping market, the timing remains a challenge to the players involved. As a later section of this paper details, ship owners

must make critical decisions about the selling, purchasing and scrapping of ships. The two options of purchasing ships are the secondhand market and the new shipbuilding market. While the secondhand purchase is just a change of hands and does not affect global supply, the new shipbuilding market does. As ships typically take two to four years to be constructed and delivered, owners must make construction decisions based on their analysis of the current and forecasted market cycle. Ill-timed deliveries during a coming trough can make a bad market even worse as the lag time between order and delivery of new ships causes even more supply in an already depressed market (Scarsi, 2007). As table 4 reveals, the shipping cycle is rarely a consistent phenomenon. Therefore, determining at what point the cycle is in at any given moment is difficult.

Due to the significant investment size, large financing requirements and the considerable lag time in market responses, the shipping cycle continues to serve as a market balancer. As such, it leaves only those companies that can efficiently manage the lean periods to prosper long-term. Understanding the market cycles and the current position in which a company is operating can mean life or death for an operator. Due to the factors explained within this section, poor decisions taken by companies can prolong the downturn of a cycle (Chistè & van Vuuren, 2014). Later on, this thesis will go into more detail of the importance of forecasting the maritime industry cycles and notes the apparent difficulties in doing so. Beforehand, the four shipping markets and common ship financing structures will be introduced.

iii. The Four Shipping Markets

To further understand the shipping industry and the dynamics of the shipping cycle, it is important to understand the various markets that compose the industry. In the shipping industry, a ship owner can trade in four different markets: new building market, freight market, sale and purchase market, and demolition market. This introduction will serve as an overview of how these markets function and of the interplay that exists between these markets. As ship owners operate in all four markets, the activities in them are correlated. By following the cash flow between the markets, the relationships between them can be better understood.

Within the four shipping markets, the freight market is the reason the entire industry exists in the first place and is where one should start in any analysis of the shipping markets. Principally, the cash flow from this market is what dictates the operations of the other three. The freight rate determines the prices of transporting cargos while operators compete in this market to secure these cargos, all while trying to secure a profit. The demolition market represents another cash inflow as owners choose to sell older or obsolete vessels to scrap dealers as a source of cash. The price obtained in this market depends on the price of scrap and many times is a last resort to obtain cash during a slump in the industry. The sale and purchase market plays a role in the transfer of cash between investors or ship owners through the sale and purchase of ships. This market is more representative of the individual strategies employed between the operators within the industry as a company may buy or sell vessels based on the market strategy they pursue. Finally, the new building market is the market in which companies bid for contracts with shipyards to build new vessels. This represents cash leaving the industry as shipyards construct the ordered vessels allowing owners to pursue their transportation strategies in the freight market once again.

The cash flow between these markets is the main driver of the shipping cycle described earlier. As freight rates rise and owners have more cash through their principal operations of shipping cargo, they start to buy ships in the second hand market. As the market continues to warm up, the price of secondhand ships increases until investors turn to the new shipbuilding market with the latest technological ships as a reasonable investment. After the delivery of most newly built ships, a glut of ship supply exists and the whole process goes in reverse. Falling freight rates squeeze the weakest owners causing them to sell ships on the secondhand market at distressed rates. In turn, for ships that are too old or obsolete for the market they compete in, owners may choose to scrap the ships to strengthen their balance sheets. This might be their last chance to survive the drop in the cycle until the lean times give way to more profitable ones.

b. The Revenue Generation of Shipping Companies

The strategies of shipping companies may vary but the common goal of each ship owner is to generate revenue by navigating the four shipping markets in order to cover costs and gain a reasonable return on his or her investment. All actors in the shipping industry depend on each of the four markets and may be either broadly operating in each or specializing in a single market. From small speculative one-ship companies to large shipping corporations, all must have knowledge on how the four markets operate and interact. To understand how revenue is generated by shipping companies, this section will examine the dynamics of the four markets and describe the principal factors which any shipping operator must consider in order to be successful.

The freight market

The freight market is the source of revenue inflow for the industry as well as the defining mechanism in which the industry conducts its principle purpose of moving cargo. The freight market, in essence, is a single international market, but can be separated into markets for different ships, e.g. tankers, bulk carriers, and container ships. Considerable evidence exists that freight rates lead the direction in terms of pricing in each of the four shipping markets. This is due to the fact that freight rates have a lead-lag relationship with all four market segments, allowing some insight into future price movements (Ying, Liming, & Meifeng, 2014).

In the freight market, a ship owner enters with a ship that is free of cargo. As each ship has a particular speed, dimensions, cargo capacity, current location and other technical aspects, these determine the details of the contracts between the ships owners and the charterers. Many times a broker is used on both sides of the negotiation table, providing the knowledge and relevant data to obtain their client the best deal possible. When an agreement has been reached between the owner and the charterer of the ship, the ship is considered 'fixed'. These agreements come in many types of transactions but the two most common categories are freight contracts and time charters.

Taking into account the shipping cycle is imperative for operators in the freight market. Using the various types of transactions, they may take short or long positions depending on what they

perceive is the future of the cycle. A time charter entered for a specific length of time (days, months or years) at the top of a cycle can secure an owner high rates while the cycle reverses and rates fall. Conversely, a freight contract such as a voyage charter, which is a single journey priced at a per ton rate for a certain type of cargo, can leave a ship open to take advantage of upswings on the spot market. To minimize risk, many ship owners try to balance between the types of contracts in accordance to the current position of the market in respect to their forecast of future conditions (Scarsi, 2007).

The sale and purchase market

With over 1,415 vessels sold in this market for 2013, and vessel prices reaching in the tens of millions of dollars, the sale and purchase market is indeed robust (PwC, 2014). The sale and purchase market exists for the buying and selling of secondhand ships between shipping companies. This market even supports enough activity for some investors to operate solely on the speculation of the ships in this market, a term commonly referred to as asset play. A seller brings to market a ship for a variety of reasons. Either the ship does not meet the company's objectives, because it might be too old or does not fit into the company's strategy anymore or because the owner believes that prices are about to fall. Often enough, a seller may simply want to free up the extensive capital tied up in a vessel. It is important to note that during a trough an owner may have to carry out a 'distressed sale' just to raise enough cash to meet daily obligations. A shipbroker typically manages the transaction and finds a seller who may require the ship for business, or alternatively an investor who believes it is the right time to buy and is more interested in an asset play rather than operating the ship himself.

When dealing with the price dynamics of a vessel, three key factors exist: freight rates, age, and expectations for the future.

Freight rates, as the primary indicator of a vessel's price, can be seen to have a correlation with the market as it swings through peaks and troughs. As freight rates determine future earnings of a ship, this can be used as a guideline in measuring the value of a ship. According to some analyses, when freight rates are high the market values a five-year old ship at about five times its

current annual earnings. Similarly, when the freight rates drop to a low, the value can drop to three times annual earnings (Chistè & van Vuuren, 2014).

As typical of any asset, vessels depreciate in value over time. Therefore, the age of a vessel is also an important factor when determining the value of a ship in the sale and purchase market. According to accountancy methods, the vessel should depreciate down to scrap over 15 to 20 years and brokers follow a similar generality in that a vessel loses about 5% or 6% of its value each year (Wright G. , 2003).

The last key factor in determining the asset value of a vessel is market expectations. The fast and sudden swings in the market can be due to the various beliefs about the market held by buyers and sellers. As expectations begin to rise about freight rates, this can heat up the values of vessels and cause prices to rise. Conversely, when expectations of falling freight rates exist, the prices of vessels can drop dramatically (Scarsi, 2007).

Summarizing, one can say that freight rates, depreciation, inflation, expectations and other considerations, such as ship condition, technology, physical location and a ship's specific commercial use, are key considerations when companies wish to make a play in the sale and purchase market.

The new building market

The new building market is a complex market as it takes into account the order specifications of the ship, a complex contractual process and the lag time of about two to four years until the ship is complete by which market conditions could have changed entirely.

A purchaser may enter the market when he or she requires certain specifications for a ship and nothing is available on the sale and purchase market or he or she may have a very specific industrial need for a ship that requires a unique vessel. Finally, speculators as well may play the market if they believe prices may rise and the current cost of a new build is low.

In a sellers' market, shipyards can command the terms of contract negotiation as limited berths exist a ship buyer can choose from and ship buyers are forced to compete with each other for a contract. The contrary applies in a buyers' market when new build prices are low. As the size of

the order books depend on various factors, shipyards will raise or lower prices in accordance to market factors. Furthermore, the correlation with the prices of the secondhand market and freight rates also affect new building prices. In addition, financial factors such as liquidity and availability of credit determine how buyers approach the market.

The demolition market

As customers in this market are the scrapyards, the price a vessel can demand depends on the factors influencing the price of scrap such as the steel price and the availability of demand for the raw material. Sellers enter this market when the ship is too old, hence too expensive to operate, or the owner has no use for the vessel and can find no other buyers from the secondhand market. Demolition markets are always important during a depressed shipping market as owners may find scrapping the only viable option to obtain liquidity. This market is important in that when it comes to financing new ships, the ship will always be backed by at least its value as scrap metal and thereby offers investors at least some security when investing in such capital intensive assets.

c. The Financing of Ships and Shipping Companies

Shipping is one of the most financing-intensive industries in the world. In 2014, the industry spent $101 billion on new ships and invested $26 billion in the secondhand market (Clarkson Research Services Limited, 2015). Three phenomena have especially shaped the business of ship financing. First, the industry's cyclicality has a large influence on financing decisions. While the industry was expected to invest more than $200 billion in 2010, the amount in 2011 and 2012 dropped to $150 billion and $55 billion, respectively (Bessler, Drobetz, & Tegtmeier, 2010). This development goes hand in hand with the downturn of the shipping market and freight rates dropping lower and lower. Second, shipping uses an unusually high leverage in comparison to other industries. Bank loans and other debt instruments often provide up to 80% of the price of a new ship (Goulielmos & Psifia, 2006). Listed shipping companies show a mean leverage ratio of 41% based on book values for debt and equity, while other industries from G7 countries have a mean leverage ratio of only 25% (Drobetz, Gounopoulos, Merikas, & Schröder, 2013). Therefore, shipping companies operate under large pressure of financial distress. Third, shipping is very asset intensive and a newly ordered ship needs two to four years to be completed and delivered, which makes supply

and demand forecasting rather difficult. All of these factors make the financing of ships and shipping companies very challenging and thus specialized ship financers, company structures, and financial instruments have emerged to provide optimal financing. This section gives an overview of the history of ship financing and explains how debt, equity and innovative financing schemes are currently used to finance shipping operations. Additionally, the main market participants are introduced for all major sources of capital.

The history of ship financing

Back in the 1950s and 1960s, ship financing mainly saw charter-backed investments. Fueled by the growing economies in Europe and Japan after the Second World War, oil companies and steelmakers started to look for raw materials from abroad. These companies offered ship owners time charters, which were then used as collateral against a loan for a new ship. High leverage was justified by having the cash flow of each ship secured before the actual order was placed. In the 1970s and 1980s, decades which were shaped by a large shipping crisis, banks retreated from cash flow financing and used the underlying assets as collateral instead. This removed the strict link between supply and demand in the shipping industry. While before, ships were only ordered when a time charter was secured, the shipping market now became more speculative by ships being built without a fixed cash flow scheme already in place. Additionally, ship funds and K/S companies used the volatile markets to speculate on the success of shipping ventures and bought and sold vessels depending on current market prices. The 1980s were therefore famous for extensive asset play. The 1990s introduced corporate structures to the shipping industry. Economies of scale were to be accomplished by building large organizations, which were partly listed on public stock markets. Additionally, shipping companies ventured into corporate lending, giving out bonds and securing specifically structured bank loans (Stopford, Maritime Economics, 2009, pp. 272-276).

Today, the financing structure of shipping ventures has somewhat changed. As banks were reluctant to give out loans in the aftermath of the financial crisis of 2007-2008, ship owners had to look for different sources of financing.

The next sections will provide an overview of today's most common capital sources.

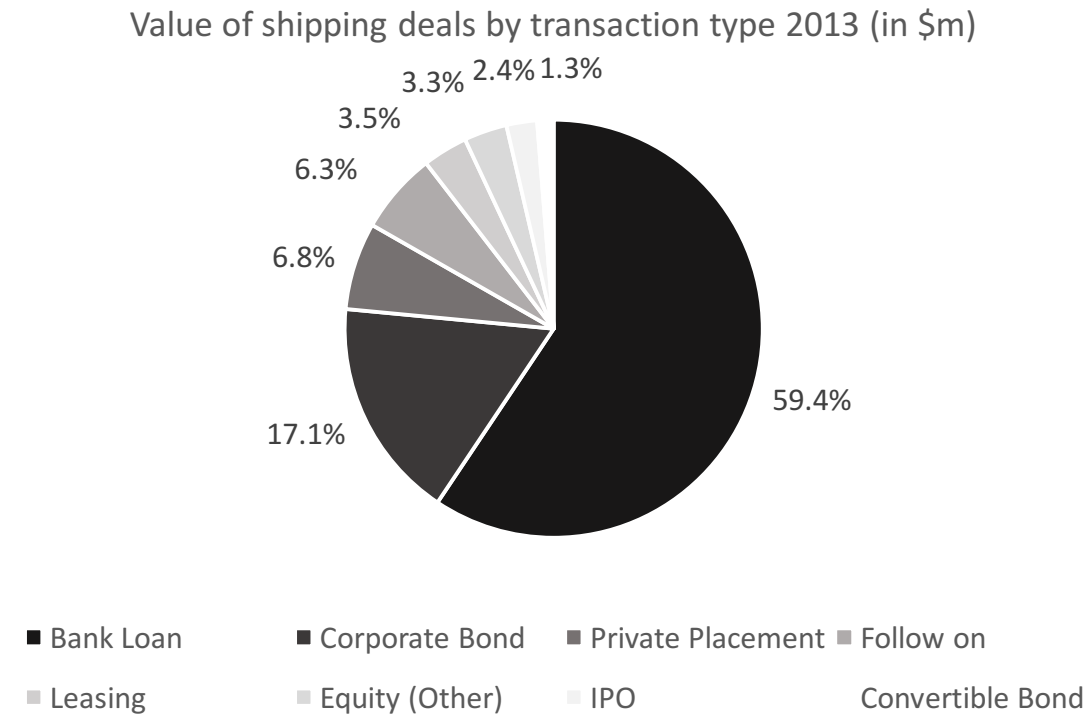

***Figure 4**: Value of shipping deals by transaction type 2013 (RBS, 2015)*

Debt-financing of ships and shipping companies

Debt, which can make up to 80% of external funding needed by the shipping industry, has a long-standing history in the shipping sector and can either be obtained from the money markets (short-term) or the capital markets (long-term). According to the trade-off theory, a company finds its optimal leverage ratio by weighing the cost of debt against its benefits (Kraus & Litzenberger, 1973). Costs of debt include costs of financial distress and the risk of underinvestment, while the benefits lie in the tax shield and the reduced equity agency costs (Drobetz, Gounopoulos, Merikas, & Schröder, 2013). The following paragraphs introduce the most common forms of debt financing in the shipping sector, starting with the most popular and then going into more exotic ones.

The most prominent form of debt financing in the shipping industry still is the bank loan. Three main types of bank loans are used in the shipping sector, the most commonly used being the

mortgage-backed bank loan (Bessler, Drobetz, & Tegtmeier, 2010). Hereby, the ship is pledged as collateral against a term loan from a commercial bank, or in the case of a large loan, a syndicate of commercial banks. Often, one-ship companies are created that act as borrowers and whose sole asset is the ship in question. This structure is beneficial as the shipping company's other assets are protected from the bank's cash flow claims. In return, the bank will require certain loan covenants that the shipping company has to keep if it does not want the loan to be terminated and be subjected to large fees. Covenants can include limitation of additional debt from other sources or the stipulations can prevent the one-ship company from paying dividends to equity holders. Usually, banks make loans of 50-80% of the ship value over a period of five to seven years for which they get interest of a 20 to 200 basis point spread over LIBOR. Additionally, the ship owner has to pay an arrangement fee when the loan is given out (Stopford, Maritime Economics, 2009, pp. 287-288).

A second form of bank loan financing is the corporate bank loan. In this structure, commercial banks give out the loan to a shipping corporate that does not lend against one ship but against its whole balance sheet as collateral. Otherwise, the process is similar to the mortgage-backed bank loan, except that covenants differ in a way that they do not target the single ship but the whole company. Examples of covenants might be a maximum leverage ratio and minimum profit to interest ratios.

A third form of bank loan financing was exclusively developed for the shipping industry and is a direct response to the long lead times of ordering a new ship and the cyclicality of the business. Shipyard credits are loans standardized by the OECD and most often given out by government development banks, or commercial banks under a government guarantee. Shipyard credits are like usual bank loans quoted as a spread above LIBOR and come with standardized covenants. In times of economic recessions, shipyard credits help shipping companies finance ongoing building costs and make sure that shipyards survive times of fewer orders.

The second most common form of debt financing is turning to the capital markets and issuing a corporate bond. If the shipping company is large enough and able to receive a credit rating from one of the three predominant agencies, namely Moody's, Standard & Poor's, and Fitch Ratings, it can issue a note, which can be traded on the secondhand market. A bond is a debt instrument

that is publically traded, has a predefined semi-annual or annual interest coupon and is repaid in full after its tenure. However, it is a costly and lengthy process to list a bond in the public markets. A rating has to be obtained, publications have to be made and investment banks have to be mandated in order to steer the process. The requirements are almost as high as for an Initial Public Offering ('IPO'), which will be explained in the equity-financing section. Therefore, only the largest shipping corporates are able to float bonds.

Another form of debt financing that is unrelated to banks is the private placement of debt. In this, an investment bank is mandated to search for institutional investors like pension funds and insurance companies who would be willing to give an individually structured loan, buy a customized bond, or invest in another specialized debt instrument issued by the shipping company. This form of financing has the advantage of not having to be registered with authorities, which can be a lengthy process. On the other hand, private placement of debt is typically more expensive than borrowing from a commercial bank or issuing a bond in the free market due to the illiquidity of the financial security. Additionally, the fees for mandating an investment bank are fairly high.

A minor form of debt financing is mezzanine financing and convertible bonds, which are almost exclusively used in economically strong times when everyone is looking for capital and lenders have spare capital on hand. In its basic form, mezzanine is debt with equity-like features. Mezzanine is the most junior form of debt and only slightly senior to equity. Mezzanine products often contain equity kickers and are usually placed privately with institutional investors involving an investment bank as an arranger. Convertible bonds are corporate bonds that pay coupons, but within a certain timeframe can be converted into equity by the holder. This can be beneficial if the stock price moves above the present value of the bond.

A seldom used form of using debt for ship financing is the securitization of the asset. Hereby, the ship is sold into a trust that leases the ship back to the operator. Additionally, the trust obtains a credit rating and gives out a bond or several tranches of bonds, each one being rated according to its risk profile. The cash flows from operating the ship are used to service coupon payments to the bond holders. The initial capital raised by issuing the bond is used to buy the ship. However,

the securitization of ships is not commonly used. The structure has its origins in the aircraft industry where it has come to some prominence.

Equity-financing of ships and shipping companies

The most common form of equity financing in the shipping industry is the private placement of equity. This is mostly due to the fact that most shipping companies are relatively small and an IPO carries large up-front costs. Therefore, equity is often injected from the owner, family, friends, private equity funds or hedge funds, who want to diversify their portfolios. While historically, retained earnings and family's and friends' money have dominated the equity financing, today private equity companies and hedge funds show large interest in the business. The process of placing equity privately is rather unstructured when it comes to families and friends. Private equity companies and hedge funds hire an investment bank that structures the process and gives buy-side advice. Families and friends usually have limited influence in steering the business, whereas private equity and hedge funds get involved in optimizing operations and controlling their investments.

The second most common form of equity financing is the set-up of a ship fund. This means that capital from smaller investors as well as institutional investors is collected by a fund manager in order to build a portfolio of ships or stakes in shipping companies. Usually, those funds leave the management of the ships to shipping specialists or the management team of the shipping company and act as passive investors. Closed funds and actively managed funds exist with the difference being that closed funds stick to the portfolio that they have built in the beginning while actively managed funds can engage in asset play and adjust the portfolio according to recent developments.

The least common form of equity-financing for ships is an IPO. An IPO requires the involvement of an investment bank that steers the process of listing the shipping company's shares on the public stock markets. The shipping company has to make most information on itself public and fulfill several requirements necessary to list. The process is very lengthy and expensive. This is why only the largest shipping corporates list their shares. An advantage of listing is the publicity that the company gets, the large amounts of equity it can collect and the possibility to use its

own shares as a currency for acquisitions. However, IPOs are relatively uncommon in the shipping sector except for large multinationals.

Specialty-financing of ships and shipping companies

The historically most important specialty-financing structures in shipping were the Norwegian K/S partnership and the German KG funds. Both contained large tax incentives for the investors though over time these advantages have decreased. In both cases equity is collected from many small investors and bank debt is added on top in order to purchase a ship or many ships, which are then in turn operated by a hired management team. Since the Norwegian and German governments were keen to protect their historically strong positions in shipping, tax incentives were large and profits were almost guaranteed. However, due to decreasing tax incentives, higher costs of capital and large losses during market downturns, K/S and KG structures are found less frequently today.

