

Erasmus University Rotterdam

**MSc in Maritime Economics and Logistics**

*2015/2016*

Alternative Financing in Shipping

by

Pasachidis Antonios

## **Acknowledgment**

At first I would like to thank Mr. Arjen Van Klink, my supervisor, for his initial idea on the topic as well as his valuable comments and guidance through the whole process of this research. Through his insightful inputs at important points in time, mistakes were prevented. In addition, I would like to thank Mr. Jilles van der Niet for his insightful thoughts and support. Furthermore, I would like to thank all the participants in our survey providing their valuable time and expertise. Lastly, I would like to thank my friends and family that supported me throughout the difficult process of the research.

## Abstract

This paper aims to further research the new reality of shipping finance between the development of the alternative sources of capital in shipping and their relation to traditional bank loans. Shipping Finance is characterized by its cycle moving in the same direction with the shipping cycles. Currently that the outlook of shipping is negative due to low freight rates, banks are restricting their liquidity and not willing to provide finance to shipping companies in distress. This situation is even worse due to Basel III regulation as the market reports describe, causing many not-specialized banks to withdraw from shipping. The “gap” created in the shipping finance market is covered by alternative sources of capital which were existent but not actively involved. Through the development of a questionnaire we will try to investigate the perception of experts in the industry about the reasons that banks withdraw from shipping, the development of the alternative capital sources and their viability in the short and long-term. Furthermore, through our questionnaire we try to identify the new requirements that these new sources of capital set in shipping and if they will be implemented in order to support the long-run viability of alternative sources. Our sample consists of executive members of shipping companies, banks and other professionals in shipping finance (professors, investors and lawyers). Based on our results, 64% of our participants indicated that banks are currently exiting the market due to heavy losses combined partially with the new regulation as Basel III. Other factors as the negative shipping outlook and higher cost of capital can be also taken into consideration. Moreover, the most common alternative source mentioned (17% of the corresponding answers) is private equity coming from different sources as PE firms, funds and HNIs. Other forms of capital as leasing and insurance companies seem to be also important (13% of the choices). ECAs seem to play an important role but they are affected by the low newbuilding activity. The perspective of our participants in 69% of the cases, indicates that alternative sources of capital will be mainstream for the 25% of the transaction in shipping in the short-term (<5 years) while banks will limit their lending activity but will still provide financing. 77% of our sample signposts that banks will not heavily lend again in shipping in the short term but probably (54%) in the long-term (>5 years). Based on the sentiment of experts in ship finance, transparency, compliance, better corporate management, employment contracts for the asset, sustainability and excellent (sustainable/green) investment projects are the new characteristics that need to be implemented in shipping. Furthermore, 92% of our sample seems to believe that these changes will be implemented and 54% indicates that new intermediate positions will be created in order to provide advice to the new investors in the shipping industry. Lastly, the general perception- 62% of our participants- is that alternative financing has great potential and will be viable in the long-term in cooperation with banks, especially the shipping-specialized ones.

## Table of Contents

<b>Acknowledgment</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iii</b>
<b>List of Tables, Figures and Abbreviations</b> .....	<b>vii</b>
<i>List of Tables</i> .....	vii
<i>List of Abbreviations</i> .....	viii
<b>Chapter 1 Introduction</b> .....	<b>1</b>
1.1 <i>Background and Problem Statement</i> .....	1
1.2 <i>Scope and limitations</i> .....	3
1.3 <i>Research question and Objectives</i> .....	3
1.4 <i>Need and relevance of our research</i> .....	5
1.5 <i>Methodology and results</i> .....	5
1.6 <i>Structure of the thesis</i> .....	6
<b>Chapter 2: Theoretical Background</b> .....	<b>7</b>
2.1 <i>Shipping Cycles</i> .....	7
2.1.1 <i>Long-term and Seasonal Cycles</i> .....	7
2.1.2 <i>Short-term Shipping Cycles (4-7 years)</i> .....	8
2.2 <i>Traditional Shipping Finance by banks (Theoretical background)</i> .....	9
2.2.1 <i>Markowitz portfolio theory</i> .....	10
2.2.2 <i>Bank Lending and Portfolio Theory</i> .....	11
2.2.3 <i>Shipping Finance Principles</i> .....	11
2.2.3.1 <i>Financial Viability Criteria</i> .....	11
2.2.3.2 <i>Loan Consideration-Expected Return for the bank</i> .....	12
2.2.3.3 <i>Loan Calculation- Example</i> .....	14
2.2.3.4 <i>Risk Factors in shipping- Risk Management of the bank</i> .....	15
2.3 <i>Shipping Finance by Banks in Practice</i> .....	16
2.3.1 <i>Syndicated Loans and Asset Sales</i> .....	17
2.3.2 <i>European Banks as the main pillar of Ship Finance</i> .....	18
2.4 <i>Shipping cycle and shipping finance cycle</i> .....	19
2.4.1 <i>Credit Cycle</i> .....	19
2.4.2 <i>Shipping Finance Cycle</i> .....	20
2.4.2.1 <i>The impact of overinvestment to the shipping cycle</i> .....	21

2.5 <i>Financial Crisis 2007/2008 and regulation</i> .....	21
2.5.1 <i>Financial Crisis 2007/2008- Events</i> .....	22
2.5.2 <i>Basel III Regulation</i> .....	22
2.5.3 <i>Basel III impact on ship finance</i> .....	23
2.6 <i>Response of “shipping” banks to the crisis</i> .....	24
2.6.1 <i>Evidence that banks withdraw from Shipping</i> .....	25
2.6.2 <i>Changes on the landscape of bank-lending due to the crisis</i> .....	26
2.7 <i>Alternative sources of capital</i> .....	27
2.7.1 <i>Use of alternative capital sources for SMEs in Europe</i> .....	27
2.7.2 <i>Use of alternative capital source for Shipping Companies</i> .....	28
2.7.2.1 <i>Private equity and private placement from other institutions</i> .....	29
2.7.2.2 <i>Public Offerings, IPOs</i> .....	30
2.7.2.3 <i>Bonds</i> .....	31
2.7.2.4 <i>Export Credit Agencies and Chinese Credit</i> .....	33
2.7.2.5 <i>Other sources</i> .....	34
2.8 <i>Lessons to be learned</i> .....	34
<b>Chapter 3 Methodology</b> .....	<b>35</b>
3.1 <i>Survey as a method to conduct research</i> .....	35
3.2 <i>Hypotheses of the research</i> .....	36
3.3 <i>Questionnaire design and interviews</i> .....	37
3.3.1 <i>Interview Process</i> .....	37
3.3.2 <i>Questionnaire Design</i> .....	38
<b>Chapter 4 Analysis of the Results</b> .....	<b>40</b>
4.1 <i>Participants</i> .....	40
4.2 <i>Traditional bank loans and alternative sources of capital in shipping</i> .....	40
4.2.1 <i>Why do commercial banks exit the market?</i> .....	40
4.2.2 <i>Commercial Banks Entering the market again in the short (&lt;5 years) and long-term (&gt;5 years)</i> .....	41
4.2.3 <i>Perception of the current lending environment in shipping and its future</i> .....	43
4.3 <i>Type and size of alternative financing</i> .....	45
4.3.1 <i>Scenario Question</i> .....	45

4.3.1.1 Scenario 1: Financing a newbuilding with a high (>75%) LtV, backed by a long term (>7 years) contract above break-even with a strong counterparty and a strong corporate guarantee.....	45
4.3.1.2 Scenario 2: Financing a newbuilding with a regular (ca. 60%) LtV, on a single ship basis, with the vessel trading spot, just above break-even level, with a corporate guarantee that provides some comfort.....	46
4.3.1.3 Scenario 3: Financing a newbuilding that will be trading spot, with a high (>75%) LtV on a standalone basis, and cash flow below break-even in the first two years .....	47
4.3.1.4 Scenario 4: Financing a five-year-old second hand vessel with a regular (ca. 60% LtV), backed by a 3-year time-charter contract, above break-even level and a corporate guarantee that provides some comfort .....	48
4.3.1.5 Scenario 5: Financing a five-year-old second hand vessel trading spot on a standalone basis, with a regular (ca. 60% LtV) and cash flow just above break-even level .....	49
4.3.2 Existence and development of alternative sources in shipping .....	51
4.3.3 Shipping segments and regions of expected alternative capital inflows .....	53
4.3.4 Expected Growth in Alternative Financing in Shipping.....	54
4.4 New requirements imposed by alternative sources of capital in Shipping.....	56
4.4.1 Requirements imposed in shipping and their difference compared to banks	56
4.4.2 Implementation of the new requirements in shipping .....	57
4.4.3 Factors that prevent shipping from accessing alternative sources and appropriate measures .....	58
4.4.4 The need of new intermediates to manage the transactions.....	59
4.4.5 Availability and Viability of Alternative Funding in Shipping in the Long-term	60
4.5 Lessons to be learned.....	61
<b>Chapter 5 Conclusions and Recommendations.....</b>	<b>63</b>
5.1 Answer to our Research Questions.....	63
5.2 Recommendations.....	64
5.3 Limitations and Further Research .....	65
<b>Bibliography .....</b>	<b>66</b>
<b>Appendix.....</b>	<b>71</b>
First Part: Figures of Chapter 4 Analysis and results .....	71
Second Part: Questionnaire.....	76

## List of Tables, Figures and Abbreviations

### List of Tables

Table 1: Instalment (B)- interest vs duration of the loan .....	14
Table 2: Loan term objectives (borrower vs lender) .....	14
Table 3: Shipping Finance Risks .....	16
Table 4: Change in banks' requirements .....	26
Table 5: Hypothesis statements of the research .....	37
Table 6: Alternative Sources of Capital (sorted by frequency) .....	51
Table 7: Shipping Sectors with Development of Alternative Sources.....	53
Table 8: Regions in which Alternative sources will develop .....	54
Table 9: Hypothesis Statement test.....	61

### List of Figures

Figure 1: Shipping Cycle phases .....	8
Figure 2: Example of Efficient Frontier (Markowitz Model) .....	10
Figure 3: Traditional source for capital in shipping .....	17
Figure 4: Bank Lending to shipping, Ship finance based on interim data up to November 2014 – in \$bn .....	18
Figure 5: Ship Finance and ship cycles .....	20
Figure 6: Causes of the financial crisis of 2008.....	22
Figure 7: European banks- Comparison between 2010 and 2014 (in US\$bn).....	27
Figure 8: Alternative sources of capital in shipping.....	29
Figure 9: IPO size and frequency .....	31
Figure 10: Bonds size and frequency.....	33
Figure 11: Participants.....	40
Figure 12: Reasons that commercial banks withdraw from Shipping .....	41
Figure 13: Will banks invest in the same level as in 2008 in shipping? (Short-term Scenario).....	42
Figure 14: Will banks invest in the same level as in 2008 in shipping? (Long-term Scenario).....	43
Figure 15: Choice of Financing Sources and loan structure (Sc. 1).....	46
Figure 16: Choice of Financing Sources and loan structure (Sc. 2).....	47
Figure 17: Choice of Financing Sources and loan structure (Sc. 3).....	48
Figure 18: Choice of Financing Sources and loan structure (Sc. 4).....	49
Figure 19: Choice of Financing Sources and loan structure (Sc. 5).....	50
Figure 20: Most often choice of financing (all scenarios, excluding banks and ship-owner equity).....	53
Figure 21: Perception of expected growth of alternative sources of capital in Shipping .....	55
Figure 22: Alternative sources as mainstream choice in shipping.....	56
Figure 23: Implementation of the new requirements in shipping .....	58

Figure 24: The need of intermediates in shipping .....	60
Figure 25: Availability and viability of alternative financing in shipping (long-term) .....	61
Figure 26: Financing Choices and Loan Structure for each group (Sc. 1) .....	71
Figure 27: Financing Choices and Loan Structure for each group (Sc. 2) .....	72
Figure 28: Financing Choices and Loan Structure for each group (Sc. 3) .....	73
Figure 29: Financing Choices and Loan Structure for each group (Sc. 4) .....	74
Figure 30: Financing Choices and Loan Structure for each group (Sc. 5) .....	75

### ***List of Abbreviations***

ECA	Export credit Agencies
IPO	Initial Public Offering
SME	Small Medium Enterprise
OPEX	Operating Expenses
KG	Kommanditgesellschaften
LIBOR	London Interbank Offered Rate
LTV	Loan-to-Value Ratio
CDO	Collateralized Debt Obligations
FED	Federal Reserve System
EBA	European Bank Authority
ECB	European Central Bank
LCR	Liquidity Coverage Ratio
NSFR	Net Stable Funding Ratio
ASF	Available Stable funding
RSF	Required Stable Funding
PE	Private Equity
LGD	Loss Given Default Ratio
VMC	Value Maintenance Clause
FFA	Forward Freight Agreement
PE	Private Equity
HNI	High Net-worth Individuals



## Chapter 1 Introduction

### 1.1 Background and Problem Statement

Shipping industry is a main element of the international economy as almost the 90% of the global trade is carried out mainly by the liner companies (Drobetz, Gounopoulos, Merikas, & Schröder, 2013). According to ABN-AMRO, a leading bank involved in shipping finance, approximately the 80% of the external funding in order to cover the needs of the shipping industry was covered by debt finance. Thus, debt capital was traditionally the main source of funding for the ship owners.

The crucial compartment of shipping is vessel. As Zannetos (1966) stated "*the vessel is the firm*". A vessel can tie up a huge amount of capital, as for example container-ships and tankers can cost up to \$150 million while the most expensive vessel is the cruise ship "Harmony of Seas" costing up to \$1,225 million. Thus, decisions and strategies regarding to the financial aspect of a shipping company, are very important. Though, shipping companies have some specific characteristics which can distinguish them from other companies when it comes to asset financing, as for example real-estate companies. Modern banking system requires predictable cash flows, specific management and organizational structure (Stopford, 2009). But many of the shipping companies do not meet these requirements as most of these companies are family-owned business which make organizational structure and transparency, difficult to point out. In addition, the freight rates and assets prices are greatly affected by the cyclicity in shipping, in other words we notice great volatility. As a result, vessels are not only considered as a transportation mean but also for speculation. Although, this intrigue can be very interesting for ship-owners that are used to great volatility and risk, it is a big problem for the lenders and the investors involved in the industry. This is the main reason of ship finance being considered as "specialist's" business and classified as "exotic" finance from Moody's rating agency (Stopford, 2009).

As we already mentioned, ship finance decisions are very important as shipping is considered as a capital intensive market with high risk. Therefore, shipping companies in one hand try to wide their ship finance decisions in order to enlarge their fleet and become more competitive, while on the other hand financial institutions try to understand the market and become more careful in their investment decisions (Yang & Chen). Moreover, the environment of ship finance is very complicated because besides of the characteristics of the company that needs capital, there are many factors such as legislation, politics, global economic indicators, financial markets that can affect the size and type of the financing decisions.