A form of financing that is seen more and more frequently today is leasing. Two different options of leasing exist, namely the operating lease and the finance lease. Hereby, the ship is owned by a leasing company or ship fund, listed in a tax-favorable country and then leased to a ship operator. The advantage for the lessee is that he or she can use the depreciation of the ship to save on taxes, while the lessor has higher flexibility over the size of his or her fleet. Operating leases do not appear on the balance sheet of the lessor and are short-term. The lessee can terminate the lease whenever it suits him or her best and the lessor is responsible for maintenance. After the ship is returned to its owner, it is leased to another company or sold for spare parts. Finance leases are long-term and cover much of the asset's life span. Therefore, it is activated on the lessee's balance sheet. Furthermore, the termination of the lease is up to the lessor and leaves the maintenance and operation with the lessee. When the ship is returned to its owner, it is leased again, if it is not already too old and sold for spare parts.

A third form of specialty-financing that is somewhat frequent in the shipping sector is the set-up of special purpose companies. Thereby, companies are created in order to serve the purpose of buying and selling ships and shipping companies. The special purpose companies can be listed, place equity privately or finance themselves via bonds and bank loans, thereby combining most

of the traditional forms of financing. The special purpose company does not operate the ship but leases it or time-charters it out. This structure is mainly used for off-balance-sheet-financing that allows shipping companies a higher flexibility.

Overview of different financing options

Over the years, ship financing has evolved and is constantly changing with the market cycles and financial securities available. However, one apparent factor is that leverage is usually high. This is somewhat odd as the tax shield of debt is smaller in shipping than in other sectors (Drobetz, Gounopoulos, Merikas, & Schröder, 2013). This is so because shipping is often already tax subsidized by governments and ships or shipping companies are listed in tax havens. One possible explanation for the high use of leverage is the cyclicality of the business and the historically low average returns. Equity investors diversify their portfolio into several ships and leverage to increase the return on every single investment in order to compensate for total losses from other ships. However, this is only a working hypothesis and more research has to be conducted with regards to the specific field. As for the equity-financing, this thesis will focus on the private placement of equity, especially with private equity companies as the shipping industry has experienced an influx of private equity money in the aftermath of the financial crisis of 2007-2008.

The following table summarizes the financing possibilities for shipping companies and highlights the ones we will take a closer look at within this thesis.

Method of raising funds	Structure of finance	Features of structure
Private funds	Own funds	Equity finance provided by owner or private investors in return for shares in a privately held company
	Private investment	Equity or loan arranged privately with family, colleagues, high net worth individuals
Banks finance	Mortgage-backed loan	Term loan provided by bank, secured against mortgage on ship(s). Large loans may be syndicated between several banks
	Corporate loan	Loan secured against the company's balance sheet, e.g. term loan or revolving credit (assured credit line)
	Shipyard credit	Loan provided or guaranteed by government or agency to assist domestic shipyards in obtaining orders
	Mezzanine finance	Finance containing elements of both debt and equity, e.g. debt with an equity warrant
	Private placement	Sale of equity or corporate debt to one or several investment institutions. Avoids lengthy public offering process
Capital markets	Public offering	Offering of shares, sold by subscription on a stock exchange, and subsequently traded on a secondary market
	Bond issue	Long-term security issued in the capital market, usually with interest payments every six months and principal repaid on maturity
Special purpose vehicles	Special purpose company or SPAC	Shares in a special purpose company sold privately by individuals or may be listed on a stock exchange
	Limited partnership	Limited liability partnership set up as a vehicle for financing ships. Equity provided by private investors and debt by bank, e.g. K/S and German KGs
	Finance lease	Long-term tax-efficient finance based on sale of ship to a company which benefits from tax allowances and leases the ship back to user
	Operating lease	Short-term lease, generally less than 7 years, which does not have to be shown on the lessee's balance sheet
	Securitization	Financing structure designed to separate the assets from the company management

***Table 5**: Options for financing merchant ships (Stopford, Maritime Economics, 2009, p. 283)*

d. Maritime Forecasting and Market Research

As mentioned previously, the fortunes of ship owners in the shipping industry depend on the expectations of the market. Having an accurate forecast of the business cycle can mean the difference between a successful company and a bankrupt one. The maritime market cycle has four stages: trough, recovery, peak, and collapse. Since the duration of each stage of peaks and troughs has no regularity, it can be tough to identify rules for the timing of each stage. Buying low and selling high remains the strategy for shipping companies but as the industry requires capital of such large amounts, mistiming of the market cycle can prove disastrous. It is thus essential to cover the basics of maritime forecasting in order to be able to evaluate the actions of private equity funds in the shipping sector. In doing so, one may better understand the obstacles that all industry players face, both veterans and new entrants.

In modeling the shipping industry, analysts face obstacles in measuring the relationship between variables. Four main classifications of variables exist in making forecast assumptions.

1) **Tangible:** These variables are physical, thus they can be counted and relatively relied upon with sufficient research. Tangible variables include specifications of a ship, amount of raw material available for extraction and other such variables that are concrete in their assumptions.
2) **Technological:** Technology is an important variable to consider as it can change the manner of business in the maritime industry. Technology directly related to the shipping industry such as the development of equipment technology, vessel construction and port technology must be taken into consideration when predicting the future. Indirect technological advancement can also play a role in the shipping industry as it may affect the demand of the vessels' cargos. Successfully predicting technology trends is essential to staying on top of the shipping industry and adapting to changing business environments.
3) **Behavioral relationship:** These variables depend on the behavior of the people involved in the factors related to the shipping industry. Predicting the moves of other actors can help predict future market movements. However, those predictions are difficult to make

as they depend on the future decisions of other people. Paradoxically, a business decision made from a market forecast can itself change the behavior of the market. As the authors have stressed how difficult forecasting in the maritime industry can be, the industry trends towards a stronger belief in the confidence of personal intuition and experience rather than model analysis (Scarsi, 2007). As this belief leads to inherently subjective decisions that depend on a variety of organizational and human factors, it can only add to the confusion of forecasting the maritime industry.

4) **Wild card:** Unpredictable turns are always a risk in the shipping industry and very little can be done to incorporate them into a model. Some examples include natural disasters or storms, unforeseen wars and any other unforeseen event with large implications.

Market forecasting

In the maritime industry it is important to distinguish between market forecasts and market research. When shipping actors make decisions on what actions to take in the shipping industry, they rely on different research and methodology techniques. Forecasts are concerned with the future of the market as a whole and predicts the market in which a company's strategy will be implemented. Market research is focused on a specific commercial decision in the shipping industry. This paper analyzes the market cycle as a whole and its relationship with private equity firms that have a financial stake in shipping companies. Therefore, this section will focus on the forecast of the business cycle and will describe the challenges analysts face.

Accurately forecasting the market is essential for ship operators and owners as well as for financiers in that it reduces uncertainty. Owners require a forecast for their strategic planning as well as their specific product market analysis. With regards to financing, banks and other financial investors aid their decision making by attempting to predict the market, e.g. freight rates and ship prices, determining the risk and return involved with such lending and investing.

As freight rates signal the health of the market, they are the basis of many decisions in the maritime industry. Therefore, successful predictions of these future rates is essential. Predicting future freight rates has proven difficult as the underlying factors upon which freight rates are rooted can be ambiguous and complex. The models used to predict freight rates depend on

various factors such as global economic assumptions, seaborne trade forecasts, ship demand forecasts, merchant fleet forecasts, technology forecasts, and many others. The complexities of these factors reveal how difficult predicting the market can be and with the number of assumptions an analyst must make, it can leave the statistical margin of error very large indeed.

To highlight some of the key issues underlining the difficulty in making forecast models and their assumptions, the authors describe some of the common fallacies found in market forecasting.

1) **Incorrect or superficial model specifications:** The forecast may not go deep enough into the underlying factors of an issue, thus leading to invalid assumptions.
2) **Consensus assumptions:** Shipping in considered to have an absence of independent forecasts and many forecasters use the same assumptions, statistics and theories. This can contribute to 'herding' behavior and create a distortion of the market as faulty assumptions lead many actors down the same path (Scarsi, 2007).
3) **Consensus results:** Forecasters in the maritime industry tend to check their results against their peers. While inherently this is not a bad decision, it may lead forecasters to align to the consensus, which can result in similar forecasts.
4) **Unchallenged preconceptions:** Relying on certain relationships and accepted assumptions can catch analysts off guard and lead to faulty forecasts.
5) **Unpredictable variables:** Attempting to predict factors that are inherently unpredictable and building assumptions based on them is another fallacy that commonly disrupts a successful forecast. Predicting the behavior of groups of people such as the decisions of ship owners, especially in an industry in which companies tend to have centralized decision making, can often lead to forecasting errors.

These fallacies described reveal the difficulty of forecasting in this market. As history has shown, the boom and bust nature of the maritime business cycle has repeatedly caught industry actors off guard and consequentially caused many to declare bankruptcy. A successful forecast of the business cycle is important in nearly all global industries, but as the top line in shipping comes down to freight rates, market timing for this business is critical. Because of the unique aspects of the shipping industry described in this introduction, maritime industry experience and knowledge is perhaps even more essential to success than in other industries.

3 Introduction to Private Equity[2]

The first differentiation one has to make when examining private equity, is the difference between venture capital and a leveraged buyout ('LBO'). Venture capital funds invest in early stage growth companies and help them become market leaders in a specific area. LBOs target mature companies that show potential for value growth. This thesis deals with LBOs and does not focus on venture capital, so all references to private equity firms henceforth will refer to LBO specialists.

The private equity industry first became famous when Kohlberg, Kravis & Roberts ('KKR') took over industrial giant RJR Nabisco in 1988 and thereby created one of the largest LBOs to date. Since then, numerous LBOs have been completed and the industry has evolved as an alternative investment class with absolute returns often exceeding those of public stock markets.

Private equity investments are special because of their LBO structure. A leveraged buyout means that a company, division, business, or collection of assets is acquired by funding most of the purchasing price using debt and debt-like instruments. After a holding period of five to seven years, the acquired company is sold to a strategic buyer, another financial investor, or listed on the stock market. Private equity firms make use of financial, legal and tax levers in order to acquire a target company and achieve their desired returns (Demaria, 2010, p. 87).

1) **Financial lever:** The financial lever is using debt to fund the major part of the acquisition. As collateral, the shares of the acquired company are pledged and thereby the acquisition partially finances itself. Furthermore, the usage of debt provides a lever for the equity value. While debt is repaid constantly, the equity value can grow proportionally and additionally capture all of the growth in enterprise value over the investment period. Historically, the debt portion used in a LBO has been between 60% and 70%, the remainder being financed with equity (Standard & Poor's Leveraged Commentary & Data Group, 2010). While the debt portion consists of bank debt, high-yield bonds and

[2] This section has to a large extent been structured after Rosenbaum & Pearl, 2009. However, new and updated sources have been used to provide the contents

mezzanine debt, the equity is raised by the general and limited partners, as well as the management team (Standard & Poor's Leveraged Commentary & Data Group, 2010).

2) **Legal lever:** The legal lever implies that the private equity firm is able to consolidate the financial statements of the target company with those of the holding company if a certain threshold of ownership percentage is reached. This threshold differs from country to country. Additionally, the private equity firm has limited reporting and governance requirements during its time of ownership, which makes it easier to restructure and reshape the target company. This is particularly important as the private equity company looks to generate efficiencies and streamline operations. It mainly does so by cost cutting that would be difficult to achieve if it had to be approved by other shareholders. Moreover, the target company saves the cost of generating a regular external reporting.
3) **Tax lever:** The tax lever allows the private equity firm to use the losses of the holding company to their advantage. The holding company is generating losses due to the debt and related interest payments it assumed to finance the acquisition of the operating company. These losses come with a distinct benefit in that they provide a tax shield for the operating company. Thereby, the financial losses are deducted from the operating company's taxable income and hence generate a tax advantage amounting to the total interest payments multiplied with the corporate tax rate.

Figure 5 depicts a typical LBO structure.

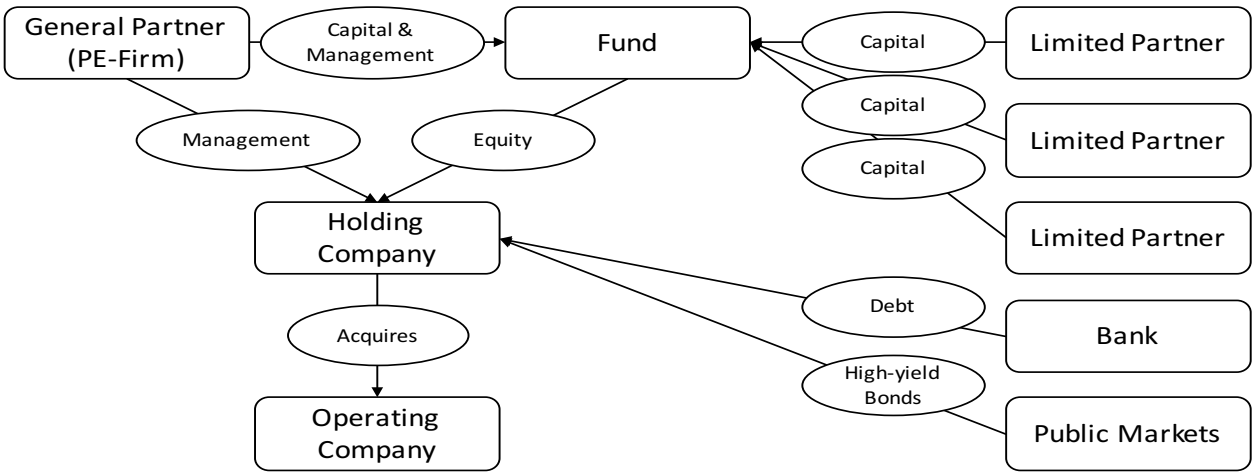

***Figure 5**: Typical LBO Structure*

The portion of debt that is used depends on the strategy of the general partner and the current state of capital markets. In times of recession, it is difficult to obtain large amounts of debt and therefore a higher equity portion has to be used. The key to a successful LBO is ensuring that its structure of debt and equity allows the target company to meet its regular debt service payments as well as generate enough cash flow to grow the business.

a. The Key Participants

The key participants in every LBO are the financial sponsor, investment banks, commercial banks and institutional lenders, bond investors, and the target management (Rosenbaum & Pearl, 2009, p. 163). Each participant has an important role in the LBO process. The financial sponsor raises the equity and manages the private equity fund as well as the operating companies. The investment banks act as underwriters of the debt and buy-side advisers, while banks and institutional lenders provide the debt portion of financing. The bond investors buy high-yield bonds issued by the holding company and the management invests in the equity of the firm and operates the company on a daily basis.

The financial sponsor is the private equity firm, hedge fund, merchant banking division of an investment bank, or venture capital fund that leads the investment and initiates the LBO. The capital that is used as an equity injection is raised beforehand by the financial sponsor. Limited partners investing in the fund are usually large investors like public and corporate pension funds, insurance companies, endowments and foundations, sovereign wealth funds, and wealthy individuals. However, some private equity firms are listed or have listed their funds, which changes the structure from a limited partnership to a public company. The advantages of having the firm or the funds listed are that the general partner is able to stretch the investment period, the firm can use its own shares as a currency to provide liquidity to its founders, and the funds avoid constant fundraising. On the other hand, the listing entails restraining requirements like regular information to the public, only being able to raise funds in economically good times, and the partnership spirit might be lost and structures become more complex as in other large organizations (Demaria, 2010, p. 88).

Investment banks have two large roles in an LBO. First, they act as a provider of financing, structuring and syndicating the debt portion that is used to acquire the target company. Second, investment banks act as buy-side acquisition advisors, helping the private equity firms to determine how much to pay for the target and supporting the due diligence process. Furthermore, investment banks can act as underwriters for the high-yield bonds that can be issued by the holding company and the mezzanine debt that acts as a very junior form of debt in corporate finance.

Commercial banks and institutional lenders also provide capital in the form of debt. Bank lenders usually provide the senior tranche of traditional loans and the revolving credit facility, which is used by the target company to finance short-term needs such as working capital. The revolving credit facility is a line of credit that the borrower pays a commitment fee on and can draw upon for a fixed period of time. It works much like a credit card for private consumers. Institutional lenders comprise of hedge funds, pension funds, prime funds, insurance companies, and structured investment vehicles (Rosenbaum & Pearl, 2009, p. 166). They act as lender for longer tenured, limited amortization term loans and thereby taking on a larger amount of risk than traditional bank lenders.

Bond investors usually consist of mutual funds, hedge funds, pension funds, insurance companies, distressed debt funds and structured investment vehicles (Rosenbaum & Pearl, 2009, p. 166). They buy high-yield bonds issued by the holding company that trade below investment grade. Thereby, they provide another form of debt financing used to acquire the target company. Most bonds are eventually registered with the Securities and Exchange Commission (‘SEC’). Bonds pay higher interest coupons than traditional bank debt, but enjoy lower seniority.

The private equity firm usually seeks to keep the target company’s management in place as they know their business very well and have experience in running a company in the specific industry. In order to create buy-in, management typically has to invest in a meaningful amount of equity and additionally receives options that are vested once specific performance targets are reached. This structure is supposed to make sure that management has significant 'skin in the game' and performs to its best.

b. The Characteristics of a Strong LBO Candidate

According to relevant literature and industry professionals, strong LBO candidates share certain characteristics. Companies must be robust enough to service high debt payments and at the same time grow their top and bottom lines. Therefore, the key characteristics of strong LBO candidates are strong cash flow generation, leading and defensible market positions, growth opportunities, efficiency enhancement opportunities, low capital expenditure ('capex') requirements, a strong asset base, and a proven management team (Rosenbaum & Pearl, 2009, p. 168). Additionally, a low debt-to-equity ratio relative to industry peers is desirable, as the private equity firm looks to extract the value of the tax shield from the target company (Cendrowski, Martin, Petro, & Wadecki, 2008, p. 21). Before going into further detail, it is important to mention that two metrics are especially important to financial sponsors. The first measure is Earnings before Interest, Taxes, Depreciation and Amortization ('EBITDA').

EBITDA is calculated as:

Sales Revenue
- Cost of Goods Sold
= Gross Profit
- Selling Expenses
- General & Administrative Expenses
- Research & Development Expenses
+ Other Operating Income
- Other Operating Expenses
= EBIT
+ Depreciation & Amortization
= EBITDA

***Table 6**: Calculation of EBITDA*

EBITDA is important because Enterprise Value ('EV') and thereby purchasing and selling price of a company are most often determined by taking a multiple of EBITDA. A larger EBITDA therefore promises a higher selling price of the target company in the future. The second important measure is Free Cash Flow ('FCF'), because this is the amount of money that the company can spend to meet its debt service payments. Private equity firms are usually less concerned with net

income, but cash flow as they need large amounts of cash to meet interest and coupon payments for the debt portion of financing. FCF is calculated as:

$$FCF = EBIT * (1 - Tax\ Rate) + Depreciation\ \&\ Amortization - Capital\ Expenditures - Increases\ in\ Net\ Working\ Capital$$

Strong cash flow generation is crucial because of the highly leveraged capital structure. The target company has to be able to meet debt payments in order not to default. At the same time, cash is used to finance working capital and capital expenditures, which are needed to grow the business and enhance market positioning. Therefore, many strong LBO candidates operate in a mature or niche business with stable customer demand and end markets (Cendrowski, Martin, Petro, & Wadecki, 2008, p. 21). A strong brand name, an established customer base, and long-term sales contracts are beneficial to predict future cash flows (Rosenbaum & Pearl, 2009, p. 169).

A leading and defensible market position is important because it ensures high barriers to entry for upcoming competitors and increases cash flow predictability. Market position is often a proxy for entrenched customer relationships, brand name recognition, superior products and services, a favorable cost structure, and scale advantages, all of which ensure cash flow stability (Rosenbaum & Pearl, 2009, p. 169).

Because EV is most often calculated as a multiple of EBITDA, the financial sponsor is interested in increasing profitability on the operational level. Therefore, growth opportunities are very important. Growth opportunities can be twofold, on the one hand organic growth and on the other hand bolt-on acquisitions. The opportunity for growth is not only important to increase the top-line and thereby EBITDA, but strong-growth-profile companies can sometimes be sold at a higher multiple as well. Larger companies can benefit from higher multiple valuations, because investors often perceive a diversified and larger business as less risky and less vulnerable to market volatility.

Efficiency enhancement opportunities are important for the same reason as growth opportunities. While growth opportunities aim at increasing revenues and creating economies of scale, efficiency enhancement opportunities are connected with reducing costs and streamlining

activities. Private equity firms often try to lower overhead expenses, streamline operations, reduce headcount, rationalize the supply chain, and implement new management information systems (Rosenbaum & Pearl, 2009, p. 170). Thus, it is important that the private equity firm in collaboration with the management of the operating company is able to create efficiencies and decrease operational costs per unit of revenue. Other cash flow enhancing measures like extensive cuts in marketing, capital expenditures, or research and development are less common, because it could hurt the company's position with customers and its growth opportunities.

Low capex requirements are beneficial for the financial sponsor, because high capex spending reduces the cash flow available to service debt payments. However, if the target shows exceptional growth opportunities and profit margins, as well as a well-structured strategy, the financial sponsor might accept higher capex requirements. Hereby, it's not only important to focus on growth capex, meaning investing in new assets, but also cash outflow for maintaining existing assets.

A strong asset base of the target company is beneficial because it can be pledged as collateral against the bank loans that have to be taken on in order to finance the purchasing price. Furthermore, a strong asset base can be a sign of high barriers to entry for new competitors. However, if a company generates large amounts of cash flow, it can be a strong LBO candidate even if it has a somewhat weak asset base.