As shipping industry evolved through the years, so did shipping finance. Many different techniques can be accounted back from 1850's till nowadays in response to the evolvement of shipping. Because the analysis of all the shipping tools through almost two centuries of existence is not relevant with our research, we are mainly going to focus on the methods that are used in modern ages. As Stopford (2009) describes in his book,

there are many ways of ship finance which indicate the terms of pay back and other conditions as well as the cost of capital. Throughout the years, the most common ways of financing a vessel can be summarized into two options: (1) Debt Capital and (2) Private Equity. Through next chapters, these two concepts will be thoroughly explained. In the private boom during 2003 to 2008, due to high returns that the shipping industry experienced many other forms of private equity arose such as investment funds with capitals from private deposits pension funds and others. Though, they never had real growth due to the banking system which was financing a range from 75% to 85% of a fleet expansion activity and thus only a 15% to 25% was left for equity which was mainly covered by private or family friends funding (ABN AMRO, 2011). Despite the numerous techniques and sources that emerged in shipping finance, the major element is considered still the debt capital provided by banks, as they provide ship-owners with flexible capital while they leave them with full ownership of their vessel (Harwood, Shipping Finance, 3rd Edition, 2006)

Although debt capital, mainly provided by commercial banks, was in abundance during 2003 to 2008, due to the financial crisis of 2007-2008 the background changed completely. Following the events of the crisis, maritime industry suffered a great recession. While the global economy started to recover again through the following years, shipping is still considered to be in a challenged situation. There are two main elements that contribute to this situation, distinguished as overinvestment in vessels and overvaluation of vessels' prices which is directly connected with overleverage (Drobetz & Merikas, 2013). In our research we are mainly focused on the problems created due to the latter. The problem of overleverage becomes even more complicated as banks drastically reduced the amount of debt financing for the maritime industry. Loans to finance vessels have become less available and more expensive for ship-owners and less profitable for banks due to their curtailed refinancing opportunities and increased regulatory standards, as for instance Basel III agreement (Drobetz & Merikas, 2013). This creates a critical situation in which banks on one hand confine liquidity and on the other hand shipping companies require more capital due to aging fleets, low freight rates, high regulation standards and huge operational expenses.

A great example can be provided through KPMG's report (2015) in shipping, in which is stated that *"By 2012, the industry's debt amounted to US\$500 billion, 80 percent of which was financed by European banks.<sup>1</sup> However, the financial crisis of 2008 battered the banking sector and consequently curtailed its lending capacity. Since then, banks have gradually pulled out of the shipping industry [...] As a result, by 2014, the share of bank lending to the shipping industry reduced to 63 percent from 84 percent in 2008."* (Heckert, 2015).

Based on the situation described above, we can conclude that there is a lack of capital created for the shipping industry in the near future. This gap can be filled by alternative options of capitals that arise, like private equity funds, leasing companies, insurance companies, pension funds, ECAs, IPOs and other possibilities. The new ways of capital

in shipping can change the financial spectrum in the industry, creating a new balance between bank loans and other instruments as well as setting new requirements on ship financing structures. Consequently, many questions arise as alternative sources of capital still remain “unchartered waters”. Accordingly, the motivation of this research is to provide more information for this new market by addressing some interesting questions such as how is alternative financing evolving in shipping, if it will be viable in the long term and what changes will it bring in the industry.

### ***1.2 Scope and limitations***

Based on problem statement and background information presented in the previous sub-chapter, through this research we will attempt to address the reasons of banks’ withdrawal from maritime industry and the type and size of new alternative sources of capital that arise. Moreover, we will try to elaborate on the changes that may be imposed in shipping, in order to become attractive for other options of capital. In this point, we need to clarify that we will not discuss which of the alternative sources is optimal for each specific sector of shipping applied (tanker, dry bulk, container, offshore and passenger) or if only a specific alternative source of capital should be applied. This can be considered as a further research topic. Lastly, our research is focused only on the European region.

In addition, the approach of this study is qualitative and we will try to dive further into the topic through interviews of the involved parties in ship finance. Hence, one of our limitations, is the number of companies participating in our research. Another limitation, closely connected with the interview process, is the time that was available in order to create, distribute and collect the questionnaire.

### ***1.3 Research question and Objectives***

As we mentioned before, the withdrawal of commercial banks from ship finance, created a huge gap in the shipping industry, especially at a time that shipping companies need financing more than ever. Due to this circumstance, several questions arise. Will banks invest in shipping again? What are the alternative sources of capital that are involved in shipping? What are the characteristics of these sources? Is it needed for the shipping industry to change? Will alternative sources of capital be dominant in the shipping industry? Will they be viable in the long term? All these questions will be addressed through extensive review of market reports and interviews of the involved entities in the ship finance industry.

The main objective of this research is to identify the reasons of capital shortage in shipping finance, to analyze the possible type and size of alternative sources of capital in shipping and also the changes that shipping industry needs to comply with, in order to be attractive for these alternative sources. In addition, our current research will try to conclude about the development of the alternative ship finance and if it will be viable in the long term for the industry. In order to delve into alternative finance sources in shipping, we will try to address our main research and sub-research questions presented below:

### Main Research Question

**How is alternative financing developing in shipping and with the limitation of bank funds, will sufficient alternative sources become available for long term finance in the shipping industry?**

### Sub-research questions

- 1) Why do banks nowadays withdraw from ship finance?**
- 2) What is the present volume of alternative financing and what types are dominant?**
- 3) What can be expected between those new sources and traditional bank loans in the near future?**
- 4) What should change in the shipping industry in order to be or remain attractive for funding in general and for alternative funding in particular?**

In the first sub-research question, our main objective is to identify the reasons big commercial banks to exit the market. Through market reports and a case study we will present and analyze how Basel III requirements and the financial crisis in 2007/2008 affected the operations of the banking sector in regard to shipping industry.

In the second sub-research question, our main objective is to identify, based on our hypotheses which will be further developed in the methodology chapter, the potential size and also types of alternative sources of capital that are dominant in the shipping industry. This will be mainly researched through the interviews of the professionals involved in ship finance.

In the third sub-research question, our main objective is to identify and analyze the current lending environment, discuss about the relationship between traditional debt capital (bank loans) and alternative sources of equity or debt. Based on the responses of the interviewed parties, we will try to comment on the relationship and the development of alternative financing compared to traditional financing through bank loans.

In the fourth sub-research question, our main objective is to identify and elaborate on the changes that need to occur in shipping companies in order to become attention-grabbing opportunities for alternative sources of capital. Moreover, in this part we will try to identify if the interviewed parties believe that these changes are happening or if they will occur in the future.

By researching all our sub-research questions and their related hypotheses, we will be able to understand the future of alternative financing in shipping and also whether it will be a viable option for the shipping industry in the long term. Lastly, our research aims to provide further information about the traditional finance through bank loans in shipping and also for the alternative capital sources, which will be available to be accessed by all entities related to ship finance industry.

#### ***1.4 Need and relevance of our research***

The primary tool used in our research, is a survey of European banks, ship-owners and professionals involved in the shipping industry. It is intended that this research will provide useful information for the parties participated in our survey and also for potential students affiliated with ship finance or economics. Moreover, this dissertation will contribute to the limited literature review on ship finance and its relation with alternative options of capital. In order to study this relationship, we will also look at the rise of alternative sources due to bank constraints on capital.

An interesting paper that we found is from Casey and O'Toole (2014), in which the authors explore the relation between alternative finance and bank constraints, based on data derived from financing decisions of the European SMEs. Moreover, they explain that firms with limited access to debt capital (bank loan) have a greater tendency towards alternative sources of capital as for instance informals, bonds and trade credit. Despite the fact that shipping companies have currently limited access to bank loans and they can also fit in the definition of SMEs by the European Union (European Commission, 2016), they still have some special characteristics that distinguish them from the other companies with regard to their relationship with banks. Therefore, this research will contribute even further to the dialogue on the financial decision of the companies between traditional and alternative sources of capital, as shipping companies differ from a regular SME.

Furthermore, Zeng (2009) explored in his paper the changes in lending environment of ship finance banks but without including the alternative sources of capital that are available. Therefore, through this study we will provide even further insight about lending attitude of banks involved in ship finance in relation to alternative funding and in addition how the financial decisions of shipping companies are affected.

Lastly, our research provides an insight on the relationship between alternative sources of capital and traditional lending in shipping and on the viability of the alternative sources which will create knowledge that will help ship-owners to adjust to new reality by developing new strategies.

#### ***1.5 Methodology and results***

As mentioned in the previous sub-chapter, our main tool for this research is the design and implementation of a survey. The method was also revised from the paper of Zeng (2009) in which he also uses a combined approach of survey and analysis. In addition, as Graham and Harvey (2001) stated in their paper, surveys can be used in order to cover any gap created between theory and practice. Consequently, through this research we will try to scrutinize through surveys the changes and how do they apply in alternative financing in shipping in practice, through banks, ship-owners and other professionals involved in the industry.

Likewise, based on Baker, Sigleton and Veit (2011), through surveys we will be able to notice, record and translate into practice, behaviors beliefs and attitudes of the participating entities which cannot be gathered through quantitative analysis. As a consequence, surveys will provide us with all the necessary means in order to gather information, through the reaction and the attitude of the experts in the industry towards non-traditional financing and its viability.

In the methodology chapter we will further analyze our hypotheses and how the questionnaire was designed step by step. Correspondingly, the results of the survey are qualitative obtained through open and closed type of questions. Based on the closed type questions we will try to infer some statistical data based on the number of our total participants.

### ***1.6 Structure of the thesis***

As we briefly presented the main elements of our research, in the next chapter (Chapter 2) we will focus on the shipping cycles and how are they connected with shipping finance. Moreover, in the same chapter, we will briefly describe the financial crisis of 2008, its implications to the banks and the alternative sources of capital that are existent in the current ship finance market. A case study of a bank loan to a shipping company will be provided, indicating the main reasoning behind the decision of non-specialized banks, to exit the market. Throughout chapter 2, our first sub-research question will be answered.

In Chapter 3, we will present our methodology. We will elaborate on our choice of survey method and in addition we will provide the main hypotheses that we will test, how are they connected to our research questions and lastly, how was the questionnaire formulated based on our hypotheses.

In Chapter 4, we will discuss our findings from the survey that was conducted. We will analyze the type and size of alternative sources of capital in shipping (address sub-research question 2), what we expect in the future compared to bank loans (address sub-research question 3), the changes that need to take place in shipping companies in order to attract more capital (address sub-research question 4) and, lastly, infer to our results about the availability of alternative sources of capital for the shipping industry in the long term (address main research question).

Chapter 5 will be dedicated to the conclusions and suggestions of our main findings as well as a revision of our added value, our limitations and also topics that arise for further research.

## **Chapter 2: Theoretical Background**

Before we start the review of the background of ship finance, this paragraph aims to clarify the structure of Chapter 2. In this chapter, we will describe the theoretical part of Shipping Finance and we will connect it with practice. Therefore, we will start by presenting the short-term cycles, the basic principles of loan, the implications of the new regulations in shipping banks, how the banks react to the crisis and describe the most common alternative sources we can distinguish in the literature. Lastly we will conclude the chapter by describing what is to be learned from the theoretical background of Shipping Finance.

### ***2.1 Shipping Cycles***

#### ***2.1.1 Long-term and Seasonal Cycles***

Cycles can be distinguished in all industries and therefore, in shipping itself. Despite being existent for many years, shipping cycles are not estimated or interpreted correctly by the involved entities in the market. In consequence, it is of crucial value to be able to understand and interpret them correctly as it is considered as the most important element of success in maritime activities. As Stopford (2009) presents, there are three different components of economic cycles: (1) Long-term cycles (2) Short-term cycles and (3) Seasonal Cycles.

The long-cycle theory was mainly developed by the Russian economist, Nikolai Kondratieff (Stopford, 2009). According to him, these cycles are considered as the major cycles and have a duration of approximately 40-60 years while they measure any possible fluctuations in large scales. This statement indicates that it is more difficult to detect this type of cycles. Another factor, crucial for this cycles, is that they are driven by technical, economic and regional changes (Stopford, 2009). With the Russian economist disagreed the economist Schumpeter (1939) which only supported that the long term shipping cycles are affected only by the developments in technology. In addition, Stopford (2009) supports that Kondratieff cycles do not fit the with the long term freight cycles in shipping. Moreover, there are also medium to long term cycles as Hampton (1986) described, which have a duration of 20-24 years. These cycles have two major phases, build up and correction which are providing the insight of how supply meets demand in shipping by the entry or exit of shipping companies (Hampton, 1986).

Another component is the seasonal cycles. They occur quite often in shipping indicating fluctuations in freight rates within a year due to response to seasonal patterns of demand for sea transport (Stopford, 2009). An example of this can be considered the agricultural trades which create a fluctuation on the cash-flows of vessels that are dedicated in carrying grain, caused by the harvesting time. High movement of grain cargo during September and October can be noticed due to more production/harvest in North America while during summer this surge in shipping grain is reduced considerably.

## 2.1.2 Short-term Shipping Cycles (4-7 years)

The most important component in our research is short-term cycles. Although short-term cycles in business language are related with duration of less than one year, in shipping they correspond to longer periods up to the range of 4-7 years (Stopford, 2009). It can be considered as a regular business cycle and provides important insight for the dynamics that influence the movement of the market. The first to notice the different stages of short term cycle was Lord Overstone (19<sup>th</sup> century) who observed that “the state of trade revolves apparently in an established cycle of quiescence, improvement, prosperity, excitement, overtrading, convulsion, pressure, stagnation and distress” (Schmpeter, 1954). According to Stopford (2009), we can distinguish these phases in a modern shipping cycle as: (1) market trough (2) market recovery (3) market peak and lastly (4) market collapse. All the four phases can be distinguished in Figure 1.

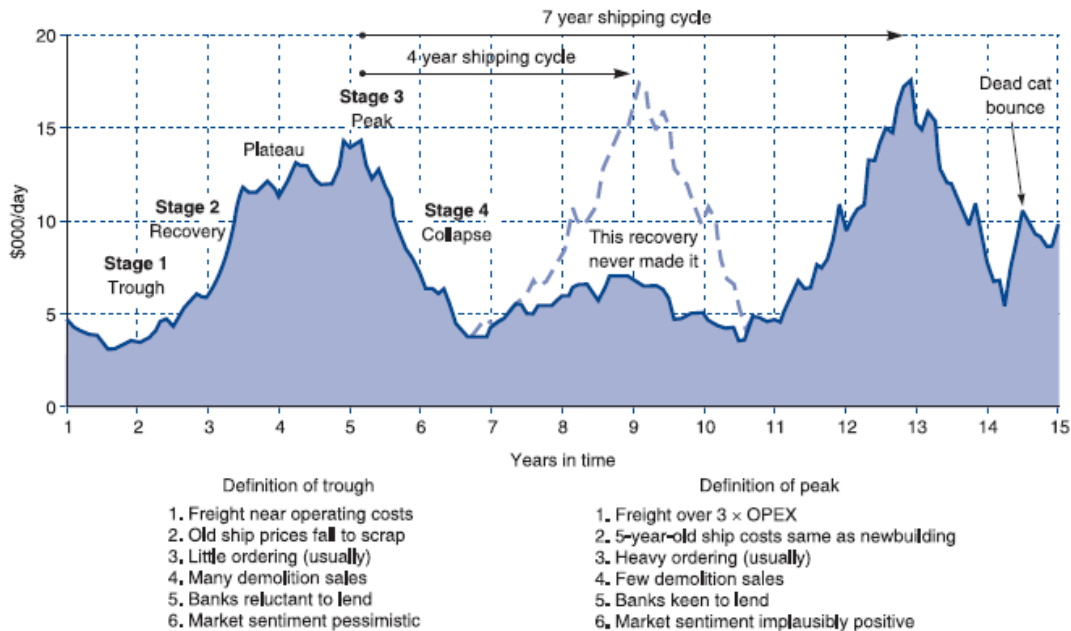


Figure 1: Shipping Cycle phases

Source: (Stopford, 2009)