A proven management team is highly important for the financial sponsor because the private equity firm seldom wants to run the business it buys but assist the current business to become more efficient. Furthermore, it is important that the management knows its industry and can operate under a highly leveraged scenario. A strong management team is by all means crucial for driving company performance and financial sponsors will replace weak management immediately.

c. The Economics of LBOs

Financial sponsors use different measures to decide if they want to acquire a target and finally evaluate the performance of their investments. Private equity firms in particular use high leverage on their acquired targets to maximize Internal Rate of Return ('IRR') and Cash Return. The concepts of IRR, Cash Return and leverage will be explained in this part of the thesis.

i. The Internal Rate of Return

The IRR is equal to the discount rate that sets all cash flows equal to zero. IRR is the primary metric which private equity investors use to measure their performance.

$$NPV = \sum_{t=1}^{T} \frac{CF_t}{(1 + IRR)^t} - CF_0 = 0$$

The primary drivers of IRR are a target's projected financial performance, purchase price, and financing structure, as well as exit multiple and year. Usually, private equity investors seek an IRR in excess of 20%, as this reflects the increased risk that they take on when compared to the public stock markets according to the CAPM model. However, research has found that historical median returns for buyout funds are around 13% p.a., with only the best quartile achieving returns of 22% p.a. and above (Kaplan & Schoar, 2005). The IRR figure is particularly sensitive to timing and therefore private equity investors have a relatively short investment horizon of five to seven years. Additionally, the IRR analysis can reveal multiple results if one or more of the intermediate cash flows are negative. This is called the Multiple-IRR Problem and nullifies the value of the IRR analysis.

ii. The Cash Return

Unlike the IRR approach, the cash return does not factor in the time value of money, but it gives the investor a quick performance overview without being subject to mathematical or accounting flaws. The metric is easy to understand and unlike the IRR approach behaves linearly with respect to time.

The cash return is simply a multiple of the final equity value over the injected equity value.

$$Cash\ Return = \frac{Final\ Equity\ Value}{Injected\ Equity}$$

Usually, private equity investors seek to triple their equity investment over five years. The following table shows how investment period, IRR and cash multiple are interconnected.

Multiple	1.25x	1.50x	1.75x	2.00x	2.50x	3.00x	3.50x	4.00x	5.00x	6.00x	8.00x	10.00x
Year 2	12%	22%	32%	41%	58%	73%	87%	100%	124%	145%	183%	216%
3	8%	14%	21%	26%	36%	44%	52%	59%	71%	82%	100%	115%
4	6%	11%	15%	19%	26%	32%	37%	41%	50%	57%	68%	78%
5	5%	8%	12%	15%	20%	25%	28%	32%	38%	43%	52%	58%
6	4%	7%	10%	12%	16%	20%	23%	26%	31%	35%	41%	47%
7	3%	6%	8%	10%	14%	17%	20%	22%	26%	29%	35%	39%
8	3%	5%	7%	9%	12%	15%	17%	19%	22%	25%	30%	33%
9	3%	5%	6%	8%	11%	13%	15%	17%	20%	22%	26%	29%
10	2%	4%	6%	7%	10%	12%	13%	15%	17%	20%	23%	26%

***Table 7**: IRR derived from the multiple and the length of investment (Demaria, 2010, p. 56)*

iii. The Leverage

LBOs generate returns by growing enterprise value at the same time as paying off debt. Thereby, the financial sponsor is able to generate a leverage effect. Assuming a constant enterprise value, a larger amount of debt used to finance the acquisition will yield a higher return on equity over the same investment period, if all debt is paid off by the time of exit. Additionally, the larger leverage provides greater tax savings as interest payments are tax deductible. However, a higher leverage also has some drawbacks. Higher leverage increases the risk profile and probability of financial distress, limits financial flexibility of the target and makes the target more susceptible to business or economic downturns. Therefore, private equity firms emphasize the importance of an experienced management team that is able to control the business under a high amount of stress and risk.

d. The Exit Strategies

Private equity firms usually have an investment horizon of five to seven years after which they have to return capital to their limited partners. Basically, the financial sponsors have three options to exit their investment. The first option is the sale of the business to a strategic buyer. The second option is the sale of business to another financial sponsor and the third option is an Initial Public Offering. Additionally, private equity companies might seek early realized returns through dividend recapitalizations. The exact exit date is determined by business performance as well as the underlying market conditions. Financial sponsors try to exit their investments at the height of economic cycles because prices are then at their peak. Therefore, some investments might be exited after one or two years already. This is particularly favorable as fund performance is measured in IRR and shorter investment horizons reveal higher IRR figures if the business performed well. The most important task for the financial sponsor over the investment horizon is to increase EBITDA and at the same time repay debt as this leverage effect creates large returns. Additionally, financial sponsors try to increase the multiple at which the business can be sold. This is rather difficult to achieve, but private equity firms try to increase the target's size and scale, make meaningful operational improvements, reposition the business towards more highly valued industry segments, accelerate the target's organic growth rate and profitability, and accurately time the economic cycle (Rosenbaum & Pearl, 2009, p. 176).

i. The Sale of Business

One of the most profitable ways to exit the investment is to sell it to a strategic buyer. This is beneficial because strategic buyers are often able to generate synergies between their own and the acquired business and therefore pay a higher price. Additionally, strategic buyers often have lower cost of capital and return thresholds and thus are able to pay a premium.

In the 2000s however, it has become more common for private equity funds to sell their investments to other private equity funds. This is mainly due to the availability of cheap debt financing and thereby profitability in several stages of corporate development. Today it is not uncommon to see secondary and tertiary buyouts.

ii. The Initial Public Offering

During an IPO, the financial sponsor sells a part of its shares of the target to the public. Usually, the private equity firm does not sell all of its shares at once but remains the largest shareholder in order to support the share price and prevent over-supply of shares in the market. Therefore, the private equity firm is not able to return cash to its limited partners right away but will fully exit the investment over time. Sometimes, depending on the contract with its limited partners, the financial sponsor is able to pay out the investors with the target's shares instead of cash. IPOs can be an interesting exit depending on market conditions, but require a long and exhausting listing process that involves investment banks and large fees.

iii. The Dividend Recapitalization

A dividend recapitalization is not an exit strategy as such, but it allows the private equity firm to extract capital from the investment prior to the complete exit. During a dividend recapitalization new debt is taken on in order to pay a dividend to the equity owners. Either new debt is added to the existing capital structure, or the whole capital structure is refinanced. Either way, a dividend recapitalization allows the financial sponsor to extract equity and still profit from future growth opportunities.

4 The Role of Private Equity in the Shipping Markets

After having introduced the shipping industry and the private equity industry separately, this section is bringing the two together and investigates what actions private equity funds have actually taken in the shipping industry. This part of the thesis will start out by introducing the most relevant private equity players in shipping, try to determine the investment rationale, show most common company structures, and evaluate the current state of events. Finally, this section will provide a database of the most important investments of private equity in shipping companies since the financial crisis, as well as the most prominent exits.

a. The Private Equity Investors in Shipping

Several private equity investors and hedge funds have ventured into the shipping market in the aftermath of the financial crisis of 2007-2008. Due to its success over recent years and cheap money that has been available due to quantitative easing ('QE') policies by central banks, private equity companies have a record $3.8tn under management (Preqin, 2015). This section introduces the main private equity funds on a global level, examines which ones are most involved with shipping and will give a more detailed introduction to the most important players.

The 20 largest private equity firms by funds raised over the last five years are listed in the following table:

2014 rank	Firm	Headquarters	Five-year fundraising total ($m)
1	The Carlyle Group	Washington DC	30,650.33
2	Kohlberg Kravis Roberts	New York	27,182.33
3	The Blackstone Group	New York	24,639.84
4	Apollo Global Management	New York	22,298.02
5	TPG	Fort Worth (Texas)	18,782.59
6	CVC Capital Partners	London	18,082.35
7	General Atlantic	Greenwich (Connecticut)	16,600.00
8	Ares Management	Los Angeles	14,113.58
9	Clayton Dubilier & Rice	New York	13,505.00
10	Advent International	Boston	13,228.09
11	EnCap Investments	Houston	12,400.20
12	Goldman Sachs Principal Investment Area	New York	12,343.32
13	EIG Global Energy Partners	Washington DC	11,345.18
14	Warburg Pincus	New York	11,213.00
15	Silver Lake	Menlo Park	10,986.40
16	Riverstone Holdings	New York	10,384.26
17	Oaktree Capital Management	Los Angeles	10,147.28
18	Onex	Toronto	10,097.21
19	Ardian	Paris	9,807.25
20	Lone Star Funds	Dallas	9,731.81

***Table 8**: 20 largest private equity firms by capital raised over the last five years (Private Equity International, 2014)*

Fund managers involved in shipping especially come from the United States where private equity funds have large amounts of money to spend (Heckert, 2015). Next to the big funds, smaller funds that are specialized in transport, commodities, or energy have made investments in smaller companies or single ships. Overall, investments from private equity into shipping are likely to have accumulated to $32 billion between 2012 and 2014 (Wallis, Markets: Reuters, 2016). Most Investments have come in Greece as ship owners are disconnected from capital markets and lack the possibility of K/S and KG structures as exist in Norway and Germany, respectively (Economakis, 2014). As the authors of this thesis cannot take a closer look at all private equity investors in the shipping industry, they will focus on the most active shipping investors among the 20 biggest funds in the world. From the above list, according to the authors' research of the Financial Times archive, the Marine Money archive, and the Tradewinds archive, The Carlyle Group, Apollo Global Management, and Oaktree Capital Management are especially involved with shipping. The following sections will briefly introduce the three companies.

The Carlyle Group

The Carlyle Group was founded in 1987 in Washington D.C., USA, where it is still headquartered. The company is listed on the New York stock exchange. Over the years, The Carlyle Group has evolved into a global asset manager with $183bn of assets under management across 126 funds and 160 fund of funds vehicles. The Carlyle Group is active on all continents and employs approximately 1,700 people. Among The Carlyle Group's investors are public and private pension funds, wealthy individuals and families, sovereign wealth funds, unions, and corporations. The Carlyle Group's business comprises of four segments, namely Corporate Private Equity, Real Assets, Global Market Strategies, and Investment Solutions (The Carlyle Group, 2016). For this thesis, the authors will focus on the Corporate Private Equity segment.

Within the shipping sector, The Carlyle Group has made several investments. Their main investment vehicle has been a joint venture with Seaspan aimed at buying $5bn of new container ships, mainly in Asia (Wright R. , Carlyle to lead landmark shipping push, 2011). The name of the joint venture is Greater China Intermodal Investments LLC. Other former and current investments of The Carlyle Group in the shipping sector include Horizon Lines, LLC and Interlink Maritime, Corp. (The Carlyle Group, 2016).

Apollo Global Management

Apollo Global Management was founded in 1990 and is headquartered in New York City, USA. The company is listed on the New York stock exchange. Today, Apollo is one of the largest alternative investment managers and in December 2015 reported total assets under management of $170bn. Apollo Global Management employs 945 people, among them 353 investment managers and has 15 offices all around the globe. The company focuses on private equity, credit, and real state, of which only the first sector is interesting with respect to this thesis. The private equity business has $38bn under management (Apollo Global Management, 2016).

Within the shipping sector, Apollo Global Management has made significant investments in several different companies. In 2013, Apollo has set up a joint venture with Rickmers Group located in Hamburg, Germany in order to invest $500m in container ships (Apollo Global Management, 2013). Furthermore, Apollo Global Management is currently invested in Dynamic Product Tankers, LLC and MSEA Tankers LLC (Apollo Investment Corporation, 2015).

Oaktree Capital Management

Oaktree Capital Management was founded in 1995 and is headquartered in Los Angeles, USA. As well as most of the large US alternative asset managers, Oaktree is listed on the New York stock exchange. Oaktree's assets under management have grown to $97bn as of March 2016. Oaktree's most important investors include public funds, corporate pensions, public investors, corporations, insurance companies, and sovereign wealth funds. The company has started out as a debt investor, but by today has invested 16% of its asset in control investments (Oaktree Capital Management, 2016).

Within the shipping sector, Oaktree Capital Management has been among the most active investors. Current and past investments in the sector include Gener8 Maritime, Genco Shipping and Trading, Green Containership Group, and Navig8 (Oaktree Capital Management, 2016). In 2015, Oaktree was able to publically list the tanker company Gener8 Maritime and secure a valuation of approx. $1.4bn for the company (Renaissance Capital, 2015).

b. The Rationale behind Shipping Investments

It was previously explained in this thesis that private equity tends to target candidates in specific industries based on certain characteristics that are optimal to the LBO structure. This section serves to examine the shipping industry and its companies in order to determine whether the characteristics of a typical LBO candidate match those of the shipping sector targets. This insight will help shed light into whether or not private equity's entrance into the shipping sector is aligned with its core investment strategies.

Due to the high amount of debt used in purchasing a company or asset, it is imperative that the target has the potential to service the corresponding high debt payments. In addition, the target should typically demonstrate the potential to grow in the top and bottom lines as another means to increase the value of equity. As a result, this thesis will compare the shipping sector with the following the key characteristics of a strong LBO candidate: strong cash flow generation, leading and defensible market positions, growth opportunities, efficiency enhancement opportunities, low capex requirements, a strong asset base, and a proven management team (Rosenbaum & Pearl, 2009, p. 168).

Strong cash flow generation and defensible market position

As strong cash flow generation is an important trait due to the highly leveraged capital structure of private equity investments, a typical LBO candidate operates in a stable business environment. Candidates operating in a mature or niche business are desirable as the investor can rely on consistent customer demand to meet its cash flow requirements (Cendrowski, Martin, Petro, & Wadecki, 2008, p. 21). In this aspect, the shipping sector is anything but stable, due to the extreme volatility of its business cycle and correlation with economic global health. When international trade slows, which it is prone to do, ship owners must be prepared to suffer through lean times. During those recession, freight rates, the chief source of income, are many times too low to cover operating costs, if indeed the owner can find freights to transport at all. Additionally, predictors of strong cash flows are apparent when a company has a strong brand name, established customer base or long term sales contracts (Rosenbaum & Pearl, 2009, p. 168). Evidence exists that some heterogeneity between shippers on the micro-level of the shipping

industry exists but in general the shipping industry is considered to operate close to perfect competition on a global scale (Roar Adland, Cariou, & Wolff, 2016). With shipbrokers tracking thousands of vessels to provide transparent information to the hundreds of ship owners which compete for the same basic transportation service, a distinct advantage can be hard to come by (Strandenes, 2000). Lastly, slumps in the market can affect ship owners indiscriminately causing sector wide negative cash flows. The key distinguishing factor among companies in these slumps is the ability to access credit to maintain liquidity to survive the lean times. All the conditions of the shipping sector described here reveal that cash flow generation is not secure and affects owners industrywide. This uncertainty and dependence on the shipping cycle demonstrates that the shipping industry does not meet the criteria of strong cash flow that is considered typical of a LBO candidate. Additionally, having a leading market position, if one does exist, does not offer any immunity to the economic woes that the cycle presents. Paradoxically, due to the lack of cash flow in the industry, many private equity firms perceived an opportunity for value creation in investing in the industry hoping to catch the cycle on the way up, while the shippers were just happy to have access to liquidity (Roussanoglou, 2014). Thus, if a firm can successfully forecast the cycle, it can rely on stable cash flows during the upswing of the market while avoiding the crash where cash flow may be hard to depend on.

Growth opportunities and efficiency enhancement opportunities

Growth and efficiency enhancement opportunities are important characteristics in target companies as they increase profitability and the top-line, resulting in higher multiple valuations. In the freight market, growth opportunities are generally determined by freight rates, whereby those are dependent on the fluctuations of global economic factors and the supply of vessels. Therefore, in terms of growth, one may consider growth opportunities to be restricted to the sale and purchase market or the new build market. As described in the shipping introduction, company decisions to add vessels to their fleet tend to be based on predictions of the freight market (Chistè & van Vuuren, 2014). This presents a problem for private equity firms in their acquisition selection as a target company's potential growth may be more dependent on their optimism for the market in general than on an individual profile of a company. On a micro-scale in the shipping sector, private equity companies may find growth opportunities in a target's

regional trade or niche trade strength (Roar Adland, Cariou, & Wolff, 2016). Yet, the growth opportunities on this scale would still be largely dependent on factors underlying the demand for the specific cargos and would not necessarily be correlated with a shipping company's unique growth opportunities based on its company profile. In terms of efficiency enhancement opportunities, many factors come into play in which to distinguish investment opportunities between LBO candidates. Targets can keep costs low due to advantages such as logistical opportunities, technical aspects of the fleet including speed and fuel efficiency, maintenance, crew, or bunker manipulation. Efficiency techniques can improve a bottom line to a certain extent. During the top of a cycle, efficiency enhancements, such as reducing crew, which can average around 30% of operating costs, can help shippers offer competitive freight rates to secure cargos for transport. Reducing costs though, tends to be of even greater importance during economic slumps in which a shipping company is simply trying to survive low liquidity until freight rates increase. Therefore, as it is the freight rates that largely determine the value of a vessel, it is freight rates upon which private equity may rely upon to secure return on their investments (Wallis, Shipping industry faces shake up as private equity unwinds bets, 2015). Opportunities to enhance operations seem to play an important but minor role in increasing the bottom line when compared to the effect of the business cycle. As such, it is reasonable to assume that managing efficiency would have a relatively limited effect on the exit multiple of a private equity firm's shipping investment as compared to private equity's traditional industry targets.

Capital expenditures and asset base

In the introduction to the shipping sector, the authors described the large capital requirements involved in purchasing a vessel. Around 42% of the total costs of an average ship go towards the capital costs of the vessel (Stopford, Maritime Economics, 2009, p. 225). The only capital expenditures outside of the purchasing of vessels are typically administrative assets and any support machinery, vessel improvements or new equipment. Naturally, as the vessels in a fleet are the very assets upon which a shipping company operates, revenue generation is inseparable from relatively high capital expenditure requirements. Since capital expenditure payments make up such a large percentage of total costs, differentiation between shipping companies may come

down to the available sources of cheap financing. Through the well documented shippers' relationships with banks and their negotiations to restructure loans during downtimes, it is apparent that capital expenditures are a primary source of concern (Wilson, 2016). But as private equity typically prefers firms with low capital expenditures, their investment into the shipping sector can generally be considered a deviation from the norm.

In the same vein as capital expenditure requirements, shipping companies naturally have a strong asset base. This is a preferred characteristic in a private equity firm's potential target acquisition as assets can be used as collateral on the bank loans in order to finance the purchasing price. Indeed, at least to a few private equity investors, they are quoted in describing how the hard assets of the vessels were a key selling point into their decision to enter the market (Lewis, 2016). In the aspect of strong asset bases, the shipping industry most assuredly meets the criteria and indeed vessels are almost always used to back up loans.

Proven management teams

Private equity typically relies on a strong management team to run the acquired business. If the management is deemed weak, the financial sponsors will remove the management and replace it with a team they believe capable of driving company performance. The issue with this approach in the shipping industry is that many of the ship owners involved in private equity deals are small private companies that are often family-controlled. As such, vessel and portfolio managers contribute larger shares of equity than is traditional in private equity deals which results in managers' increased influence in top level decisions (Ascherfeld & Landshut, 2015). This leaves financial sponsors less room to maneuver and make desired changes in management as a difference between private equity's and traditional ship owners' operating standards exist (Brady, 2016).

Traditionally, when private equity buys a company they know the market and have established relationships with the key actors. This industry knowledge allows private equity to make managerial decisions knowing that the team in place can follow their objectives. However, private equity is new to the shipping sector and as such, it lacks the in-depth market knowledge and contacts to make effective management decisions. For example, the data driven approach

that private equity firms are known for has already been perceived to cause some conflict between financial investors and ship owners as private equity has struggled to bring financial discipline and transparency to the shipping companies (Wright R. , Five-year itch in shipping and PE marriage, 2015). In contrast to the well-referenced strong relationships between shipping companies and traditional financiers of the shipping industry, private equity often lacks these close ties to management (Wilson, 2016). These weak relationships combined with the fact that the shipping sector itself is more volatile than a traditional industry in which private equity operates, cause management issues to be more convoluted. Yet as the managers have all the experience and industry knowledge, they are essential to operations.

Overall, when considering all the typical requirements that private equity firms value in their targets, it becomes evident that shipping companies in general do not meet most of the standards. Due to the atypical reliance on the business cycle, the shipping sector does not offer a predictable cash flow and defensible market positions. In a similar vein, growth opportunities and efficiency enhancing techniques can only offer limited results and probably cannot be the drivers of adding investor value as in other industries. Capital expenditure is usually high as the industry is highly asset intensive and new ships are more efficient. Private equity investors normally accept higher capital expenditure requirements if cash flow is stable, which is not the case in shipping. Lastly, due to the small, private nature of shipping companies, combined with private equities lack of experience, management issues pose significantly more troublesome than in more traditional vehicles of private equity investment.

c. The Different Investment Structures

This section serves to describe the different investment structures of private equity funds investing in shipping companies operating in the maritime industry. A typical private equity investment is held for a period of five to seven years before it is sold or publically listed (Demaria, 2010, p. 87). A relatively large number of private equity investments in shipping have been set-up as joint ventures in order to separate struggling shipping assets and management capacity. Furthermore, it has been easier to set up new joint ventures than taking over several small shipping companies. Private equity was often interested in building its own fleet and leaving

operations to an experienced management team. Given this, the typical joint venture between private equity and shipping, commonly called a Shipping Private Equity Venture ('SPEV') has been designed with a similar time frame in mind as in traditional private equity investments. In the case of larger shipping companies that were already listed on a stock exchange, private equity used its traditional structure of setting up a holding company that takes over the shares of the operating entity as it has been described by the authors in the introduction to private equity. This part of the thesis, however, will introduce the different forms of joint ventures that were used to consolidate several smaller shipping companies into a larger one.

Types of joint ventures

The majority of private equity companies that entered the shipping industry wished to leverage off the experience of successful shipping managers (Wright R. , Five-year itch in shipping and PE marriage, 2015). Given that private equity had little experience in the shipping sector, the joint ventures differed from a simple contractual operation in which managers were only bound by contract. Typical private equity investments in other industries offer management warrants in order to create buy-in. In shipping's case, the joint ventures in the shipping industry have been set up through the creation of a joint holding company which in turn will hold single purpose companies that each hold a vessel. This requires both sides to contribute significant equity.

SPEVs combine both the elements of a joint venture with those of a private fund. Similar to a private fund, SPEVs hold closed-end investments with constantly evaluating exit options while operating the company as if it were built for the long-term. In addition, SPEVs contain the typical waterfall distribution schemes to reward limited partners but still encourage general partners to maximize return. In contrast to the private fund elements, SPEVs have the joint venture features such as joint management, increased contribution to capital and more involvement between the parties in terms of a contribution of services (Seward & Kissel LLP, 2013).

The majority of the equity involved is typically provided by the private equity side with a standard ratio between private equity and the shipping company between 90%:10% or 80%:20%, respectively. Even though private equity contributes the majority, due to the fact that the knowhow of the industry belongs primarily to the shipping side, ventures are under joint control.

Through representation of both partners on the board and unanimity requirements, key commercial decisions cannot be passed against the vote of the shipping company.

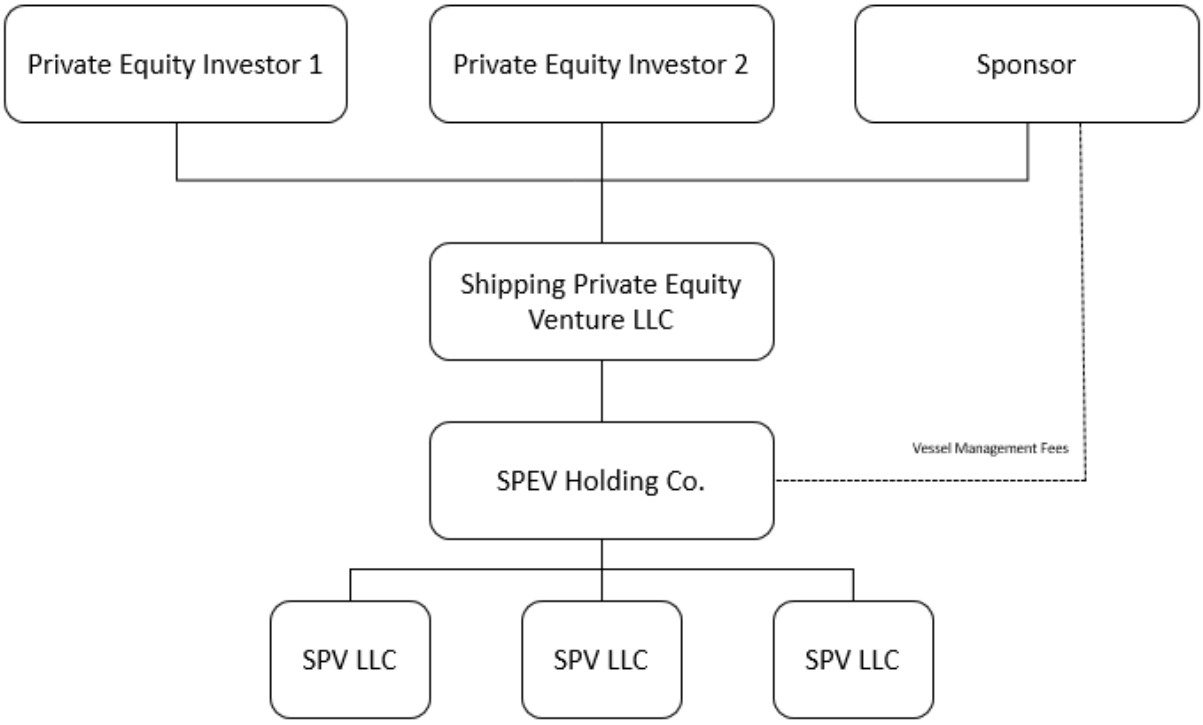

***Figure 6**: Example SPEV structure (Seward & Kissel LLP, 2013)*

Target investments specifications

The shipping industry is quite expansive and involves vessels of all sizes and types. As this is the case, most shipping managers have an expertise in one subsector of shipping, such as the tanker industry. SPEVs usually focus on one subsector of the shipping industry and leverage management expertise to become successful in the selected sector. The scope of investment is mainly concentrated on one of the specific vessel sectors as well as a specific size range. Some ventures may be involved with new build or secondhand only, while others may mix the two. The choice all depends on where private equity and shipping management believes to be value.

As both, private equity and their shipping partners pursue investments outside their joint venture, it is important that this thesis addresses the contract rules to avoid conflicts of interests in terms of investments in vessels. It is essential that the target vessel specifications and criteria are specifically defined. The joint venture is typically reserved the right of first refusal and

exclusivity in regard to a vessel falling under the target criteria. In addition, members of the joint venture cannot establish partnerships with other operators nor can members conflict with operations if they are under existing co-operations with other entities. The details vary depending on the contract and in many cases private equity is allowed exceptions to the exclusivity rule if they have investments that may indirectly involve a vessel that falls under the joint venture specifications. This can apply to assets and transactions such as loan portfolio transactions, securities secured by target vessels or even opportunities presented by the shipping company that the private equity company had already been independently aware of. It is a key item that these joint ventures carefully structure their agreements to avoid a conflict of interest between the two parties involved.

Distribution of earnings

In investments undertaken by private equity, funds typically have a certain IRR threshold on the return they target. As potential returns are the principal object in which private equity enters any investment, many contractual agreements in the joint venture stipulate that the private equity fund receives a front loaded preference to the distributions until it has reached this IRR threshold. Wisely, in order to incentivize the ship managers, it is typically agreed that at specific IRR level checkpoints, the distributions are increasingly in favor of the ship managers. Additionally, private equity may have stipulations that grant it the right to sell the vessels if they deem a favorable market exists in which to obtain their desired return (Whittaker, 2013). Lastly, to protect the interest of the private equity fund in times of trouble, stipulations might exist that give the right for private equity funds to sell the vessel in order to repay investors. This is usually due to liquidity issues or unfavorable events.

Table 9 shows examples of typical return distributions in private equity shipping joint ventures.

Examples of SPEV Return on Capital Distributions

	SPEV 1	SPEV 2
Distribution Waterfall: (PE/Vessel Operator)	-90/10 until 2x -85/15 until 2.5x -82.5/17.5 until 3x -80/20 forward	-8% of IRR -85/15 until 25% IRR and 3x -80/20 forward

***Table 9**: Examples of SPEV Return on Capital Distributions (Seward & Kissel LLP, 2013)*

d. The Current Situation and Exit Options

This thesis has referenced the correlation of shipping successes to the ups and down of the shipping business cycle, i.e. shipping rates. While the exact start and position of the market on the business cycle can be debated, near unanimous consensus exists that the past few years have been one of the worst shipping markets in 20 years. Along with economic factors, such as China's slowdown and supply factors such as the lack of consolidation between firms, the bankruptcy of shipping companies and the active new build orders have created an oversupply of vessels (Khan, 2016). Ironically, it is a commonly held belief that those aforementioned factors are exacerbated by private equity's aggressive injection of liquidity and speculation in the vessel market. Shipping broker and research firm Clarksons commented in reference to the state of shipping affairs for 2016 that "we view the market to be in pure survival mode for the coming year" (Macalister, 2016). Therefore, private equity may find themselves in a precarious situation that limits their options. As the investment horizon for some funds almost reached its end, tough decisions must be taken. Some funds exit their investments taking substantial losses, while others hold on speculating on better times to be ahead.

Exiting the industry with a desired return of above 20% is the goal of private equity investors. As has been discussed in the introduction to private equity, the most plausible options for exiting the shipping sector are conducting an IPO, selling the fleet to a strategic buyer or finding another

financial sponsor for a secondary buyout. Even if private equity firms decide to exit, they may not always have good options left to them in which to do so. This part of the thesis determines the conditions necessary to facilitate each type of exit. This will help to see which exit options are available to private equity firms in the current economic climate. Hence, this section provides a deeper understanding of the situation many private equity investments, as well as investors in the shipping sector in general, are enduring. Furthermore, this section will serve to describe how private equity firms might have miscalculated their impact on the shipping sector and how playing the shipping cycle has in many cases not gone as planned. Instead of earning the grand returns that were once expected, many private equity firms must instead find ways to mitigate their losses and accept unimpressive returns.

IPO

A path for private equity to exit its investment has commonly come in the form of an IPO. When the target company reaches an attractive enough point, investors can turn to the public markets to sell off its stake in the company. In the shipping industry, joint venture entities would have to acquire a critical mass in order to appeal to the public. Shipping companies that have been public before being bought out, usually retained enough size to be listed again. Like any other company wishing to list on the public markets, the shipping entity would have to be perceived as a viable business and providing potential for value growth. The listing process itself is highly costly and thus is only recommendable if the company to be listed is of significant size. Therefore, an IPO may not be an option in a troubled market nor would the private equity firm have any incentive to conduct an IPO if it does not believe it can get a respectable return.

IPOs for most private equity investors are currently blocked. The ability of an underwriter to find value in public markets is limited in the current state of the economy. The few companies that have been able to list, had achieved a significant size. Hence, this option is not available to all players. Furthermore, based on the precedence of shipping companies who managed to list their shares on public markets, a respectable listing price may be hard to obtain (Stamford, Investors look for a way out as share prices held back by overall poor shipping scores , 2015). Gener8 Maritime's notable IPO, for example, was targeted at $17-$19 a share but ended up only listing at $14, representing a drop in enterprise value of nearly $80 million (Stamford, Gener8 faces

lacklustre IPO pricing, 2016). The recent example of Greenbriar Equity's IPO exit of the tanker company Ardmore Shipping reveals that public markets are not responding well to investing in shipping markets as the listing fell well below its target range as well (Odell & Makan, 2013).

Trade sale and secondary buyout

As described in the previous section, a private equity firm may wish to sell its fleet to another company engaged in the shipping sector or a different financial sponsor. In case of a large buyout, a private equity firm sometimes invested together with other financial sponsors, who are called co-investors. In the case of a joint venture structure, the ship management is also invested in a significant stake of the combined company. If the private equity firm wishes to sell, it may put into place certain contract specifications that allow it to force a trade sale of the fleet whenever it may choose. This may come with the option of a 'drag-along right', which would also force minority shareholders and co-investors to sell their participation. To protect the interest of minority shareholders and co-investors when they are opposed to a forced sale, they may request a 'tag-along right', which would force the private equity company to sell their stakes alongside its own. This may be desired by the co-investors if they believed that the forced sale could harm the value of the entity. However, as ship managers operate in this market fulltime, they may desire to remain with the investment if the market presents continually stable returns.

Asset values are currently low in the maritime sector. This especially applies in the dry bulk market but even the relatively stable tanker market reports low underlying vessel values (Pierce, Peter Georgiopoulos: 'we would love to buy a big fleet', 2016). As the majority of value for a shipping company is derived from the value of its underlying assets, a private equity firm's expectation to exit its investment through a trade sale is, at this moment, not a possibility that offers the returns initially expected. A notable exit in recent markets was Apollo Global Management's fleet sale to Teekay Tankers for $662 million. However, this exit was more done as the best option available as opposed to a successful, IRR reaching, exit (Stamford, Investors look for a way out as share prices held back by overall poor shipping scores , 2015).

In summary, the key difference between an exit through an IPO and an exit through a trade sale is the buyer. An IPO sells to public investors, while the trade sale is a sale of the vessels or

enterprise to private or institutional investors. A shipping IPO requires certain conditions such as a willing public and a company of certain size and is a riskier option as the requirements to be listed on public exchanges are more demanding and costly as opposed to a trade sale. Additionally, the private equity firm is not able to sell all of its shares at once, but has to exit gradually in order to support the share price. Trade sales on the other hand, can occur if other investors see enough value and can forecast an uptick in the market. Unfortunately, in the current market, while buyers in the marketplace exist and may find value at such low prices, many are still unwary of the future and may not wish to enter more investments at the moment (Macalister, 2016).

Liquidity issues may prevent many shipping firms from investing if they previously had the desire to do so at all (Pierce, Peter Georgiopoulos: 'we would love to buy a big fleet', 2016). Depending on each investor's circumstances, selling the investment in the current economic cycle is perhaps only an option taken reluctantly. If a firm does indeed wish to exit and cut its losses on the shipping investment, a trade sale is perhaps the most feasible option as the market at this moment may simply not be ready to support a listing on the major exchanges, much less one at a price the seller would be satisfied with.

e. Selected Investments

This section of the thesis presents some of the largest and most relevant investments by private equity funds in the shipping sector over the last years. Since the private equity industry is rather secretive by nature, this list was prepared by the authors to the best of their knowledge and resources. However, this list was built based upon publicly available sources and is by no means exhaustive.

Investor	Value estimate ($m)	Asset type	Company	Type of investment	Year
Kohlberg Kravis Roberts	260	Container ships and bulk carriers	Hanseatic Ship Asset Management	Takeover through joint venture with Borealis Maritime	2015
Oaktree Capital Management	1,000	Oil tankers	TORM A/S	LBO	2015
Oaktree Capital Management	215	Refrigerated product carriers	Sølvtrans	LBO	2014
Oaktree Capital Management	n/a	Dry bulkers	Star Bulk Carriers	Reverse merger as part of the Oceanbulk Shipping sale	2014
Cambridge Capital	140	Oil tankers	Parakou Tankers	LBO	2014
York Capital Management	90	Dry bulkers	Deiulemar Shipping SpA	Takeover of dry bulk operations	2014
The Carlyle Group	85	Bulk carriers	Interlink Maritime	LBO	2013
Kelso & Company	126	Container ships	Technomar Shipping	Joint venture	2013
Apollo Global Management	500	Container ships	Rickmers Group	Joint venture	2013

Investor	Value estimate ($m)	Asset type	Company	Type of investment	Year
Roullier Group BPCE	147	Dry bulkers	Louis Dreyfus Armateurs	Joint venture	2013
BNP Paribas	n/a	Container ships	LV Overseas	LBO	2012
Consortium led by Perella Weinberg	220	Product tankers	Prime Marine Ultrapetrol	Joint venture	2012
Oaktree Capital Management	1,450	Oil tankers	General Maritime	LBO	2011
JP Morgan	n/a	Project cargos	Harren (SUMO Shipping)	Joint venture	2011
Consortium led by WL Ross & Co.	1,000	Product tankers	Diamond S Shipping	Joint venture	2011
Riverstone Holdings	260	Dry bulkers	Quintana Shipping	Takeover though joint venture with Natural Resource Partners	2011
Alterna Capital Markets	100	Product tankers	Solo / Western Bulk	Joint venture	2010-2012
Apollo Global Management	200	Suezmax tankers	Principal Maritime First Ship Lease	LBO	2010
Kelso & Company	200	Supramax bulkers	Delphin Shipping	LBO	2010

Investor	Value estimate ($m)	Asset type	Company	Type of investment	Year
Littlejohn / Northern	100	Container ships	Soundview Maritime	Joint venture	2010
Kelso & Company	n/a	Container ships	Poseidon Container Holdings	LBO	2010
The Carlyle Group	1,000	Container ships	CGI (with Seaspan)	Joint venture	2010
Eton Park / Rhone Capital	175	Container ships	Euromar	Joint venture	2010
Greenbriar Equity Group	100	Product tankers	Seacove Shipping	Joint venture	2009
Sterling Partners	170	Tankers and barges	United States Shipping	LBO	2009
Fortress Investments	100	Handysize bulkers	Clipper Bulk	Joint venture	2009
The Blackstone Group & Cerberus Capital Management	500	Oil tankers	American Petroleum Tankers	LBO	2008
New Mountain Capital	n/a	Dry bulkers and project cargos	Intermarine	LBO	2008

***Table 10**: Selected recent private equity investments in shipping* (UNCTAD, 2014), (S&P Capital IQ, 2016) & (Mergermarket, 2016)

The investment overview shows that private equity players have engaged in traditional LBOs as well as SPEVs as discussed prior in this part of the thesis. While the largest deals range up to $1.5 billion, many small deals were conducted in order to focus on consolidating the industry and

building more robust enterprises. Over the last years, especially Oaktree Capital Management has tried to establish itself in the industry and has conducted many large deals.

f. Selected Exits

This section lists some of the most relevant exits of private equity funds within the shipping industry over the last years. As for the investment overview, the list is by no means exhaustive and was prepared to the best of the authors' knowledge.

Company	Value estimate ($m)	Asset type	Investor	Type of exit	Year
Gener8 Maritime	236 (total valuation of 1,400)	Oil and chemical tankers	Oaktree Capital Management	IPO	2015
Baltic Trading Limited	300	Dry bulkers	Apollo Global Management	Trade sale	2015
U.N. Ro-Ro Isletmeleri	770	Shipping and rail transport	Kohlberg Kravis Roberts	Trade sale	2014
Oceanbulk Shipping & Oceanbulk Carriers	475	Dry bulkers	Oaktree Capital Management	Trade sale resulting in a reverse merger	2014
American Petroleum Tankers & State Class Tankers	962	Oil and chemical tankers	The Blackstone Group & Cerberus Capital Management	Trade sale	2014
Ardmore Shipping	160	Product and chemical tankers	Greenbriar Equity	IPO	2013

***Table 11**: Selected recent private equity exits in shipping* (UNCTAD, 2014), (S&P Capital IQ, 2016) *&* (Mergermarket, 2016)

It becomes apparent that other than selling single vessels, or filing for chapter 11 bankruptcy, private equity funds have made relatively few exits and are still heavily invested in the industry as economic times are still troubled. However, more and more companies are preparing themselves to exit their investments and are currently looking for buyers. Apollo Global Management, for example, has filed to IPO Principal Maritime Tankers in 2014, but so far has not been able to complete the transaction (Das, 2014).

5 Case Study

This section serves to predict the success and influence that private equity will most likely have in the shipping sector. This is done in two ways. First, the authors will examine the success of private equity in another cyclical and asset-intensive industry, namely real estate. This might give an outlook on success in shipping as industry characteristics are comparable and extensive research on private equity's influence in real estate is already available. In a second step, the authors will look at one specific investment case of a private equity firm within shipping, namely Oaktree Capital Management's investment in Gener8 Maritime. This investment case will focus on the improvements made by private equity after taking over the business in 2011 until exiting it in 2015. This case will serve to compare private equity methods to traditional ship management measures in order to evaluate if private equity is likely to add to industry success and create abnormal returns.

a. The History of Private Equity Investments in Real Estate

To gain an alternative perspective of private equity's expected performance in the maritime sector, the authors deem it beneficial to study private equity's rate of success in an industry with similar characteristics. In order to select a comparable industry, the authors first set up specific criteria, which may reflect the underlying dynamics of the shipping industry.

1) The industry contains significant private equity activity with public or published results
2) The industry depends on the value of real assets, signifying that a large portion of the value in it depends on the value of the underlying assets
3) The industry is cyclical and investments in it would offer higher than average returns if the underlying business cycle was timed correctly

The first criterion serves to provide insight into private equity's financial performance, which is not measurable in the maritime sector at the time being. Extrapolating performance data from a comparable industry seems to be the best proxy variable currently available. The second criterion is important because the vessels in shipping are the underlying assets define the dynamics of the maritime industry; therefore, finding a similar dependence on real assets would be of value in a

counterpoint industry. As previously discussed in this thesis, operating value in the maritime sector is largely dependent on the value of the underlying assets. Lastly, the third criterion is essential because the maritime industry is, to a large extent, dependent on shipping rates and therefore the shipping cycle. Finding an industry that shows similar business cyclicality to the shipping sector ensures that management's ability to time the economic cycle is an important aspect of the industry and thus would further qualify it as a benchmark to compare to the shipping industry.

The authors have found that one industry that closely follows the aforementioned criteria is the real estate sector. Private equity has had many years of involvement with the real estate sector and well-documented research and publicized investment exits are readily available. Additionally, the underlying value of real estate is inherently the property and thereby covers the criterion of an industry that is heavy in real assets. If the underlying real assets are not valuable, there is little operational value that can be extracted from its management, for example through rents. Finally, the market clearly demonstrates that buying real estate assets during a low cycle and selling at a high point would offer significant returns, therefore timing the business cycle offers a distinct advantage.

Obviously many clear distinctions between the real estate market and the shipping sector exist. While this thesis will address these differences, this comparison with private equity's performance in the real estate market may still serve as a good comparative basis in order to gain additional insights into the relationship between the shipping sector and private equity investors.

In Case (2015), the performance of various types of investment strategies within the real estate sector was measured for the last 25 years. The paper also analyses the performance of private equity investments within the sector. Within this period the author includes five notable periods, which included full real estate cycles from peak to trough. According to this study, no matter which investing strategy or target the investors employed, the returns did not statistically outperform assets held outside of private equity funds (Case, 2015).

In a similar vein, other research indicates that fund performance is nearly directly proportional to the return on the underlying real estate market (Alcock, Baum, Colley, & Steiner, 2013). From

the perspective of this thesis the fact that the managers do not seem to be able to achieve abnormal returns, is of particular interest. This apparent lack of positive management influence in the real estate sector permits speculation that the traditional private equity investing strategies outlined earlier in this thesis may not always be adhered to across all private equity investments. In other words, instead of increasing the profitability of the acquired business by streamlining activities and making operational improvements, private equity investors may at times engage in macroeconomic speculation. If so, this may shed some light on why private equity may have had less reservations about playing the market cycle in the shipping sector. The motivations behind such a speculative investment in shipping are comparable to those shown in the real estate market.