In this and the three following paragraphs, based on Stopford (2009) and Grammenos (2010), we will briefly describe each of the phases mentioned above. To begin with, the **Trough stage** has three main characteristics. Firstly, there is over-capacity in the market. This leads to a decrease in the freight rates of the spot market which also, based on the sentiment of the professionals in the industry, decreases the time charter rates. Secondly, freight rates decrease as low as the operating costs of the vessels or even lower and many of them are faced with the option of laying-up. Thirdly, low freight rates also impact on the lending capacity of the banks. With negative cash-flows from shipping companies, banks put more financial pressure and have stricter credit procedures which eventually leads to stagnation in the market. Due to unavailability of capital, companies are forced to sell their vessels at distressed prices, well below their book value, in order to be able to raise cash. In addition, the value of secondhand vessels is limiting up to the scrap



value which activates the demolition market, in order for the supply of tonnage to decrease.

Second stage includes the phase of **Recovery**. As scrapping activity is leading to a balance between supply and demand, freight rates are slowly moving upwards again, above OPEX which decreases the number of laid-up vessels. As freight rates improve, so does the sentiment in the market which as a consequence, leads to an increase in time charter rates, although sometimes confidence can be concealed by pessimism and doubt about the real market conditions. Though gradually, as freight rates and liquidity in the industry improve, the asset value is increasing again leading to a prosperous environment for the shipping companies. When the recovery is completed the market enters in the following (third) phase.

The third stage includes the phase of **Peak/Plateau**. In this stage demand is rising above supply. Fleets are now operating at full speed. Freight rates in the spot market rise at high levels, multiple times higher than the OPEX, which also increases the time charter rates. This leads to very high prices for second hand vessels, which can be greater than the price of a new-built. Sentiment in the market is overwhelmed by optimism as high cash-flows and earnings generate excitement. Banks and other financial institutions are keen to provide high level of leverage against strong asset values due to the high returns that the industry is experiencing. Moreover, during this phase we notice a trend for public listing for shipping companies as investors are excited and have a great appetite. The main stock markets for new listings are traditionally located in New York and Oslo (Clarksons, 2016). All these facts, lead to a huge increase in the order-book for the shipping industry. The phase of the peak can last from a few weeks to several years.

The fourth stage includes the phase of **Collapse**. As explained before, order-book is in its highest level. On average, depending on the type of vessel, a new-built needs 3 to 5 years to be delivered from the yard. During this period, the demand in the market is experiencing stagnation or declines. After the delivery of new vessels, oversupply is created again in the market. This leads to a rapid decrease in the spot market which also decreases the time charter rates. This stage can also be affected by other, exogenous to shipping factors, as for example the economic crisis of 2007/2008 which had a heavy impact on the dry bulk market. Therefore, a steep decline in demand can be the outcome of natural tail off or a by-product of other external economic factors. The market, during this face, is experiencing high liquidity but decreasing asset values while ship-owners remain reluctant to sell due to recent high prices. The sentiment is confusing moving toward pessimism although people tend to ignore that peak is over.

## ***2.2 Traditional Shipping Finance by banks (Theoretical background)***

One of the most important theories connected with the lending activity of the banks is portfolio theory. Banks through strategic diversification try to mitigate concentrations of Credit Risk. Portfolio management theory focus on implementing strategies in order to successfully balance the creation of valuable loan assets and avoiding excessive risk concentration. Therefore, optimizing a portfolio is a major area in finance.

### 2.2.1 Markowitz portfolio theory

Harry Markowitz (1927) suggested one way to optimize portfolio. Before we proceed analyzing the Markowitz model and how it applies to banks, we first need to introduce the basic concept laying behind the model. An investment instrument that is eligible for buying and selling is called an asset (Luenberger, 1998). If we suppose that we purchase an asset at time zero and we sell it at time T, then the expected rate of return (r) and the total return (R), are defined as (Amu & Millegard, 2009):

$$r = \frac{X_T - X_0}{X_0}, \quad R = \frac{X_T}{X_0}$$

Where  $X_T$  is the amount of money received when the asset is sold and  $X_0$  is the amount of money invested at time 0. In addition, we can conclude that  $R=1+r$ .

As Amu and Millegard (2009) stated, if we suppose that we have n different assets, each one with a return R, then if we spread our money in these assets we create a portfolio. Moreover, each asset is specifically weighted based on the money invested for its acquisition.

An important factor, though, related with the return r is the uncertainty. Therefore, uncertainty statistically is noticed through the variance. The risk of the investment can be noticed by the standard deviation of the return.

We do not present all the calculations in order to obtain the outcome of the formulas, as it is out of the scope of this research. The main source of the analysis of the computations is the paper of Amu and Millegard (2009).

In order to use the Markowitz, model we need to either minimize risk (std. deviation of “r”) or maximize the expected return of our investment (E(R)), depending on the risk appetite. By doing so we create the so called “efficient portfolio” that offers the highest expected return for a given risk or the lowest level of risk given an expected return (Markowitz, 1927). Therefore, the line connecting all the efficient portfolios is the efficient frontier presented in Figure 2. The red dots represent possible portfolios and the blue line is the efficient frontier on which the investment institutions like banks, want to be positioned.

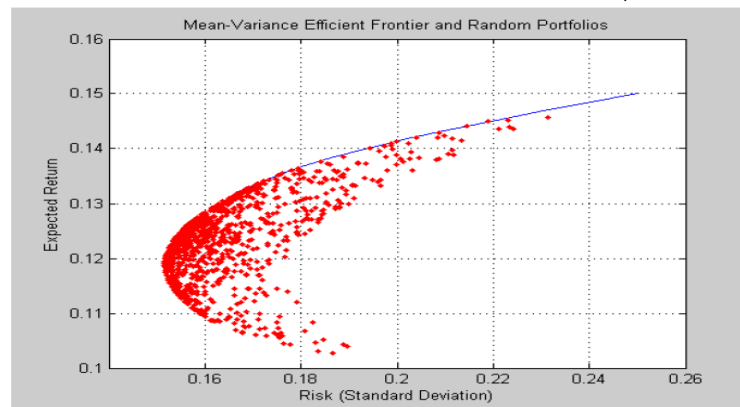


Figure 2: Example of Efficient Frontier (Markowitz Model)  
Source: (Amu & Millegard, 2009)

Amu and Millegard (2009) state that this model is just a tool and the most important parts of the portfolio theory are the assets and the risk factor that an investor chooses. There is no guarantee about profit in the model so the investor should be aware of the asset he will invest and carefully choose the risk factors as the correlation between the asset and the risks are not mandatorily obvious.

### **2.2.2 Bank Lending and Portfolio Theory**

The financial portfolio theory analyzed in the previous chapter provides a practical insight on the strategies that a bank follows in order to structure a loan portfolio. Based on Paul Bennett (1999), a bank has three goals:

- 1) Earn strong profits: Banks profitability derives from its ability to add economic value for its customers. Although this comes as a natural outcome, profits are sine qua non when related to risk management.
- 2) Avoid large losses: The economic and the market value of the bank is at risk if poor lending threatens the organization with bankruptcy. Careful management of loan underwriting and risk diversification can mitigate the risk of failure for the bank.
- 3) Maintain high shareholder value: In this case portfolio theory provides an interesting contribution. As Bennett (1999) stated: "The theory emphasizes that the market value of an asset cannot be determined in isolation based on its risk and return features. Rather, the real issue faced by bank owners is how their shares in the bank will affect risk and return in their own portfolios."