Interestingly, the empirical evidence implies that private equity managers in the real estate market may not have any distinguishable skill in timing the market and exploiting opportunities offered by the broader economic environment (Alcock, Baum, Colley, & Steiner, 2013). As the shipping cycle is perhaps even more notorious and difficult to forecast, it strengthens the authors' hypothesis that private equity fund managers would offer the maritime sector no advantage in terms of timing the cycle. The macroeconomic factors in shipping have repeatedly proven to be too complex for managers to have a distinguished advantage. This effect is further amplified for industry outsiders like private equity with very little to no experience. However, this adds additional support into why private equity partnered more heavily with experienced shippers.

The conclusions made from the study of the real estate market provide useful insights but the authors stress that they must be taken lightly. For one, a real estate portfolio can be greatly diversified to include many different individual assets while a shipping portfolio often contains a few really large vessels. Additionally, real estate markets tend to be more localized and affected by factors more easily studied and accounted for when analyzing investments. The shipping sector on the other hand is inherently affected by the global markets; therefore, it may be harder to isolate its influencing factors. Finally, the operations and functions of a ship are completely different from those in of an investment in a property and this would significantly affect cash flow generation.

Despite the aforementioned differences, the similarities between the real estate and shipping sector lead the authors of this thesis to draw parallels in private equity investments of both industries. The key similarities between the two markets are asset intensity, an investment value that is strongly correlated to the underlying asset value, and a strong correlation to systematic risk. The lack of empirical evidence supporting the claim that private equity adds value in the real estate sector beyond the underlying market return, furthers the authors doubt of a similar claim; that private equity adds managerial value in the shipping sector.

b. Oaktree's Investment in Gener8 Maritime

In order to come up with a case that provides a good example of private equity investments in the shipping industry, the authors concentrated on the three most important buyout funds that were identified in the chapter 'The Private Equity Investors in Shipping'. While Carlyle has made large investments in several ships through its joint venture with Seaspan, those are very difficult to track and assess individually. Furthermore, Carlyle did not have a major exit from an investment, making it difficult to estimate success. Apollo Global Management is still invested in most of its acquisitions on which it does not file financial reports to the public, also making it difficult to estimate Apollo's impact. On the contrary, Oaktree's listing of Gener8 Maritime in the second quarter of 2015 has caught large attention from international financial markets. Due to the public listing, updated information on Gener8 Maritime is publically available. An annual report and financial statements are undisclosed only for 2012. Furthermore, Gener8 Maritime operates in the tanker business, which has performed relatively well over the recent past. Therefore, most exits from private equity funds have come in this segment. Large tanker companies are often listed in the United States making extensive performance benchmarks possible and giving the authors of this thesis a chance to evaluate Oaktree's impact on Gener8 Maritime. However, one has to notice that the tanker business is only one segment of the shipping industry and private equity funds might have acted differently in other market segments such as dry bulk.

This case study tries to evaluate if Oaktree has applied traditional private equity strategies to create value or if it has to a large extent just benefitted from a favorable play of the shipping

cycle and lower commodity prices. The authors will compare Gener8 Maritime's financial performance in key metrics with three of its competitors with comparable sizes that were not bought out by a private equity fund but are equally listed in the United States.

Gener8 Maritime

Gener8 Maritime was created in 2015 prior to its IPO by merging General Maritime and Navig8 Crude Tankers. The merger was led by Oaktree in cooperation with BlueMountain Capital Management and Avenue Capital Group, the private equity owners of Navig8 Crude Tankers. Oaktree took over the majority of shares at General Maritime after the company filed for Chapter 11 bankruptcy in 2011 and Oaktree's loan that was given out in the year prior was converted into equity. Additionally, Oaktree was given the right to buy out other debt holders (Gener8 Maritime, 2015, p. 168). General Maritime was founded in 1991 by Peter Georgiopoulos, who still is CEO of the combined company. In 2001, General Maritime was listed on the New York stock exchange where it stayed public until the Oaktree takeover in 2011. In June 2015 the combined company was again listed on the New York stock exchange with gross proceeds of $236m (Leander, 2015), resulting in a total valuation of $14 per share (Papaeconomou, 2015). This was rather disappointing for the company's owners since they had targeted a price above $17. Today, the stock trades at $7.20, giving Gener8 Maritime a market capitalization of approx. $590m (Bloomberg, 2016). As of 2015, Gener8 Maritime operated 25 ships, consisting of seven VLCCs, eleven suezmaxes, four aframaxes, two panamaxes and a handymax product carrier. However, between September 2015 and February 2017 the company expects 21 additional VLCC new buildings (Leander, 2015).

Benchmark companies

The companies included in the authors' benchmark are all tanker companies that are listed on the New York stock exchange and are of similar size as Gener8 Maritime, but have never been bought out by a private equity fund. This is supposed to make it possible to determine if private equity has brought new forms of management to the shipping sector, or if it has behaved similarly to other shipping players. The three companies used in this benchmark include Frontline Ltd., Nordic American Tankers Ltd., and Teekay Tankers Ltd.

Frontline Ltd. was founded as Frontline AB in 1985 and listed on the Stockholm Stock Exchange from 1989 to 1997. In 1996, Hemen Holding Ltd., a company by John Fredriksen became the majority shareholder of Frontline and still is to date. The company was relocated to Bermuda in 1997 and after a merger with London & Overseas Freighters in 1998, the merged company became known as Frontline Ltd. Frontline was listed on the New York stock exchange in 2001. During the significant downturn of the tanker market in 2012, the company went through a complete restructuring, shrinking it in size and renewing its fleet (Frontline, 2016).

Nordic American Tankers Ltd. was incorporated in Bermuda in 1995 and its shares were listed on the New York stock exchange the same year. While the company leased its only three vessels to BP for the first nine years of operation, the company decided to stay active and grow after the BP charter had expired in 2004. After several acquisitions and secondary public share offerings for additional financing, the company today operates 20 vessels, which are all employed in the spot market. Nordic American Tankers' board has announced that it intends to further grow the company over the coming years and evaluate current market opportunities to refine the company's strategy (Nordic American Tankers, 2016).

Teekay Tankers Ltd. forms part of the well-diversified Teekay Group, which operates in almost all shipping segments. All companies within the group are separately listed on the New York stock exchange. Teekay Group was founded in 1973 by Torben Karlshoej and has developed into one of the largest shipping groups on a global level. Today, Teekay Tankers operates 100 vessels, one of the world's largest conventional tanker fleets, including aframax, long range, medium range, suezmax and very large crude carrier vessels (Teekay Group, 2016).

Operating benchmarks

In order to compare management and financial performance, the authors put emphasis on the two most important financial measures private equity funds look at. As it was introduced before within this thesis, those two metrics are EBITDA and Free Cash Flow. Therefore, the authors benchmarked the main input factors for those two metrics for Gener8 Maritime against its competition. In order to come up with a complete picture, the authors used two years of data prior to Oaktree's entry at the end of 2011 until the date of the latest public filings. All data has

come from the respective annual reports of the benchmarking companies. In case of Gener8 Maritime, the IPO prospectus has been used for additional information. The Key Performance Indicator's ('KPIs') used in this benchmark are all practically relevant in the financial sector. Their purpose is to enable the measurement of performance within companies and the industry. All KPIs are geared towards measuring effectiveness and efficiency, which are key drivers of financial performance (Konsta & Plomaritou, 2012).

Since no financial data for was available for Gener8 Maritime in 2012, the values have been extrapolated for the purpose of completeness of the benchmark. Hereby, average growth rates and historic averages have been used to extrapolate the values.

The first benchmark conducted aims at measuring growth opportunities and efficiency of vessel use. The graphs below show total and relative revenue development, a comparison to the Baltic Dirty Tanker Index, and unit of revenue per unit of vessel value for the four benchmark companies from 2010 to 2015. Revenues include time charter revenues and voyage charter revenues, as well as finance lease interest income in cases it was clearly linked to the respective operating model of the company.

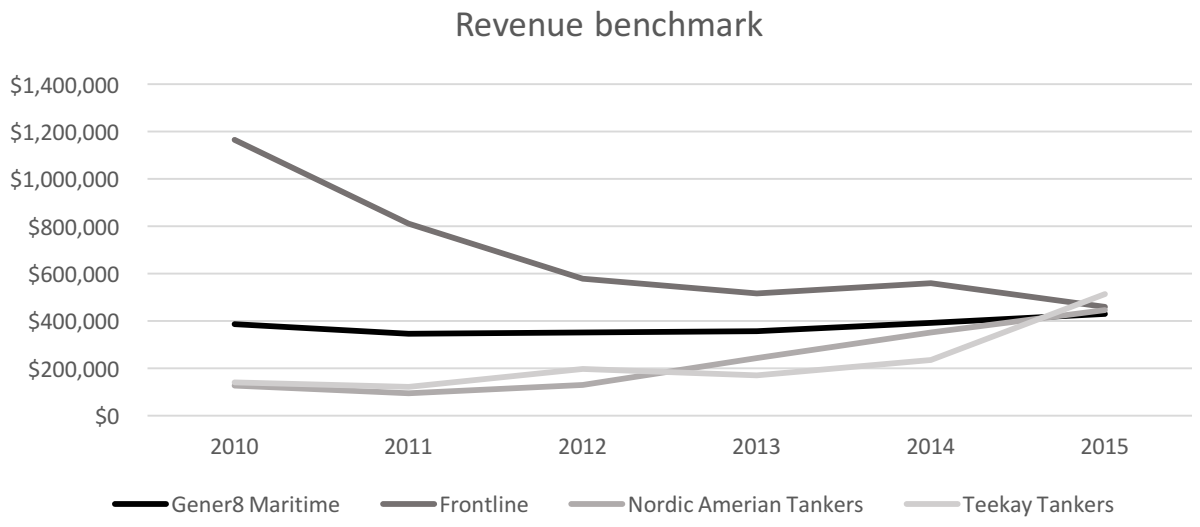

***Figure 7**: Revenue benchmark*

The benchmark of absolute revenues shows that Gener8 Maritime's revenue generation has been significantly more stable than those of its competitors. This could imply good stability of

cash flows. Furthermore, one can see that Oaktree's strategy has been less focused on increasing revenues, since during 2012 until 2015 no significant jump can be detected. The revenue benchmark furthermore conveys that Oaktree emphasized on finding a relatively stable business for its investment in order to increase cash flow predictability. This might be one of the reasons why they decided to pick out General Maritime in the tanker segment.

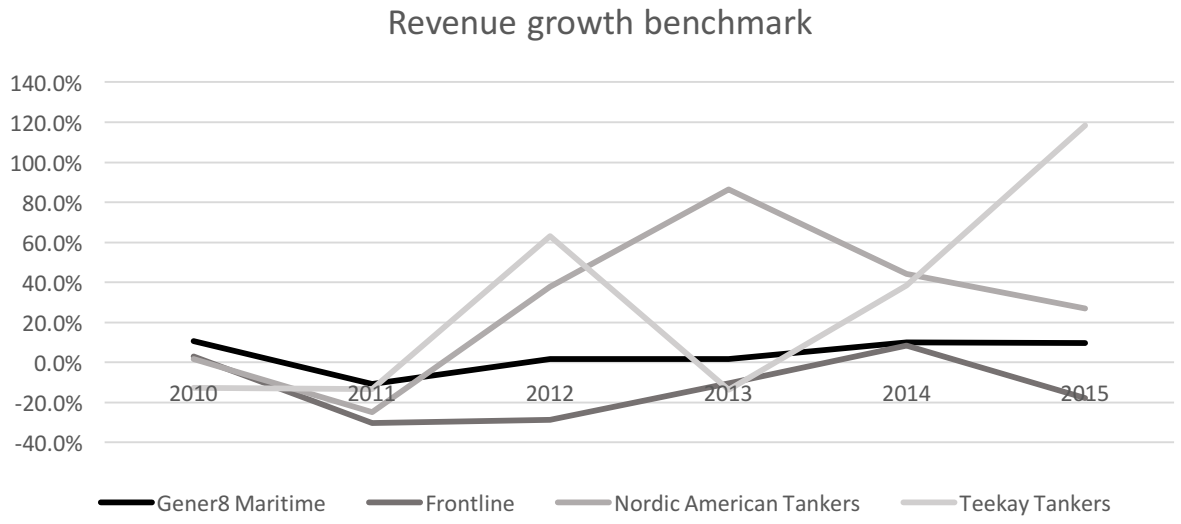

***Figure 8**: Revenue growth benchmark*

When looking at the revenue growth that underlies the revenue development, one can draw similar conclusions as from the total revenue benchmark. Oaktree has been able to constantly increase Gener8 Maritime's revenue, while stabilizing the business. This could mean that Oaktree has put emphasis on bringing stability and revenue predictability to Gener8 Maritime, thereby increasing value. Additionally, it becomes apparent that Oaktree invested at a favorable point in time when revenue was declining while they were afterwards able to increase revenue every year.

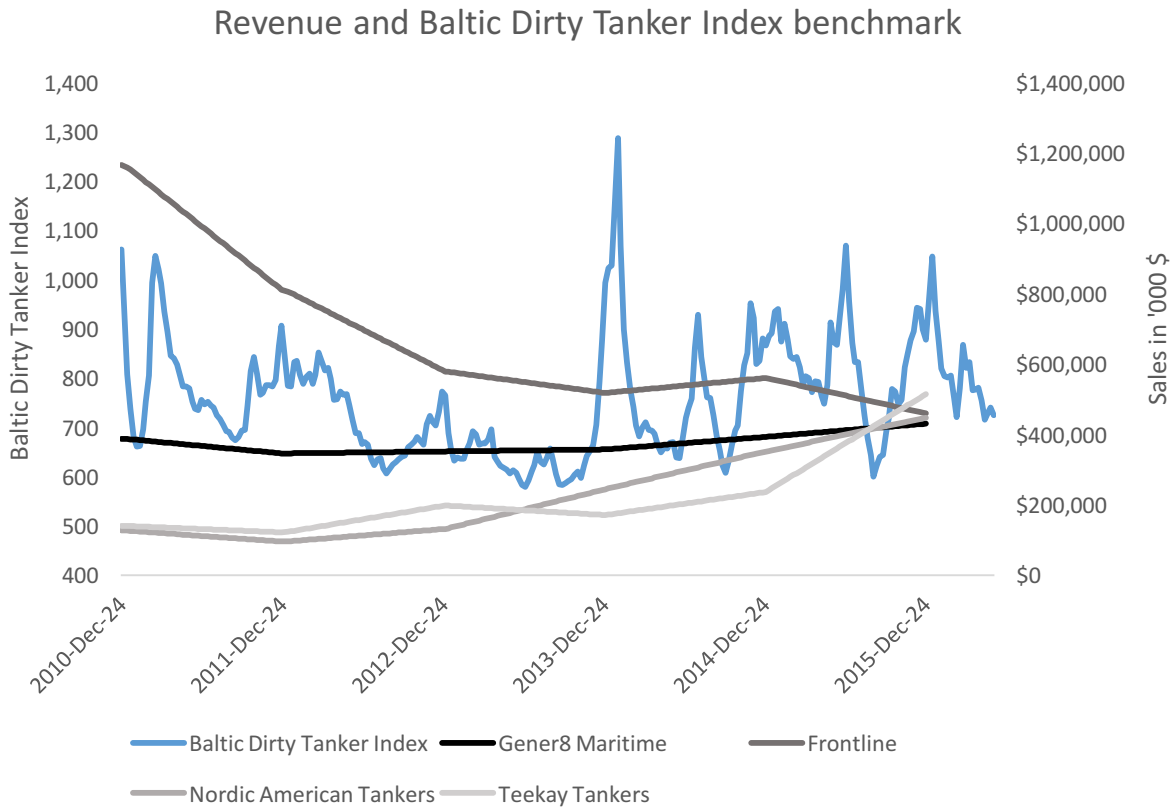

***Figure 9**: Revenue and Baltic Dirty Tanker Index benchmark (Clarkson Research Services Limited, 2016)*

The Baltic Dirty Tanker Index is a price index for oil tanker charter rates on standard voyages. The index fits the benchmark companies well as all of them engage in oil transportation. The revenue and Baltic Dirty Tanker Index benchmark shows that the index has reported a high volatility over the recent years, but that its overall trend is fairly-well correlated with company revenues. Keeping in mind that ship portfolio decisions also play an extensive role in revenue generation, one can infer from the benchmark that until 2013 tanker companies were reacting to low shipping rates by downsizing, whereas growth has correlated with overall increasing rates since then. Oaktree seems to have timed the cycle relatively well by buying when shipping rates were low in 2011 and selling when they were marginally improving. Nevertheless, the benchmark shows that high volatility makes the market hardly predictable and tanker companies are exposed to high market risk.

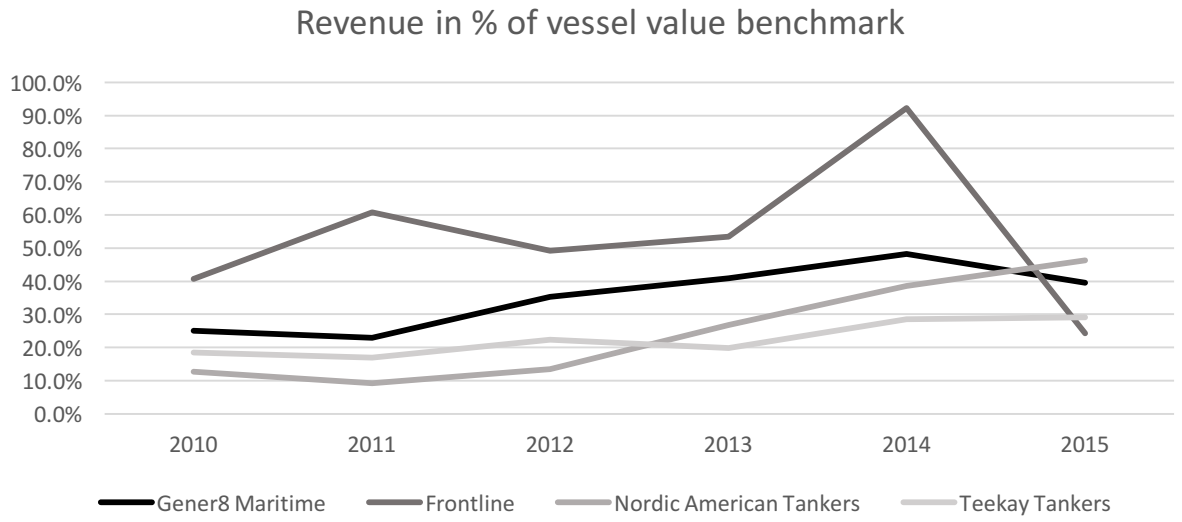

***Figure 10**: Revenue in % of vessel value benchmark*

Vessel value in this benchmark has been calculated as net asset value plus vessels under finance lease since those have to be activated on the balance sheet of the operator. The revenue in percent of vessel value benchmark shows that all companies were able to increase efficiency between 2012 and 2015. However, it becomes apparent that Gener8 Maritime's efficiency shows less variance than that of the other three companies. Furthermore, Gener8 Maritime has constantly performed second best in this benchmark, making it attractive for financial investors to use the existing asset base to extract revenues.

The following benchmarks are all geared towards explaining EBITDA, one of the two most important financial metrics for financial sponsors. Therefore, the following benchmarks show relative operating costs and general and administrative expenses. Additionally, the oil price development is included in the benchmark as fuel costs and thereby voyage operation costs are strongly correlated with oil price.

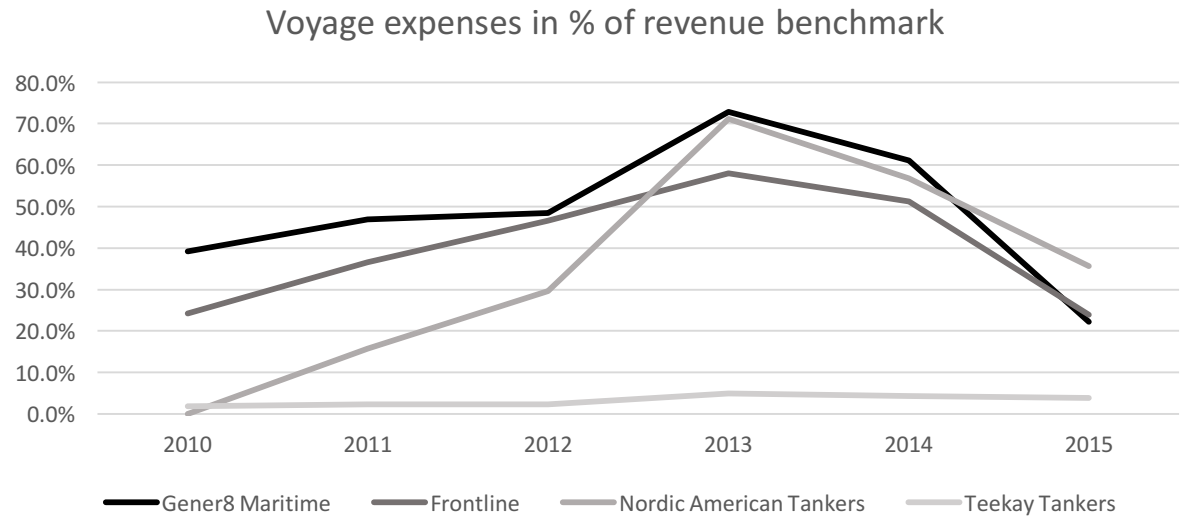

***Figure 11**: Voyage expenses in % of revenue benchmark*

Voyage expenses include all expenses unique to a particular voyage, including any bunker fuel expenses, port fees, cargo loading and unloading expenses, canal tolls, agency fees and commissions (Teekay Tankers, 2016, p. 9). All benchmarking companies, except for Teekay Tankers show a similar development of their voyage expenses relative to revenues. Teekay Tankers is not comparable to the other companies with respect to voyage expenses because they report the position different from its competition. Voyage expenses in their case is only relevant for voyage charter revenues as otherwise the charterer pays voyage expenses (Teekay Tankers, 2016, p. 9). For a more complete picture, the voyage expenses relative to revenue will next be plotted against the oil price to see if improvements were mostly stemming from factors outside the managements' power.

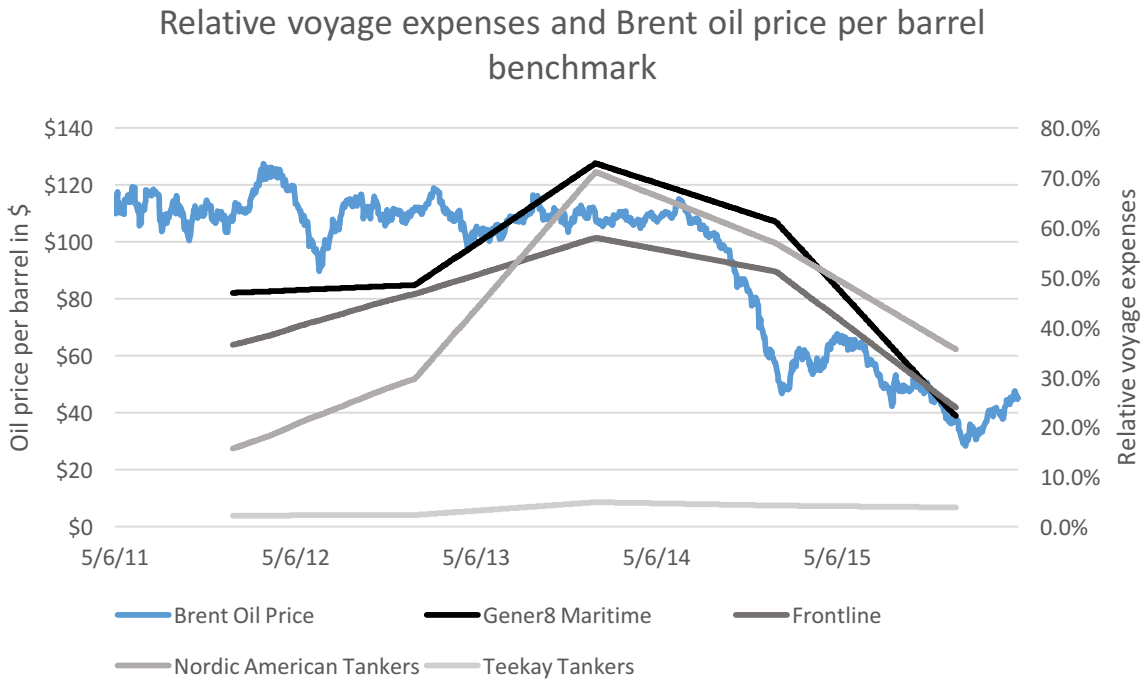

***Figure 12**: Relative voyage expenses and Brent oil price per barrel benchmark (Euroinvestor, 2015)*

When comparing the voyage expenses relative to revenues to the oil price, one can see that they strongly correlate. Furthermore, the benchmark shows that Oaktree has managed to outperform Frontline and Nordic American Tankers over the tenure of its ownership when it comes to voyage cost efficiency. In 2015, when Oaktree decided to list Gener8 Maritime, relative voyage expenses were as low as never before over the prior five years. This is typical of a private equity strategy as activities are streamlined and costs are efficiently controlled. Nevertheless, it can be concluded that the falling oil price has come in very handily for ship operators and tanker companies especially.

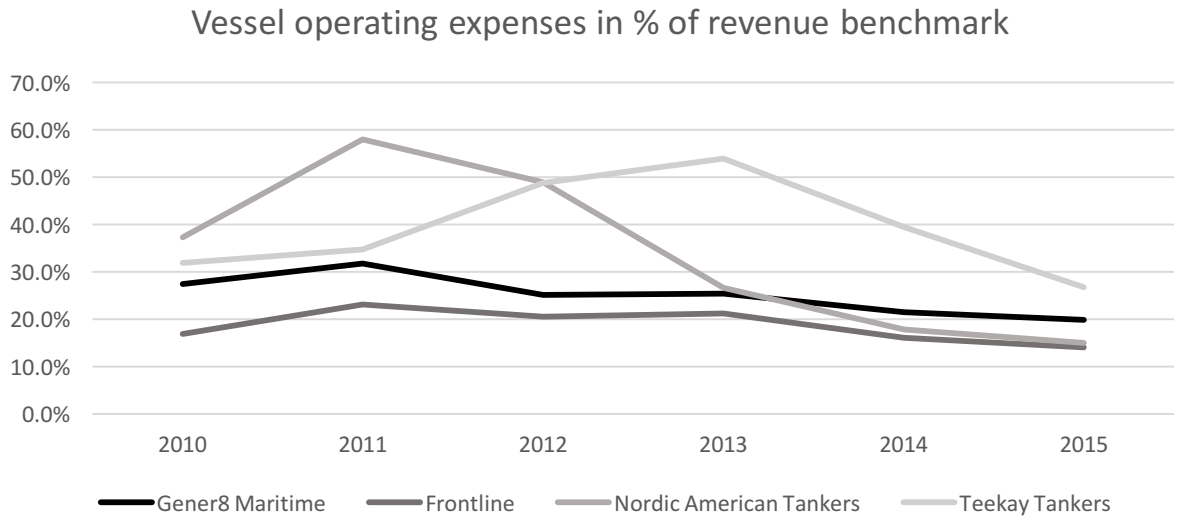

***Figure 13**: Vessel operating expenses in % of revenue benchmark*

Vessel operating expenses include crewing, repairs, maintenance, insurance, stores, lube oils, and communication expenses among others (Teekay Tankers, 2016, p. 9). Looking at the benchmark values shows that Gener8 Maritime has been in line with its competition when it comes to relative vessel operating cost reduction. Under Oaktree's supervision, vessel operating expenses relative to revenue have been constantly decreased and only slightly lack behind Frontline and Nordic American Tankers.

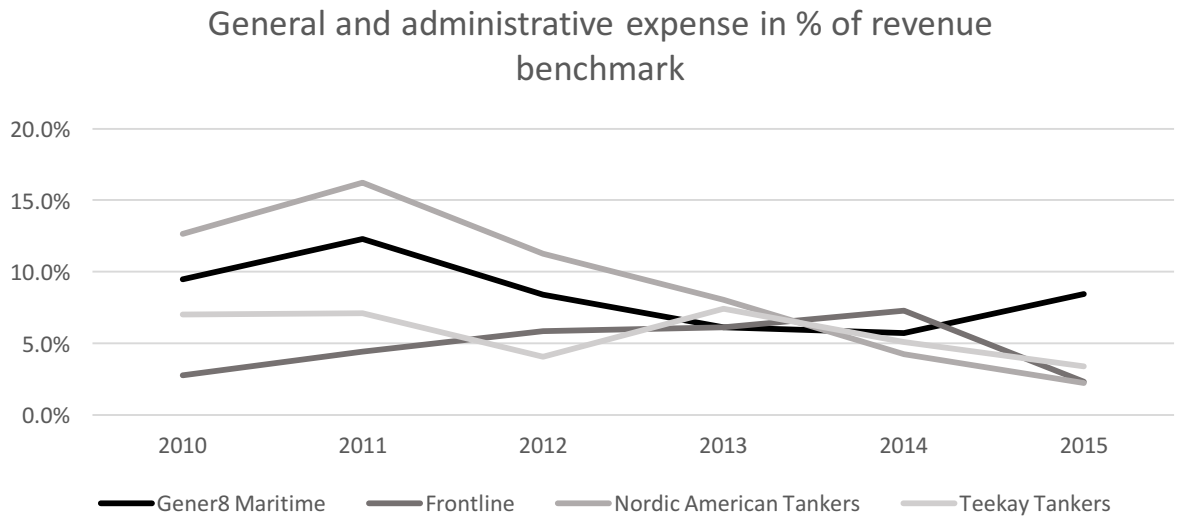

***Figure 14**: General and administrative expense in % of revenue benchmark*

The general and administrative expenses relative to revenue benchmark reveals that prior to going public, Oaktree has significantly decreased overhead costs, which is in line with its competition. Automatization, standardization and outsourcing is crucial when trying to become more efficient. Oaktree seems to have followed a typical private equity approach at this point, decreasing personnel costs and streamlining operations. Nevertheless, after going public, general and administrative costs have gone up again, which is probably due to regulatory requirements and the public listing process. Overall, the industry seems to have been interested in cutting down overhead costs.

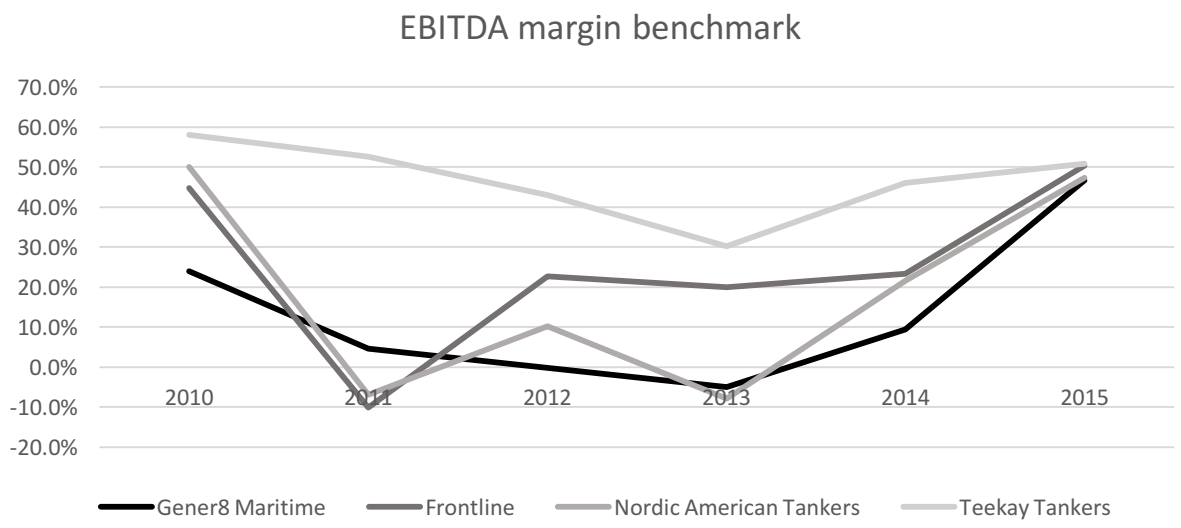

***Figure 15**: EBITDA margin benchmark*

The EBITDA margin benchmark shows how efficient the respective shipping company is able to translate revenue into operating profit. EBITDA is particularly important as it closely tracks cash flow and therefore is often used for comparable valuations in finance. From the benchmark it becomes apparent that Oaktree has been able to turn Gener8 Maritime's operational profitability around and put it in line with its competition. Furthermore, Oaktree seems to have selected a favorable point in time for its exit from Gener8 Maritime in 2015 as profitability had picked up significantly and the recent history of growth might have led for investors to expect further growth in the future. However, all tanker companies in this benchmark seem to have

profited significantly from lower oil prices on the operating level as those have lowered voyage operating costs.

The next section of benchmarks is focused on Free Cash Flow. As was explained earlier in this thesis, the main input factors for Free Cash Flow are EBIT, tax rate, depreciation and amortization, capital expenditures, as well as change in net working capital. Within this benchmark, however, the authors decided to start from EBITDA as tax payments in the tanker business have been negligible. Therefore, the EBITDA margin benchmark, which includes depreciation and amortization is taken as a starting point, and only capital expenditures and net working capital are looked at in detail.

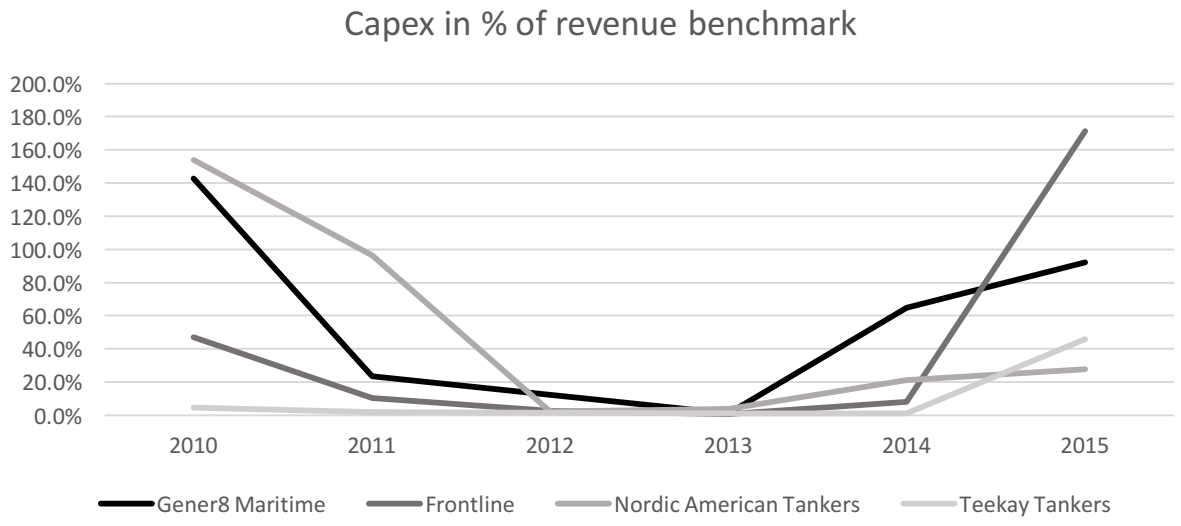

***Figure 16**: Capex in % of revenue benchmark*

The capital expenditures in percent of revenue benchmark shows the relative investment in new vessels by the benchmarked companies. What becomes apparent here is that the investment cycle of the four companies seems to be somewhat similar. While in 2010, when the industry still expected an economic upswing after the financial crisis in 2008, the companies invested strongly in new vessels, the years after were marked by very low investment. With a plummeting oil price and a better outlook for the tanker industry, the tanker companies have started investing in vessels in 2014 again. At this point, Oaktree has behaved as the other benchmarked companies with the difference being that they started investing more heavily in 2014 already. This might

play to their advantage as they were able to secure orders earlier than their competitors and thereby probably at lower prices. Additionally, the investment in new ships could show experienced shipping investors that management teams are expecting improving industry conditions and therefore conveying a positive picture for the IPO in 2015.

In terms of net working capital, the authors have conducted two benchmarks that are important to the private equity industry. While normally one would look at the cash conversion cycle, which is made up of days sales outstanding, days inventory outstanding and days payables outstanding, two of the four companies did not report inventories. Therefore, the authors have decided to use the other two benchmarks and deduct any working capital management measures from those two only.

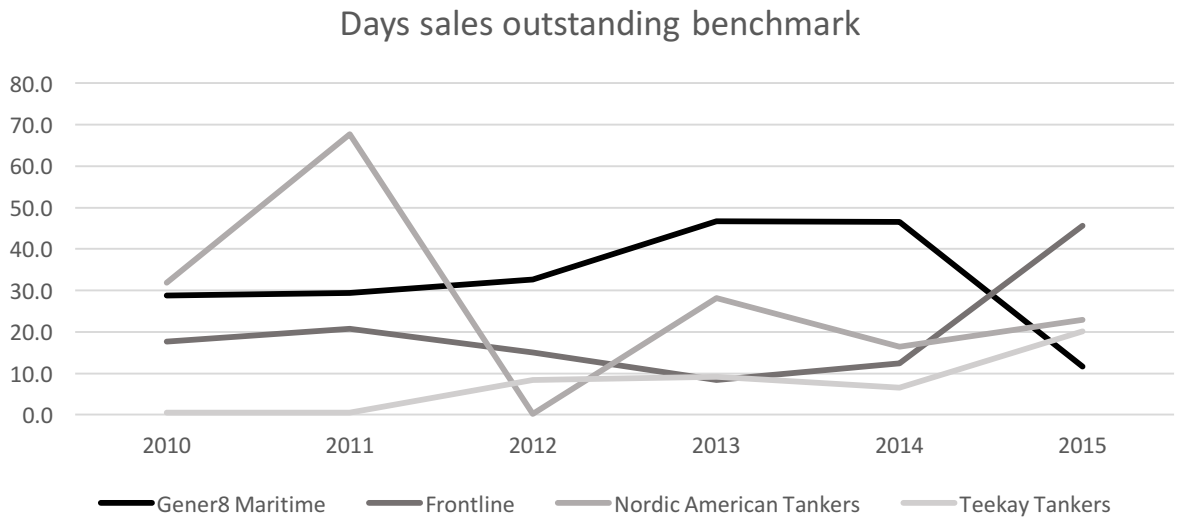

***Figure 17**: Days sales outstanding benchmark*

The days sales outstanding benchmark shows how many days a company it takes on average to collect its receivables from its customers. A shorter period of time is beneficial here as cash can be used more quickly and investments can more often be funded from own cash reserves. Very untypically for the private equity industry, one can see that days sales outstanding ranked last and increased during the time of Oaktree's ownership of Gener8 Maritime. One explanation could be that Oaktree was more focused on growing the business and adding more customers than worrying that the business might be cash restrained. Maybe Gener8 Maritime has been able

to attract customers by offering them more favorable terms of payments than their competition. In 2015, the year that Gener8 Maritime went public, though, the company became stricter on terms of payment. This could be explained by having reached a favorable growth profile and now focusing and increasing cash flows as those determine the value of the company in financial theory. Shareholders probably demanded more favorable management of sales outstanding to increase their value.

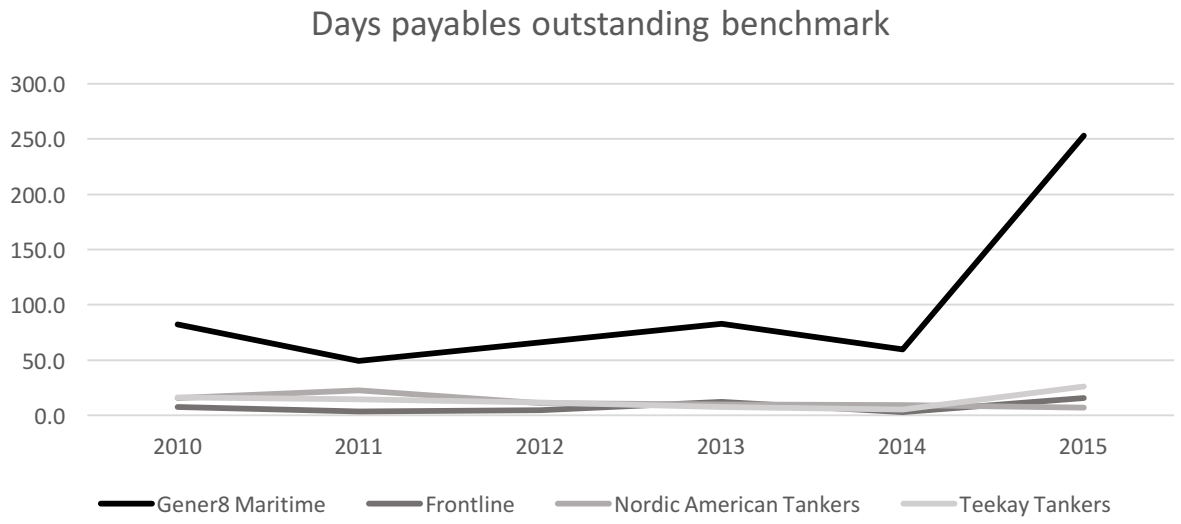

***Figure 18**: Days payables outstanding benchmark*

Days payables outstanding are the exact opposite of days sales outstanding and show how many days on average it takes a company to pay its bills. Here, a high number is generally favorable as delayed payments are a form of short-term debt financing. A too high number on the other hand can imply that the respective company has problems meeting its obligations and running the risk of defaulting. The benchmark shows that Gener8 Maritime historically had more favorable terms of payment than its competition and Oaktree managed to stretch payment goals even more. This is typical of a private equity strategy. In 2015, however, the days payables outstanding for Gener8 Maritime were abnormally high. Usually, a number around 90 to 100 is considered as being high but in line of a payment goal of three months. 250 days seem too high for a healthy company. Otherwise, Oaktree seems to have done a favorable job renegotiating payment terms.

Conclusion

Gener8 Maritime was listed to the public in June 2015, with a starting price of $14 per share. Today, the share is trading at just slightly above 50% of that value. This could imply that either macroeconomic conditions have turned for the worse in the tanker business or Gener8 Maritime has not performed to the expectations of initial share purchasers. Since Oaktree has selected to publically list the company and not opt for a trade sale or sale to another financial sponsor, it is still invested in the business as a major shareholder. This makes it impossible to calculate an IRR figure for Oaktree's investment. However, it can be expected that the value creation during the just over three years of ownership was well within Oaktree's expectations as they chose to list the company, even though its target price ratio of $17-$19 a share was missed. However, the currently low share price will put pressure on Oaktree's return.

The benchmark shows that Oaktree has indeed applied traditional private equity measures to improve operating profitability, lower costs and carefully manage cash flow. On the other hand, one can say that it has benefitted from a plummeting oil price and has, in cooperation with its management team at Gener8 Maritime, not yielded results that were significantly different from its competition that was not bought out by a financial sponsor. This could reflect how relatively unexperienced private equity is in the shipping sector. Furthermore, one can say that Oaktree made use of the financial lever by using a high amount of debt for financing the company. Additionally, one can conclude from the benchmark that Oaktree has been able to use operational levers that they have experience with from other sectors, but that their actions have not been very different from traditional ship owners. Oaktree used an experienced management team and performed well in selecting a relatively stable target and timing the market cycle. Therefore, the authors conclude that private equity in that case did not drastically adjust its approach, but its methods were less exotic to the industry than in other sectors. Oaktree has proven strong abilities in traditional areas of expertise such as target selection, finding the right amount of leverage, identifying growth opportunities, cutting costs and entering and exiting at favorable points within the economic cycle.