As we can conclude, it is really important for banks to understand how the portfolio theory in the third goal affects the other two goals, meaning the tradeoff between profitability through specialization and the need to spread risk through diversification (Bennett, 1999). This requires expertise and understanding of the risk factors.

### **2.2.3 Shipping Finance Principles**

#### **2.2.3.1 Financial Viability Criteria**

For every investment and therefore for a loan directed for an asset acquisition in the shipping industry we can use the financial criteria related to the outcome of the project. These are the: (1) *Net Present Value* (NPV) (2) *Internal Rate of Return* (IRR) and (3) *Required Freight Rate* (RFR). The first two are directly interrelated, while the NPV and the RFR are conceptually intertwined (Schinas & Kewitsch, 2015).

"Net present value is the present value of the cash flows at the required rate of return of your project compared to your initial investment." (Gallo, 2014) In practical terms, it is a method for calculating the return on an investment based on the discounted net cash flows deriving from the investment

If the outcome of NPV is positive then investors can consider the project to be lucrative while on the other hand, if the NPV is negative then they should reject it. On the basis of formula 2.3, if  $NPV=0$  then we can calculate the internal rate of return (IRR). However,

IRR cannot be calculated analytically and hence trial-and-error method or software is used in order to obtain the desired result.

The Required Freight Rate (RFR) criterion, is a variation of the NPV formula and is specifically related with only one ship (asset). It calculates the optimal freight rate (income of the vessel) that equals NPV to zero. Thereby, it indicates the point of indifference for the investor related to the amount of the freight rate (Schinas & Kewitsch, 2015).

Based on these financial criteria we can decide the viability of the project and evaluate the danger. Important is to mention that these indicators abovementioned, can be affected by the loan agreement with the bank as they include the capital expenses.

Although banks are interested in the financial viability criteria, they also tend to focus on the cash-flow projections. The NPV criteria can be considered more useful for the ship-owner or individual investors in shipping. Banks are more often focused on the nominal value of the loan and the ability of the shipping company to repay its financial obligations every year. Consequently, there is the cash-flow relevance for the banks which is divided into three different scenarios:

- Best Case (BC): Revenue growth and operating margins at the highest possible level.
- Base Case (BC): Expected revenues and operating margins.
- Worst Case (WC): Revenue growth and operating margins at the lowest possible level.

Based on every case, the bank tries to project the viability of a shipping loan compared to the attached risks of the asset. The cash-flow statement is the part that mainly there are conflicts created between the lender and the ship-owner, as the latter tends to overestimate its cash-flows.

### **2.2.3.2 Loan Consideration-Expected Return for the bank**

As we analyzed the main principles behind the portfolio theory (efficient frontier), its relation to the bank lending activity and the financial viability criteria we will continue by analyzing specifically the shipping loan portfolio of a bank. Based on Markowitz model, the first step is to provide further insight about the loan management in order to decide the expected return from a shipping loan and the second step is to analyze the management of the risk factors related to the shipping loans. In order to achieve that we will focus hypothetically on one loan.

Shipping projects are based on ideas, financial facts and data and mainly on expectations. The attractiveness of a project depends highly on the expected returns, the risks related to it and the rationality of the assumptions that are made during the design phase of the project (Schinas & Kewitsch, 2015). In this chapter we will focus mainly on the expected return and the calculations related to a loan agreement while in the next sub-chapter we will analyze the risk factors related to the loan.

All loan agreements are related with a specific schedule that determines the payments to the bank. The terms that are agreed upon the loan determine the necessary parameters which are:

1. Principal (loan) Amount: A (mainly in USD values)
2. Interest rate: r (percentage based on LIBOR/EURIBOR)
3. Tenor: N (years, duration of the loan)
4. Capital and interest payments to the bank

Based on Schinas and Kewitsch (2015), from the finance perspective the interest lies on the estimation of the fourth element, capital and interest payments. There are various ways of repaying the principal amount and the interest rate as for instance equal instalments method (increasing capital repayments and decreasing interest), straight line method (steady capital repayments and decreasing interest), bullet method (only interest payments and at the end repayment of the total capital). As all the different aspects are agreed and loan contract is formulated, given the A, r and N parameters it is possible to calculate the expected returns. In the next case it is assumed that the capital is repaid in equal annual installments. Therefore, based on Schinas and Kewitsch (2015):

We assume that  $A_t$  is the amount of outstanding loan at period t and for the first and the last periods of the loan we know that  $A_0=A$  and  $A_N=0$  respectively. If B implies the requested installment for every period (year)  $t=0,1,2,\dots,N$ , then:

$$B = (A_t - A_{t+1}) + A_t * r \quad (2.3)$$

This indicates that the yearly payment, in this case, is the difference of the principal amount between two consecutive years increased by the total interest payment. Equation 2.3 can be re-written as:  $A_{t+1} = (r + 1) * A_t - B$ . So:

$$A_1 = (r + 1) * A - B$$

$$A_2 = (r + 1) * A_1 - B = (r + 1)^2 * A - (r + 1) * B - B$$

$$A_3 = (r + 1)A_2 - B = (r + 1)^3 * A - (r + 1)^2 * B - (r + 1) * B - B$$

Hence if we continue till year i and year N (end of the tenor period), we have:

$$A_i = (r + 1) * A_{i-1} - B = (r + 1)^i * A - \sum_{k=0}^{i-1} (r + 1)^k * B$$

$$\text{Consequently: } A_N = (r + 1)^N * A - \sum_{k=0}^{N-1} (r + 1)^k * B \quad (2.4)$$

But we know that in period N,  $A_N=0$ . Then, equation 2.4 can be re-written as:

$$A_N = (r + 1)^N * A - \sum_{k=0}^{N-1} (r + 1)^k * B = 0 \Leftrightarrow B = \frac{(r+1)^N * A}{\sum_{k=0}^{N-1} (r+1)^k} \Leftrightarrow B = \frac{A * r}{1 - \left(\frac{1}{1+r}\right)^N} \quad (2.5)$$

Excel spreadsheets can easily handle the calculations of a loan by building models that can provide the outcome on different prices of each variable. From equation 2.5 we can

conclude that the higher the interest rate ( $r$ ), the higher the total payment ( $B$ ) and the longer the tenor period ( $N$ ), the closer the payment is to the interest payment ( $A_r$ ).

### 2.2.3.3 Loan Calculation- Example

If we assume that  $A=US\$ 25m$ ,  $r=7\%$  and  $N= 8$  years then based on equation 2.5 the installment  $B=US\$ 4,186,694$ . Below, in Tables 1 and 2 we present the sensitivity of the installment  $B$ , if we change the interest rate ( $r$ ) and the duration ( $N$ ).

Table 1: Instalment (B)- interest vs duration of the loan

N(years) /r (%)	4%	5%	6%	7%	8%	9%	10%
4	\$ 6,887,251	\$ 7,050,296	\$ 7,214,787	\$ 7,380,703	\$ 7,548,020	\$ 7,716,717	\$ 7,886,770
5	\$ 5,615,678	\$ 5,774,370	\$ 5,934,910	\$ 6,097,267	\$ 6,261,411	\$ 6,427,311	\$ 6,594,937
6	\$ 4,769,048	\$ 4,925,437	\$ 5,084,066	\$ 5,244,895	\$ 5,407,885	\$ 5,572,995	\$ 5,740,185
7	\$ 4,165,240	\$ 4,320,495	\$ 4,478,375	\$ 4,638,830	\$ 4,801,810	\$ 4,967,263	\$ 5,135,137
8	\$ 3,713,196	\$ 3,868,045	\$ 4,025,899	\$ <b>4,186,694</b>	\$ 4,350,369	\$ 4,516,859	\$ 4,686,100
9	\$ 3,362,325	\$ 3,517,252	\$ 3,675,556	\$ 3,837,162	\$ 4,001,993	\$ 4,169,970	\$ 4,341,013
10	\$ 3,082,274	\$ 3,237,614	\$ 3,396,699	\$ 3,559,438	\$ 3,725,737	\$ 3,895,502	\$ 4,068,635

Source: Author via (Schinas & Kewitsch, 2015)

Borrowers and lenders often negotiate and agree on the different terms of the loan as interest payment, duration of the loan and principal payment (balloon or bullet payment methods<sup>1</sup> or decide a grace period, where no payments are made for the agreed periods in the beginning of the project. All the different choices have an impact on the cost of finance, the securities that the borrower needs to provide and the cash flow. The bank (lender) usually is more conservative on her approach to the repayment schedule while the borrower requires flexibility and better cash flow management in the beginning of the project. In Table 3 we present the main differences between borrower and lender during their negotiation.

Table 2: Loan term objectives (borrower vs lender)

Borrower	Lender
High Leverage	Low Leverage
Back ended payment	Rapid repayment
Long-term	Short-term
Low price	High prices
Freedom to pay dividends	Dividend restrictions
Free movement of cash	Ring fenced cash

<sup>1</sup>“A balloon payment is one where the capital repayments are not equal, but gradually increase towards the end of the agreed duration; a bullet payment is one where the capital is repaid at the end.” (Schinas & Kewitsch, 2015)

Limited recourse	Full recourse
Payment default only	Financial and VMC <sup>2</sup> Covenant triggers
High certainty on drawdown	Conditionality on drawdown
Underwritten on “bought” deals	Book building or Club deals

Source: Author via (Van Klink, 2016)

As we discussed before, a loan can be seen as an investment from the bank’s perspective. Therefore, the bank can evaluate every loan by using the Markowitz portfolio theory described in the sub-chapter 2.2.1. The bank will try to balance its willingness for maximum expected and its risk appetite. For instance, if the bank uses a bullet repayment method then the expected return (net interest income) will be higher as the principal amount is the same during the whole tenor (no principal repayment). But the risk of a 7-year loan can be high especially if the market is going through collapse, a lesson learned through the dry-bulk crisis.

#### **2.2.3.4 Risk Factors in shipping- Risk Management of the bank**

In the previous section we presented only the part of the expected returns for the bank. Although banks can rely on models and spreadsheets to calculate returns, they should take into account the risks related to the real world when building the financial model. Proper evaluation of the risk provides further assistance to create better assumptions. In the corporate jargon, as Schinas and Kewitsch (2015) mention, 5C summarize all the risk related to be considered:

1. Collateral: Refers to securities of all forms that can be provided to the lender.
2. Capital: Refers to the contribution of the owner in the project by providing own funds.
3. Conditions: Refers to the conditions of the market, as for instance shipping market (freight rate levels, supply of tonnage, demand and other) or to the conditions specifically mentioned under a loan or business plan.
4. Character: Refers to the subjective judgment of the lenders and investors towards a potential client.
5. Capacity: Refers to the ability of the owners of the asset to comply with their financial obligations.

Shipping industry is undoubtedly related with a number of different risks, either related to the performance and engineering aspect of a project or with its financial viability. Moreover, compliance to new regulations developed can affect the risk management strategies that are adopted between borrowers and lenders, as for instance Basel III

---

<sup>2</sup> Value Maintenance Clause: It is a clause used in order to ensure that the value of the vessel represents a certain percentage of the outstanding debt throughout the loan period. (Ladis, 2012)

which will be elaborated further in next chapters. In the next table, we will summarize and present the risks related to shipping finance projects.

Table 3: Shipping Finance Risks

<b>Business Risks</b>	<b>Financial Risks</b>	<b>Structure Risks</b>
Regulation	Profitability	Holding Company Risk
Industry	Liquidity	Intercompany assets and Liabilities
Economy	Solvency	Transfer Pricing
Management		Change of Ownership/Control
Contingency		
Competition		

Source: Author via (Van Klink, 2016)

All these risks should be taken into account by the company when formulating its risk management strategy, but should also be examined thoroughly by the bank when formulating its loan contract with a shipping company. Therefore, the bank should evaluate the expected return and the risks related to its shipping portfolio and by utilizing Markowitz's model create its efficiency frontier for the shipping portfolio. Until this point, we mainly described the theory behind the calculations and the risk management strategies related to ship finance through bank loans. In the next chapter, we will focus more on the practical side of ship finance.

### ***2.3 Shipping Finance by Banks in Practice***

Modern banking sector perceives shipping as a very cyclical, unstable and capital intensive industry. Consequently, banks impose some characteristics regarding to trust, credibility, transparency and safety. This statement indicates the intricacies that can be created during a contract for loan between the bank-lender and the shipping company – borrower. If we combine it with the shipping cycles that were elaborated in sub-chapter 2.1, we can conclude about the difficulties and the complexity of raising capital in shipping. Nonetheless, through negotiation, a win-win situation for both of the entities involved can be obtained. Especially, when market conditions are at their uttermost point, banks can provide high amount of leverage at lower cost.

In order to mitigate risks and increase their expected return from shipping loans, banks are utilizing a specific loan structure. Based on Van Klink (2016), the total capital structure of the asset is divided in three parts. The first refers to the senior debt which is the first level of liabilities that are paid out first, ahead of all other creditors, in case of bankruptcy. The second is mezzanine finance or junior debt which is a form of hybrid capital between subordinated loan and equity and as a result it is priced higher (higher interest rate). The third part consists of equity provided by the ship-owner. Banks are eligible to provide the first two parts.



As Stopford (2009) states, most of the debt capital provided in shipping, emerges from commercial banks that also have a wide range of activities in their portfolio. Apart from these banks, capital is also provided by specialized banks that are mainly established in Germany and Netherlands, as for instance DVB Bank or NIBC. The latter kind of banks have greater expertise in transportation and shipping due to expertise and advanced industry knowledge. Hence, better connection and collaboration between ship-owners and banks is developed.

As we already mentioned the most widely used financial instrument for debt capital in shipping can be considered the term loan (Harwood, Shipping Finance, 3rd Edition, 2006). As Harwood suggests, the cost of capital provided is the interest rate, which is based mainly on the LIBOR rate, indicating that most of the transactions use dollar as the main currency. Another important element of a loan contract is the tenor or term length, which depends on the age of the vessel that is financed. Mainly, the length of the repayment period, before the financial crisis of 2007/2008, was in the range of 4-10 years for second hand vessels and between 10 to 12 years for a newbuilding (Harwood, Shipping Finance, 3rd Edition, 2006).

### 2.3.1 Syndicated Loans and Asset Sales

Two important things arise in debt capital markets, that help banks mitigate the risks of shipping industry mentioned before. Firstly, banks do not want to get all the risk on their own and thus they try to cooperate with other financial institutions. This leads to the so-called “syndicated loans”. Banks in order to diversify their risk, they split large loans in smaller packages which can be distributed around many banks, a practice that allows other than shipping banks to participate in the industry, under the guidance of the leading bank, and experience high returns (Stopford, 2009). The second important thing is the asset sales. Through splitting the loan into smaller packages, if banks want to reduce their exposure in shipping risk, they can sell their loan to another bank that is willing to include it in their balance sheet (Stopford, 2009). Although in terms of number of loans, single-bank loans outperform syndicated, the latter are a great part of the total debt capital provided by the banks in terms of amount (in million USD), as shown in Figure 3. In 2011, they represent the 40.2% of the total loan portfolio in shipping.