6 Conclusion

The question raised in the beginning of this thesis is in how far shipping is a suitable industry to invest in for private equity. The authors tackled this question in three different ways over the course of this thesis. First, a theoretical discussion of typical company characteristics for private equity investments was conducted. Second, a comparison to private equity investments in the real estate sector was drawn. Third, a case study of a complete investment cycle in a tanker company was set up. All three methodologies have delivered distinct results that this conclusion summarizes and synthesizes in order to show a complete picture of private equity investments in the shipping industry.

When looking at the different criteria for companies that private equity usually invests in, it becomes apparent that cash flow unpredictability and high requirements for capital expenditures might be red flags for private equity funds. When looking more closely at both items, though, one can state that cash flow unpredictability as well as capital expenditure requirements can be mitigated by correctly predicting and timing the shipping cycle. Cash flows within one stage of the cycle appear to be rather stable, as they are mainly dependent on daily shipping rates. However, the cyclicality differs from one segment of shipping to the other and even experienced ship managers sometimes trouble to make the right predictions for the future. Capital expenditure requirements can be timed by looking at the existing asset base and the current position in the shipping cycle as new building prices also correlate with shipping rates. So theoretically, the suitability of the shipping industry as an investment opportunity for private equity comes down to correctly estimating the shipping cycle. As private equity managers are rather unexperienced in the shipping industry, though, they have to rely heavily on experienced management teams. Thus, in the authors' opinion it comes down to two things for private equity to make the right investment decision. First, they have to perform a thorough due diligence on the existing asset base and the necessary capital requirements and second, they have to find a management team they can trust in and that has proven to correctly play the shipping cycle.

The discussion of private equity investments in real estate has shown that financial sponsors were unable to generate abnormal returns. Furthermore, the findings suggest that private equity

managers on average do not have the ability of timing market cycles better than traditional industry actors. Due to the shared characteristics of the shipping and the real estate industries, the authors conclude that also in shipping, private equity funds will struggle to create significant value in excess of average market returns.

The case study conducted in this thesis has shown that traditional ship owners already use most of the techniques private equity uses to create high returns. Therefore, the leverage of creating abnormal positive returns for private equity is smaller in shipping than in other sectors. This means that shipping, being suitable or not, can create great returns for private equity just as it does for other ship owners, but these returns are strongly correlated with taking on more market risk. Hence, single private equity funds could become very successful in shipping, but its traditional measures are less exotic in the shipping sector and therefore one would expect the same average returns as other ship owners report.

Finally, one can say that private equity funds' most important tasks are to perform a thorough due diligence on the business they want to acquire and find a management team that is experienced enough to successfully put the available money to work. On the other hand, abnormal returns and a better ability to time the market cycle cannot be expected from financial sponsors. Additionally, private equity levers do apply less in the shipping sector as they are more common practices than in other sectors. Therefore, lower abnormal returns can be expected from private equity in shipping in comparison to involvements in other industries. Hence, the authors of this thesis expect to only see private equity investments in shipping when abundant capital is available and asset prices are low.

7 Recommendations for further research

The findings of this thesis are based on a theoretical investigation of the private equity and shipping markets, a comparison of the level of success of private equity in another cyclical industry and a case study on the basis of one tanker company. What this thesis is lacking is a thorough empirical model that can measure success of private equity in shipping. This is the case because the data is currently not available. As the authors have shown, most private equity funds are still invested in the shipping industry and have not made many significant exits. Therefore, and because of the secretive nature of the business, return data has so far not been available. The authors of this thesis would thus make three suggestions for future research in order to evaluate if shipping is a suitable sector for private equity investments.

1) **Empirical model based on return data:** First, the authors would suggest that a thorough empirical model is built based on IRR figures once they are available. This will help to evaluate if private equity was able to do equally well in shipping in comparison to other sectors or if they generated negative or positive alpha returns. It is especially important to look at the data from a risk-return perspective as the authors suggest that shipping investments can only deliver expected returns for private equity funds by taking on more risk. However, relevant data will only be available after more private equity players have exited their investments. Nevertheless, it might still prove to be difficult to get dedicated return data on a per investment basis as IRR figures are more often than not reported on a fund basis or not reported to the public at all. An advantage here is that most of the big private equity players in the United Sates are listed and have higher reporting duties. Taking only those funds, however, might create a selection bias.
2) **Look at all shipping segments and not only the tanker market:** Within this thesis, the case study was based on one tanker company. However, if one wants to make a more general statement about the suitability of the shipping market for private equity investments, one would also have to look at the dry bulk, container and cruise ship segments. The dry bulk market especially is currently very weak so that private equity investors do not have exited most of their investments. For future research, it would be

interesting to see if private equity funds follow different strategies in different market segments and how they approach each one individually. Therefore, it could also make sense to conduct case studies similar to the one in this thesis within other shipping segments and compare the results.

3) **Focus on macroeconomic instead of microeconomic level:** This thesis has tried to investigate the research question on a microeconomic level, examining how shipping companies operate and how private equity has been able to fit into that picture. However, for future research it might be interesting to examine which macroeconomic factors are relevant for private equity decision making and why shipping was being perceived as a suitable industry. Therefore, one had to gather information on a more global level and look at industry specifics instead of company specifics as the authors did in the practical analysis part of this thesis.

Summarizing, one can say that this thesis tried to lay the groundwork for the investigation of private equity investments in shipping by examining both industries on a microeconomic level, bringing them together theoretically and then trying to verify the findings in a case study. In order to give more general answers to shipping and private equity related questions, one would have to broaden the dataset and try to find industry-specific patterns.

8 Bibliography

Alcock, J., Baum, A., Colley, N., & Steiner, E. (2013). The Role of Financial Leverage in the Performance of Private Equity Real Estate Funds. *Journal of Portfolio Management Special Real Estate Issue*, v. 39, iss. 5, pp. 99-110.

Apollo Global Management. (2013, September 23). *News Releases: Apollo Global Management*. Retrieved from Apollo Global Management: http://ir.agm.com/phoenix.zhtml?c=214560&p=irol-newsArticle&ID=1856990

Apollo Global Management. (2016, April 27). *Overview: Apollo Global Management*. Retrieved from Apollo Global Management: http://www.agm.com/AboutUs/Overview.aspx

Apollo Investment Corporation. (2015, December 31). *Portfolio Companies: Apollo Investment Corporation*. Retrieved from Apollo Investment Corporation: http://www.apolloic.com/public/portfolio_template.asp?pageid=12&sort=6

Ascherfeld, N., & Landshut, M. (2015, October). Joint Ventures Between Private Equity Funds and Shipping Companies - Current Structures and Exit Scenarios. London/Hamburg: Marine Money.

Beck, P. (1983). Opiates for decision makers. *lect. to the Third internat. symposium on forecasting*. Philadelphia.

Bessler, W., Drobetz, W., & Tegtmeier, L. (2010). Schiffe als Anlageklasse für institutionelle Anleger. *Absolutreport*, pp. 46-57.

Bloomberg. (2016, May 10). *Gener8 Maritime: Bloomberg*. Retrieved from Bloomberg: http://www.bloomberg.com/quote/GNRT:US

Brady, J. (2016, March 31). Banks' can-kicking helps paralyse funding flow and investor interest. *Tradewinds*.

Case, B. (2015). What Have 25 Years of Performance Data Taught Us about Private Equity Real Estate? *Journal of Real Estate Portfolio Management*, v. 21, iss. 1, pp. 1-20.

Cendrowski, H., Martin, J. P., Petro, L. W., & Wadecki, A. A. (2008). *Private Equity - History, Governance, and Operations.* Hoboken: John Wiley & Sons, Inc.

Chistè, C., & van Vuuren, G. (2014). Investigating the cyclical behavior of the dry bulk shipping market. *Maritime Policy & Management, 41:1*, 1-19.

Clarkson Research. (2016, April). Retrieved from Clarkson Research: https://clarksonsresearch.wordpress.com/

Clarkson Research Services Limited. (2015). *The Tramp Shipping Market.* London: CRSE.

Clarkson Research Services Limited. (2016, May 30). Baltic Dirty Tanker Index.

Cufley, C. (1972). *Ocean Freights and Chartering.* London: Staples Press.

Das, A. (2014, April 9). *Business: Reuters*. Retrieved from Reuters: http://www.reuters.com/article/us-principalmaritimetankers-ipo-idUSBREA381TE20140409

Demaria, C. (2010). *Introduction to Private Equity.* Chichester: John Wiley & Sons Ltd.

Drobetz, W., Gounopoulos, D., Merikas, A., & Schröder, H. (2013). Capital structure decisions of globally-listed shipping companies. *Transportation Research Part E: Logistics and Transportation Review*, 49-76.

Economakis, A. (2014, March 31). Shipping Investments - Making decisions in a typically opaque industry. *The Hedge Fund Journal*.

Einhorn, B. (2016, February 11). *The Shipping Industry Is Suffering From China's Trade Slowdown*. Retrieved from Bloomberg Businessweek: http://www.bloomberg.com/news/articles/2016-02-11/shipping-industry-suffering-from-china-s-trade-slowdown

Euroinvestor. (2015, May 5). Brent Oil Price.

Frontline. (2016, May 10). *History: Frontline*. Retrieved from Frontline: http://www.frontline.bm/page/5/History

Gener8 Maritime. (2015). *IPO Prospectus.* New York : Security and Exchange Commission.

Goulielmos, A. M., & Psifia, M. (2006). Shipping finance: time to follow a new track? *Maritime Policy & Management*, 301-320.

Hampton, M. (1991). *Long and Short Shipping Cycles.* Cambridge: Cambridge Academy of Transport.

Heckert, H. (2015). *Shipping industry seeking alternative financing.* KPMG. Hamburg: KPMG.

Hellenic Shipping News. (2016, March 22). *IMF: Panama Will Grow 6.1% in 2016 Thanks to Canal Expansion*. Retrieved from hellenicshippingnews: http://www.hellenicshippingnews.com/imf-panama-will-grow-6-1-in-2016-thanks-to-canal-expansion/

International Chamber of Shipping. (2015). *Shipping and World Trade*. Retrieved from ICS-Shipping: http://www.ics-shipping.org/shipping-facts/shipping-and-world-trade

Kaplan, S. N., & Schoar, A. (2005). Private Equity Performance: Returns, Persistence and Capital Flows. *The Journal of Finance*, 1791-1823.

Khan, R. (2016, March 24). Industry View: State of the shipping markets and the future of Chinese shipbuilders. *TradeWinds*.

Konsta, K., & Plomaritou, E. (2012, May 16). Key Performance Indicators (KPIs) and Shipping Companies Performance Evaluation: The Case of Greek Tanker Shipping Companies. *International Journal of Business and Management*, 142-155.

Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *Journal of Finance*, 911-922.

Leander, T. (2015, August 5). Gener8 finishes post-merger quarter well in the black. *Lloyd's List*.

Lewis, I. (2016). Can Van Meenen steer Rickmers beyond Germany? *TradeWinds*.

Macalister, T. (2016, February 25). Best thing for the bulker market may be that the crisis gets worse . *TradeWinds*.

Mergermarket. (2016, May 23). Shipping Buyouts Screening.

Nordic American Tankers. (2016, May 13). *Overview: Nordic American Tankers*. Retrieved from Nordic American Tankers: http://www.nat.bm/overview.html

Oaktree Capital Management. (2016, April 27). *About: Oaktree Capital Management*. Retrieved from Oaktree Capital Management: https://www.oaktreecapital.com/about

Oaktree Capital Management. (2016, April 27). *Portfolio Companies: Oaktree Capital Management*. Retrieved from Oaktree Capital Management: https://www.oaktreecapital.com/strategies/control-investing/global-principal/global-principal-portfolio-companies

Odell, M., & Makan, A. (2013, October 27). Wave of private equity money flows into shipping. *Financial Times*.

Papaeconomou, L. (2015, November 3). Gener8 takes delivery of second and third VLCCs. *Lloyd's List*.

Pierce, A. (2016). Pacific Basin keeps eye on distressed deals . *TradeWinds*.

Pierce, A. (2016). Peter Georgiopoulos: 'we would love to buy a big fleet'. *TradeWinds*.

Preqin. (2015). *The 2015 Preqin Global Private Equity & Venture Capital Reports.* New York: Preqin.

Private Equity International. (2014). *PEI 300.* London: Private Equity International.

PwC. (2014). *Global Shipping Benchmarking 2014.* PWC.

RBS. (2015, June 24). Ship Finance - Opportunities and Challenges. London, Great Britain.

Renaissance Capital. (2015, June 15). *News: Nasdaq*. Retrieved from Nasdaq: http://www.nasdaq.com/article/oaktree-backed-oil-tanker-operator-gener8-maritime-sets-terms-for-270-million-ipo-cm486941

Roar Adland, Cariou, P., & Wolff, F.-C. (2016). The influence of charterers and owners on bulk shipping freight rates. *Transportation Research Part E: Logistics and Transportation Review, 86*, 69-82.

Rodrigue, J.-P., & Notteboom, T. (2008). The geography of containerization: half a century. *GeoJournal*, 5.

Rosenbaum, J., & Pearl, J. (2009). *Investment Banking - Valuation, Leveraged Buyouts and Mergers & Acquisitions.* Hoboken, New Jersey, United States of America: John Wiley & Sons, Inc.

Roussanoglou, N. (2014, January 9). Private equity funds pour at least $7 billion into shipping in 2014. *Hellenic Shipping News Worldwide*.

S&P Capital IQ. (2016, May 23). Marine Transportation of Freight Transaction Screening Report.

Scarsi, R. (2007). The bulk shipping business: market cycles and shipowners' biases. *Maritime Policy & Management, 34:6*, 577-590.

Seward & Kissel LLP. (2013, June 20). Private Equity in Shipping. *26th Annual Marine Money Week*. New York, New York.

Stamford, J. B. (2015, December 17). Investors look for a way out as share prices held back by overall poor shipping scores . *TradeWinds*.

Stamford, J. B. (2016). Gener8 faces lacklustre IPO pricing. *TradeWinds*.

Standard & Poor's Leveraged Commentary & Data Group. (2010). *Average Sources of LBO Proceeds 1999 - 2008.* New York: Standard & Poor's.

Stopford, M. (2005). *Maritime Economics* (Vol. 2). London: Routledge.

Stopford, M. (2009). *Maritime Economics* (Vol. 3). London: Routledge.

Strandenes, P. (2000). The Shipbroking Function and Market Efficiency. *International Journal of Maritime Economics*, V. 2, iss. 1, pp 17-26.

Teekay Group. (2016, May 13). *Business: Teekay Tankers*. Retrieved from Teekay Group: http://teekay.com/business/tankers/

Teekay Tankers. (2016). *Annual Report 2015.* Teekay Tankers.

The Carlyle Group. (2016, April 25). *Corporate Overview: The Carlyle Group*. Retrieved from The Carlyle Group: https://www.carlyle.com/about-carlyle

The Carlyle Group. (2016, April 25). *Portfolio of Investments: The Carlyle Group*. Retrieved from The Carlyle Group: https://www.carlyle.com/our-business/portfolio-of-investments?alphabet=All&country=All&field_industry_nid=21&status=All&field_asset_class_nid=All

UNCTAD. (2014). *Review of Maritime Transport 2013.* Geneva: UNCTAD.

UNCTAD. (2015). *Review of Maritime Transport 2014.* Geneva: UN Publications.

Wallis, K. (2015, March 4). Shipping industry faces shake up as private equity unwinds bets. *Reuters*.

Wallis, K. (2016, March 14). *Markets: Reuters*. Retrieved from Reuters: http://www.reuters.com/article/shipping-privateequity-orders-idUSL3N0NK38F20140509

Whittaker, G. (2013, September 27). Greek owners search for alternatives as bank finance shrinks. *TradeWinds*.

Wilson, J. (2016, February 4). Shipowners and financiers should venture into new territory together. *TradeWinds*.

Wright, G. (2003). Asset Revaluation and Company Rates of Return in the Shipping Industry. *International Journal of Transport Economics,30:3*, 327-334.

Wright, R. (2011, March 14). Carlyle to lead landmark shipping push. *Financial Times*.

Wright, R. (2015, March 30). Five-year itch in shipping and PE marriage. *Financial Times*.

Ying, K., Liming, L., & Meifeng, L. (2014). Lead-lag relationship between new-building and second hand prices. *Maritime Policy & Management, 41:4*, 303-327.

9 Appendix

1) Gener8 Maritime financial statements

in '000 $	2010	2011	2012	2013	2014	2015
Balance Sheet						
Cash and cash equivalents	$16,858	$10,184	n/a	$97,707	$147,303	$157,535
Restricted cash	$0	$0	n/a	$659	$660	$0
Due from charterers, net	$30,442	$27,762	n/a	$45,610	$50,007	$13,611
Due from Navig8 pool, net	$0	$0	n/a	$0	$0	$38,086
Prepaid expenses and other current assets	$41,019	$35,199	n/a	$50,813	$32,692	$31,897
Vessels held for sale	$80,219	$0	n/a	$5,899	$0	$16,999
Total current assets	$168,538	$73,145	n/a	$200,688	$230,662	$258,128
Vessels, net of accumulated depreciation	$1,547,527	$1,510,841	n/a	$873,435	$814,528	$1,086,877
Vessels under construction	$0	$0	n/a	$0	$257,581	$911,017
Vessel deposits	$7,612	$0	n/a	$0	$0	$0
Other fixed assets, net	$11,806	$11,978	n/a	$2,711	$2,985	$4,664
Deferred drydock costs, net	$20,258	$24,123	n/a	$6,728	$14,361	$17,875
Deferred financing costs, net	$19,178	$36,022	n/a	$2,187	$1,805	$0
Working capital at Navig8 pool	$0	$0	n/a	$0	$0	$26,000
Restricted cash	$0	$0	n/a	$0	$0	$1,425
Other assets	$5,048	$15,179	n/a	$6,706	$11,872	$57,469
Goodwill	$1,818	$0	n/a	$30,479	$27,131	$26,291
Total noncurrent assets	$1,613,247	$1,598,143	n/a	$922,246	$1,130,263	$2,131,618
Total assets	$1,781,785	$1,671,288	n/a	$1,122,934	$1,360,925	$2,389,746
Accounts payable and accrued expenses	$57,864	$37,919	n/a	$79,508	$52,770	$133,248
Current portion of long-term debt	$1,353,243	$890,268	n/a	$0	$0	$135,367
Bridge loan credit facility	$22,800	$0	n/a	$0	$0	$0
Deferred voyage revenue	$1,554	$922	n/a	$0	$0	$0
Derivative liability	$7,132	$3,237	n/a	$0	$0	$0
Total current assets not subject to compromise	$1,442,593	$932,346	n/a	$79,508	$52,770	$268,615
Other noncurrent liabilites	$2,217	$4,548	n/a	$104	$171	$647
Long-term debt	$0	$0	n/a	$677,632	$790,835	$772,723
Derivative liability	$4,929	$1,561	n/a	$0	$0	
Total liabilities not subject to compromise	$7,146	$6,109	n/a	$677,736	$791,006	$773,370
Liabilities subject to compromise	$0	$483,027	n/a	$0	$0	
Total liabilities	$1,449,739	$1,421,482	n/a	$757,244	$843,776	$1,041,985
Class A common stock	$896	$1,217	n/a	$113	$113	$0
Class B common stock	$0	$0	n/a	$113	$220	$0
New common stock	$0	$0	n/a	$0	$0	$827
Paid-in capital	$571,742	$636,532	n/a	$611,231	$809,477	$1,509,688
Accumulated earnings	($228,657)	($381,356)	n/a	($245,906)	($292,990)	($163,421)
Accumulated other comprehensive income	($11,935)	($6,587)	n/a	$139	$329	$667
Total shareholders' equity	$332,046	$249,806	n/a	$365,690	$517,149	$1,347,761
Total liabilities and shareholders' equity	$1,781,785	$1,671,288	n/a	$1,122,934	$1,360,925	$2,389,746

Income Statement						
Voyage revenues	$387,161	$345,381	n/a	$356,669	$392,409	$429,933
Revenue growth	*10.5%*	*-10.8%*	*n/a*	*n/a*	*10.0%*	*9.6%*
Voyage expenses	($151,448)	($162,034)	n/a	($259,982)	($239,906)	($95,306)
Direct vessel operating expenses	($105,855)	($109,542)	n/a	($90,297)	($84,209)	($85,521)
Bareboat lease expense	$0	($9,009)	n/a	$0	$0	($11,324)
Gross Profit	**$129,858**	**$64,796**	**n/a**	**$6,390**	**$68,294**	**$237,782**
Gross profit margin	*33.5%*	*18.8%*	*n/a*	*1.8%*	*17.4%*	*55.3%*
General and administrative	($36,642)	($42,383)	n/a	($21,814)	($22,418)	($36,379)
Loss on disposal of vessels and vessel equipment	($560)	($6,267)	n/a	($2,452)	($8,729)	($805)
EBITDA	**$92,656**	**$16,146**	**n/a**	**($17,876)**	**$37,147**	**$200,598**
EBITDA margin	*23.9%*	*4.7%*	*n/a*	*-5.0%*	*9.5%*	*46.7%*
Goodwill impairment	($28,036)	($1,818)	n/a	$0	($2,099)	$0
Goodwill write-off for sales of vessels	$0	$0	n/a	($1,068)	($1,249)	($520)
Loss on impairment of vessels	($99,678)	($12,995)	n/a	($2,048)	$0	$0
Depreciation and amortization	($98,387)	($92,036)	n/a	($45,903)	($46,118)	($47,572)
EBIT	**($133,445)**	**($90,703)**	**n/a**	**($66,895)**	**($12,319)**	**$152,506**
EBIT margin	*-34.5%*	*-26.3%*	*n/a*	*-18.8%*	*-3.1%*	*35.5%*
Interest income	$110	$82	n/a	$0	$0	$0
Interest expense	($82,338)	($104,126)	n/a	($34,643)	($29,849)	($15,982)
Other financing costs	$0	$0	n/a	$0	$0	($6,044)
Other income	($989)	$48,195	n/a	($30)	$469	($404)
Loss before reorganization items	**($216,662)**	**($146,552)**	**n/a**	**($101,568)**	**($41,699)**	**$130,076**
Closing of Portugal office	$0	$0	n/a	$0	($5,123)	($507)
Reorganization items, net	$0	($6,147)	n/a	$495	($262)	$0
Net loss	**($216,662)**	**($152,699)**	**n/a**	**($101,073)**	**($47,084)**	**$129,569**

Cash Flow Statement						
Payments for vessels	($546,579)	($74,510)	n/a	$0	($248,623)	($389,958)
Purchase of vessel improvements and other fixed assets	($5,704)	($5,861)	n/a	($3,244)	($5,470)	($5,513)

2) Frontline financial statements

in '000 $	2010	2011	2012	2013	2014	2015
Balance Sheet						
Cash and cash equivalents	$176,639	$160,566	$137,603	$53,759	$64,080	$264,524
Restricted cash and investments	$182,091	$100,566	$87,506	$68,363	$42,074	$368
Marketable securities	$51,481	$685	$1,235	$3,479	$2,624	$13,853
Trade accounts receivable, net	$56,316	$46,007	$23,702	$11,828	$18,943	$57,367
Related party receivable	$7,225	$15,805	$9,055	$9,487	$12,637	$10,234
Other receivables	$17,200	$14,398	$14,860	$16,180	$16,703	$29,121
Inventories	$60,115	$40,370	$57,505	$44,532	$28,920	$25,779
Voyages in progress	$27,087	$24,449	$54,097	$46,112	$40,373	$52,167
Prepaid expenses and accrued income	$8,073	$5,735	$4,311	$3,858	$3,861	$4,315
Current portion of investment in finance lease	$1,535	$1,824	$2,156	$2,555	$3,028	$9,329
Other current assets	$0	$0	$0	$0	$0	$408
Total current assets	$587,762	$410,405	$392,030	$260,153	$233,243	$467,465
Newbuildings	$224,319	$13,049	$26,913	$29,668	$15,469	$266,233
Vessels and equipment, net	$1,430,124	$312,292	$282,946	$264,804	$56,624	$1,189,198
Vessels and equipment under capital lease, net	$1,427,526	$1,022,172	$893,089	$704,808	$550,345	$694,226
Restricted cash	$62,000	$0	$0	$0	$0	$0
Investment in associated company	$3,408	$27,340	$40,633	$58,658	$60,000	$0
Deferred charges	$7,426	$1,780	$1,236	$695	$696	$3,186
Other long-term assets	$0	$0	$0	$0	$12	$417
Investment in finance lease	$55,355	$53,531	$51,374	$48,819	$45,790	$40,656
Goodwill	$0	$0	$0	$0	$0	$225,273
Total long-term assets	$3,210,158	$1,430,164	$1,296,191	$1,107,452	$728,936	$2,419,189
Total assets	$3,797,920	$1,840,569	$1,688,221	$1,367,605	$962,179	$2,886,654
Short-term debt and current portion of long-term debt	$173,595	$19,521	$20,700	$22,706	$165,357	$57,575
Current portion of obligations under capital leases	$193,379	$55,805	$52,070	$46,930	$78,989	$89,798
Related party payables	$33,278	$10,775	$53,948	$11,419	$55,713	$28,720
Trade accounts payable	$13,423	$5,707	$5,975	$13,302	$3,098	$9,500
Accrued expenses	$72,200	$50,376	$43,744	$33,401	$22,445	$29,689
Deferred charter revenue	$6,860	$5,630	$2,840	$98	$490	$0
Value of unfavorable time charter contracts	$0	$0	$0	$0	$0	$6,799
Derivative instruments payable	$0	$0	$0	$0	$0	$4,081
Other current liabilities	$10,842	$19,570	$7,344	$2,916	$2,496	$15,875
Total current liabilites	$503,577	$167,384	$186,621	$130,772	$328,588	$242,037
Long-term debt	$1,190,763	$493,992	$463,292	$436,372	$27,500	$748,881
Related party payables	$0	$0	$0	$72,598	$109,952	$0
Obligations under capital leases	$1,336,908	$957,431	$898,490	$742,418	$564,692	$446,553
Deferred gains on sales of vessels	$6,440	$6,184	$2,575	$1,288	$0	$0
Other long-term liabilites	$1,195	$2,099	$6,094	$2,208	$2,096	$2,840
Total long-term liabilites	$2,535,306	$1,459,706	$1,370,451	$1,254,884	$704,240	$1,198,274
Share capital	$194,646	$194,646	$194,646	$86,512	$112,343	$781,938
Additional paid-in capital	$224,245	$225,769	$821	$149,985	$244,018	$109,386
Contributed surplus	$248,360	$248,360	$474,129	$474,129	$474,129	$474,129
Accumulated other comprehensive income	($3,836)	($4,779)	($4,155)	($3,303)	($4,258)	($383)
Retained earnings	$83,718	($463,012)	($545,766)	($734,275)	($897,213)	$81,212
Non-controlling interest	$11,904	$12,495	$11,474	$8,901	$332	$61
Total equity attributable to the company	$759,037	$213,479	$131,149	($18,051)	($70,649)	$1,446,343
Total liabilities and equity	$3,797,920	$1,840,569	$1,688,221	$1,367,605	$962,179	$2,886,654

Income statement						
Time charter revenues	$365,159	$231,224	$66,313	$26,843	$15,601	$121,091
Voyage charter revenues	$708,008	$510,808	$452,890	$440,584	$497,023	$331,388
Bareboat charter revenues	$71,370	$47,101	$33,373	$24,009	$9,289	$0
Finance lease interest income	$0	$0	$0	$0	$0	$577
Other income	$20,678	$20,969	$25,785	$25,754	$37,775	$5,878
Revenue growth	*2.8%*	*-30.5%*	*-28.6%*	*-10.6%*	*8.2%*	*-18.0%*
Voyage expenses and commission	($282,708)	($295,787)	($269,845)	($299,741)	($286,367)	($109,706)
Ship operating expenses	($195,679)	($187,010)	($118,381)	($109,872)	($89,674)	($64,357)
Profit share expense	($30,566)	($482)	$0	$0	$0	$0
Contingent rental income	$0	$0	($22,456)	$7,761	($36,900)	$0
Charter hire expenses	($134,551)	($65,601)	($37,461)	($4,176)	$0	($43,387)
Gross profit	$521,711	$261,222	$130,218	$111,162	$146,747	$241,484
Gross profit margin	*44.8%*	*32.2%*	*22.5%*	*21.5%*	*26.2%*	*52.6%*
Gain on sale of assets and amortization of deferred gains	$30,935	($307,894)	$34,759	$23,558	$24,620	$0
Administrative expenses	($31,883)	($35,886)	($33,906)	($31,628)	($40,787)	($10,582)
EBITDA	$520,763	($82,558)	$131,071	$103,092	$130,580	$230,902
EBITDA margin	*44.7%*	*-10.2%*	*22.7%*	*19.9%*	*23.3%*	*50.3%*
Impairment gain on vessels	$0	($121,443)	($4,726)	($103,724)	($97,709)	$0
Depreciation	($212,851)	($195,597)	($107,437)	($99,802)	($81,471)	($52,607)
EBIT	$307,912	($399,598)	$18,908	($100,434)	($48,600)	$178,295
EBIT margin	*26.4%*	*-49.3%*	*3.3%*	*-19.4%*	*-8.7%*	*38.8%*
Interest income	$13,432	$3,958	$130	$83	$47	$47
Interest expense	($149,918)	($141,497)	($94,089)	($90,718)	($75,825)	($17,621)
Gain on cancellation and sale of newbuilding contracts	$0	$0	$0	$0	$0	$108,923
Share of results from associated company and gain on equity interest	($515)	($600)	($4)	$13,539	$3,866	$2,727
Impairment loss on shares	$0	$0	$0	$0	$0	($10,507)
Foreign currency exchange gain	$622	$106	$84	($92)	($179)	$134
Mark to market gain on derivatives	($19)	$390	($1,725)	($585)	$0	($6,782)
Gain on sale of securities	$0	($3,355)	$0	$0	$0	$0
Impairment of securities	($9,425)	$0	$0	$0	$0	$0
Gain on redemption of debt	$0	$0	$4,600	$0	$1,486	$0
Debt conversion expense	$0	$0	$0	($12,654)	($41,067)	$0
Loss from de-consolidation of subsidiaries	$0	$0	$0	$0	($12,415)	$0
Dividends received, net	($278)	$113	$134	$86	$296	$0
Other non-operating items, net	$2,411	$12,005	$1,110	$1,181	$1,190	$320
Net income before income taxes and non-controlling interest	$164,222	($528,478)	($70,852)	($189,594)	($171,201)	$255,536
Income tax expense	($218)	($532)	($379)	($284)	($459)	($150)
Net income from continuing operations	$164,004	($529,010)	($71,231)	($189,878)	($171,660)	$255,386
Net loss from discontinued operations	$0	$0	($12,544)	($1,204)	$0	($131,006)
Net income	$164,004	($529,010)	($83,775)	($191,082)	($171,660)	$124,380
Net loss attributable to non-controlling interest	($2,597)	($591)	$1,021	$2,573	$8,722	$30,244
Net income attrbutable to the company	$161,407	($529,601)	($82,754)	($188,509)	($162,938)	$154,624

Cash flow statement						
Additions to newbuildings, vessels and equipment	($548,946)	($82,378)	($14,503)	($2,504)	($44,990)	($786,772)

3) Nordic American Tankers financial statements

in '000 $	2010	2011	2012	2013	2014	2015
Balance Sheet						
Cash and cash equivalents	$17,221	$24,006	$55,511	$65,675	$100,736	$29,889
Marketable securities	$0	$583	$549	$0	$0	$0
Accounts receivable, net	$11,046	$17,586	$54	$18,801	$15,739	$28,001
Accounts receivable, related party	$0	$1,571	$12,862	$0	$673	$596
Prepaid expenses	$39,772	$31,768	$4,365	$5,436	$5,513	$4,372
Inventory	$3,604	$7,586	$4,048	$24,281	$22,223	$14,843
Voyages in progress	$0	$0	$0	$14,953	$29,586	$37,353
Other current assets	$0	$0	$1,184	$2,251	$2,029	$3,125
Total current assets	$71,643	$83,100	$78,573	$131,397	$176,499	$118,179
Vessels, net	$988,263	$1,022,793	$964,855	$911,429	$909,992	$962,685
Deposits paid for vessels	$0	$0	$0	$0	$0	$64,000
Investment in joint venture	$0	$61	$0	$0	$0	$0
Goodwill	$0	$0	$0	$18,979	$18,979	$18,979
Investment in Nordic American Offshore Ltd	$0	$0	$0	$64,128	$62,059	$64,877
Related party receivables	$0	$18,941	$36,987	$0	$0	$0
Other non-current assets	$23,177	$490	$5,209	$10,504	$8,331	$15,906
Total non-current assets	$1,011,440	$1,042,285	$1,007,051	$1,005,040	$999,361	$1,126,447
Total assets	$1,083,083	$1,125,385	$1,085,624	$1,136,437	$1,175,860	$1,244,626
Accounts payable	$2,035	$4,378	$3,095	$6,447	$6,664	$4,247
Accounts payable, related party	$899	$926	$1,536	$0	$0	$0
Accrued voyage expenses	$0	$0	$0	$6,249	$8,784	$7,035
Accrued liabilites	$4,060	$12,642	$10,343	$6,567	$8,587	$9,577
Total current liabilities	$6,994	$17,946	$14,974	$19,263	$24,035	$20,859
Long-term debt	$75,000	$230,000	$250,000	$250,000	$250,000	$330,000
Deferred tax liability	$0	$0	$0	$37	$0	$0
Deferred compensation liability	$8,134	$9,876	$11,267	$12,154	$12,914	$13,046
Total long-term liabilities	$83,134	$239,876	$261,267	$262,191	$262,914	$343,046
Common stock	$469	$473	$529	$754	$892	$892
Additional paid-in capital	$11,480	$12,867	$15,615	$208,240	$114,291	$114,679
Contributed surplus	$981,815	$926,733	$866,515	$751,567	$787,732	$766,122
Accumulated other comprehensive loss	$0	($212)	($84)	($160)	($838)	($972)
Accumulated deficit	($809)	($72,298)	($73,192)	($105,417)	($13,166)	$0
Total shareholders' equity	$992,955	$867,563	$809,383	$854,984	$888,911	$880,721
Total liabilites and shareholders' equity	$1,083,083	$1,125,385	$1,085,624	$1,136,438	$1,175,860	$1,244,626

Income statement						
Voyage revenues	$126,419	$94,787	$130,682	$243,657	$351,049	$445,738
Revenue growth	*1.6%*	*-25.0%*	*37.9%*	*86.5%*	*44.1%*	*27.0%*
Voyage expenses	$0	($14,921)	($38,670)	($173,410)	($199,430)	($158,656)
Vessel operating expenses	($47,113)	($54,859)	($63,965)	($64,924)	($62,500)	($66,589)
Gross profit	$79,306	$25,007	$28,047	$5,323	$89,119	$220,493
Gross profit margin	*62.7%*	*26.4%*	*21.5%*	*2.2%*	*25.4%*	*49.5%*
General and administrative expenses	($15,980)	($15,394)	($14,700)	($19,555)	($14,863)	($9,790)
Loss on contract	$0	($16,200)	$0	($5,000)	$0	$0
Fees for provided services	$0	$0	$0	$0	$1,500	$0
EBITDA	$63,326	($6,587)	$13,347	($19,232)	$75,756	$210,703
EBITDA margin	*50.1%*	*-6.9%*	*10.2%*	*-7.9%*	*21.6%*	*47.3%*
Impairment gain on vessels	$0	$0	($12,030)	$0	$0	$0
Depreciation expense	($62,545)	($64,626)	($69,219)	($74,375)	($80,531)	($82,610)
EBIT	$781	($71,213)	($67,902)	($93,607)	($4,775)	$128,093
EBIT margin	*0.6%*	*-75.1%*	*-52.0%*	*-38.4%*	*-1.4%*	*28.7%*
Interest income	$632	$1,187	$357	$146	$181	$114
Interest expenses	($1,971)	($2,130)	($5,854)	($11,518)	($12,244)	($10,855)
Gain on shares	$0	$0	$0	$0	$3,286	$0
Other financial expenses	($248)	($142)	$207	($391)	($1,126)	($167)
Net income before income taxes and equity income	($806)	($72,298)	($73,192)	($105,370)	($14,678)	$117,185
Income tax expense	$0	$0	$0	($86)	($47)	($96)
Equity income	$0	$0	$0	$40	$1,559	($2,462)
Net income	($806)	($72,298)	($73,192)	($105,416)	($13,166)	$114,627

Cash flow statement						
Investment in vessels	($194,426)	($91,536)	($2,745)	($6,983)	($73,772)	($123,373)
Investment in other fixed assets	$0	$0	$0	($1,864)	($281)	($103)

4) Teekay Tankers financial statements

in '000 $	2010	2011	2012	2013	2014	2015
Balance Sheet						
Cash and cash equivalents	$12,450	$15,859	$26,341	$25,646	$162,797	$96,417
Restricted cash	$0	$0	$0	$0	$0	$870
Pool receivables from affiliates, net	$8,606	$2,664	$9,101	$10,765	$35,254	$62,735
Accounts receivable	$175	$157	$4,523	$4,247	$4,178	$28,313
Vessels held for sale	$0	$0	$9,114	$0	$0	$0
Due from affiliates	$12,357	$12,610	$24,787	$27,991	$42,502	$67,159
Investment in term loans	$1,811	$1,754	$119,385	$136,061	$0	$0
Other current assets	$146	$308	$0	$0	$0	$0
Prepaid expenses	$2,492	$3,395	$9,714	$10,361	$8,883	$24,320
Total current assets	$38,037	$36,747	$202,965	$215,071	$253,614	$279,814
Vessels and equipment	$757,437	$716,567	$885,992	$859,308	$828,291	$1,767,925
Loan to joint venture	$9,830	$9,830	$9,830	$9,830	$0	$0
Investment in term loans	$116,014	$116,844	$0	$0	$0	$0
Investment in joint venture	$0	$0	$3,457	$8,366	$0	$0
Investment in and advances to equity accounted investments	$0	$0	$0	$0	$73,397	$86,808
Derivative asset	$0	$0	$0	$0	$4,657	$5,164
Intangible assets, net	$0	$0	$0	$0	$0	$29,619
Goodwill	$13,310	$0	$0	$0	$0	$0
Other non-current assets	$1,889	$1,938	$3,412	$4,954	$5,400	$146
Total non-current assets	$898,480	$845,179	$902,691	$882,458	$911,745	$1,889,662
Total assets	$936,517	$881,926	$1,105,656	$1,097,529	$1,165,359	$2,169,476
Accounts payable	$2,124	$1,935	$3,346	$2,251	$1,899	$16,717
Accrued liabilities	$7,949	$7,423	$17,882	$21,069	$17,565	$62,029
Current portion of long-term debt	$1,800	$1,800	$25,246	$25,246	$41,959	$174,047
Current portion of derivative liabilities	$4,509	$4,027	$7,200	$7,344	$7,263	$6,330
Current portion of in-process revenue contracts	$0	$0	$0	$0	$0	$1,223
Deferred revenue	$2,028	$1,777	$4,564	$2,961	$637	$2,676
Other current liabilities	$277	$115	$0	$0	$0	$0
Due to affiliates	$5,841	$4,999	$3,592	$11,323	$10,395	$26,630
Total current liabilities	$24,528	$22,076	$61,830	$70,194	$79,718	$289,652
Long-term debt	$452,228	$347,100	$710,455	$719,388	$614,104	$990,558
Derivative liabilities	$14,339	$20,151	$26,431	$17,924	$10,962	$4,208
Other long-term liabilities	$2,733	$3,228	$4,757	$5,351	$4,852	$7,597
Total long-term liabilities	$469,300	$370,479	$741,643	$742,663	$629,918	$1,002,363
Common stock and additional paid-in capital	$481,336	$588,441	$672,560	$673,217	$802,650	$1,094,874
Accumulated deficit	($38,647)	($99,070)	($370,377)	($388,545)	($346,927)	($217,413)
Total equity	$442,689	$489,371	$302,183	$284,672	$455,723	$877,461
Total liabilities and equity	$936,517	$881,926	$1,105,656	$1,097,529	$1,165,359	$2,169,476

Income statement						
Net pool revenues	$47,914	$30,894	$62,328	$69,675	$138,631	$370,583
Time charter revenues	$86,244	$78,780	$123,364	$88,320	$79,804	$75,375
Voyage charter revenues	$24	$0	$238	$4,415	$8,040	$41,283
Interest income from investment in term loans	$5,297	$11,323	$11,499	$7,677	$9,118	$0
Other revenues	$0	$0	$0	$0	$0	$26,952
Revenue growth	*-12.7%*	*-13.3%*	*63.2%*	*-13.8%*	*38.5%*	*118.3%*
Voyage expenses	($2,544)	($2,697)	($4,618)	($8,337)	($9,984)	($19,816)
Vessel operating expenses	($44,453)	($42,056)	($96,160)	($91,667)	($93,022)	($137,164)
Time-charter hire expense	$0	($4,046)	($3,950)	($6,174)	($22,160)	($74,898)
Gross profit	$92,482	$72,198	$92,701	$63,909	$110,427	$282,315
Gross profit margin	*66.3%*	*59.7%*	*47.0%*	*37.6%*	*46.9%*	*54.9%*
General and administrative expenses	($9,789)	($8,609)	($7,985)	($12,594)	($11,959)	($17,354)
Gain on sale of vessels	($1,864)	$0	$0	$0	$9,955	$771
Restructuring charge	$0	$0	$0	$0	$0	($4,772)
EBITDA	$80,829	$63,589	$84,716	$51,315	$108,423	$260,960
EBITDA margin	*58.0%*	*52.6%*	*42.9%*	*30.2%*	*46.0%*	*50.8%*
Vessel impairment	$0	$0	($352,546)	($71)	$0	$0
Goodwill impairment charge	$0	($13,310)	$0	$0	$0	$0
Depreciation and amortization	($45,455)	($43,185)	($72,365)	($47,833)	($50,152)	($73,760)
EBIT	$35,374	$7,094	($340,195)	$3,411	$58,271	$187,200
EBIT margin	*25.4%*	*5.9%*	*-172.3%*	*2.0%*	*24.7%*	*36.4%*
Interest expense	($7,513)	($4,185)	($20,009)	($10,023)	($8,741)	($17,389)
Interest income	$97	$57	$50	$158	$287	$107
Realized and unrealized loss on derivative instruments	($10,536)	($11,444)	($7,963)	($1,524)	($1,712)	($1,597)
Equity income	$0	$0	($1)	$854	$5,228	$14,411
Other income	($1,113)	($587)	($2,063)	($1,014)	$3,809	($3,097)
Net income	$16,309	($9,065)	($370,181)	($8,138)	$57,142	$179,635

Cash flow statement						
Expenditures for vessels and equipment	($6,253)	($2,315)	($2,518)	($1,904)	($2,063)	($236,229)