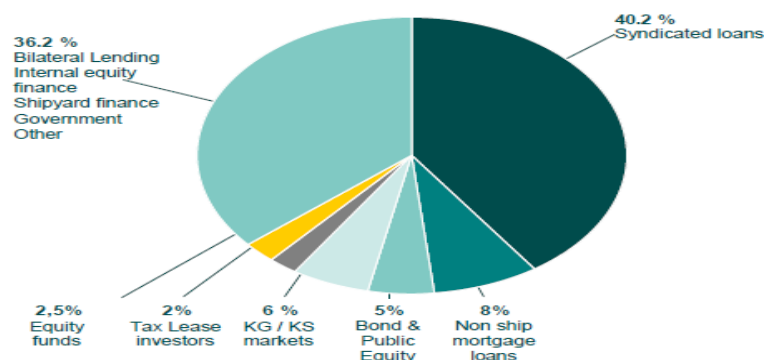


Figure 3: Traditional source for capital in shipping  
Source: (ABN AMRO, 2011)

### 2.3.2 European Banks as the main pillar of Ship Finance

Debt capital in shipping is mainly provided by European banks. This happens mainly due to historical reasons as European nations were heavily involved in the maritime world. Moreover, complex financial structures like KG model, developed under the European nations, which created the need for better financial assistance. Lastly, US is not considered as a shipping nation and thus the need of the banking sector to involve in the industry is not mandatory. Based on Petrofin research in 2014 on shipping finance, we can notice that, although before 2007/2008 European banks monopolized the market, after the financial crisis they are winding down their portfolios and Asian banks arise. These changes will be elaborated further in next sub-chapters. Meanwhile, from Figure 4 below we can notice that still European Banks dominate the Top-40 list. In this list are included both the commercial and the specialized banks and their portfolios respectively. Another important aspect is that throughout European region we notice that typically banks established in Norway, Germany and Netherlands are heavily investing in shipping.

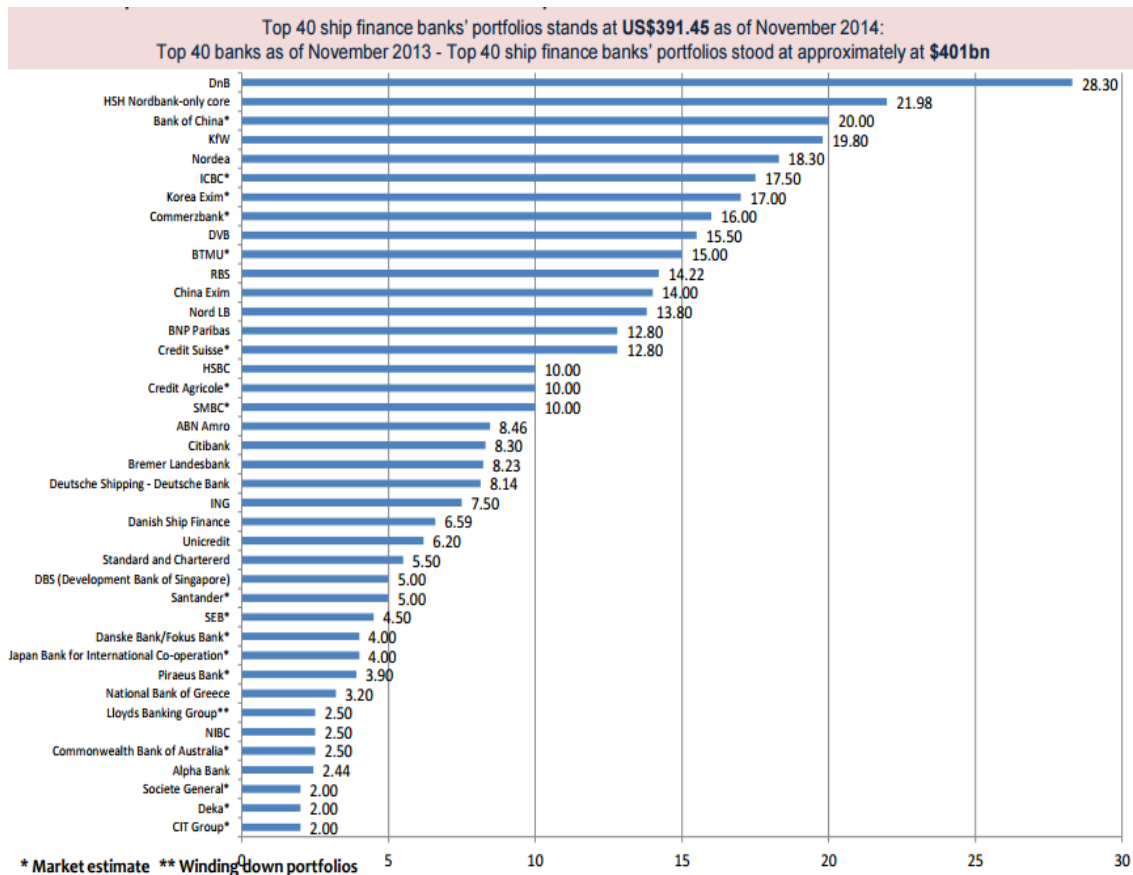


Figure 4: Bank Lending to shipping, Ship finance based on interim data up to November 2014 – in \$bn

Source: (Petrofin, 2015)

## **2.4 Shipping cycle and shipping finance cycle**

### **2.4.1 Credit Cycle**

In order to attach shipping finance with shipping cycles, we should initially refer to the theory related to credit cycles. By definition, credit cycle is associated with the access to capital by borrowers during the different phases of business cycles (Ivestopedia, 2016). Based on Himenez et al. (2005), during the peak period there is an abundance of capital which is easy to borrow and is characterized by low interest rates and lower lending requirements. The next phase is the contraction period, in which interest rates increase, lending requirements become stricter and therefore the availability of capital decreases meaning that less people can borrow. This phase lasts until credit risks for financial institutions decrease.

The connection of credit cycles with business cycles can be proven through Minsky's theory (1992) about "Financial Instability Hypothesis". According to Minsky, the economy is characterized as capitalist with expensive assets and a complex, sophisticated financial system. Moreover, the capital development of a capitalist economy is related with the exchanges of present money for future money, as present money pays for the resources used in the production while future money are the profits that will accrue to the capital asset owning firms.

Based on Minsky's theory, expectations of business profits determine both the flow of available funds for investment and the price of these funds. As he suggests, expectations on profits depend on future investment and realized profits are determined by the investment. Lastly, he assumes that bank are profit seeking institutions as all other entrepreneurs. Therefore, "the financial instability hypothesis is a theory of the impact of debt on system behavior and also incorporates the manner in which debt is validated" (Minsky, 1992). According to the theory there are three income-debt relations for economic units:

- Hedge Finance: the units that can fulfil all of their contractual payments based on their cash flows.
- Speculative Finance: The units that can repay through cash flow the interest payment but not the principal payment.
- Ponzi Finance: The units that cannot repay either the interest or the principal payments, through their existing cash flows.

As Minsky explains in his paper (1992), the domination of each type of finance, indicates the state of the economy. When Hedge finance is losing space due to the increase of Speculative and Ponzi finance, then we are moving from the trough period of the cycle to the peak. This indicates that more finance become available for Speculative and Ponzi units. If an economy with a sizeable body of Speculative and Ponzi finance is in inflationary state, and the government tries to use monetary policies in order to tackle inflation, then there will be created a crisis. Speculative units will become Ponzi and the Ponzi will go bankrupt, meaning that there will be a great default on loans provided to

these units. Hence, the units with constrained cash flows will try to sell assets which will lead to a collapse in the asset values.

### 2.4.2 Shipping Finance Cycle

Ship finance cycle satisfies all the fundamentals of the credit cycle, discussed in the previous section. Moreover, shipping finance is connected with shipping cycles as credit cycles are connected with business cycles. In Figure 5, we present the main elements of shipping finance cycle, closely related to shipping cycles.

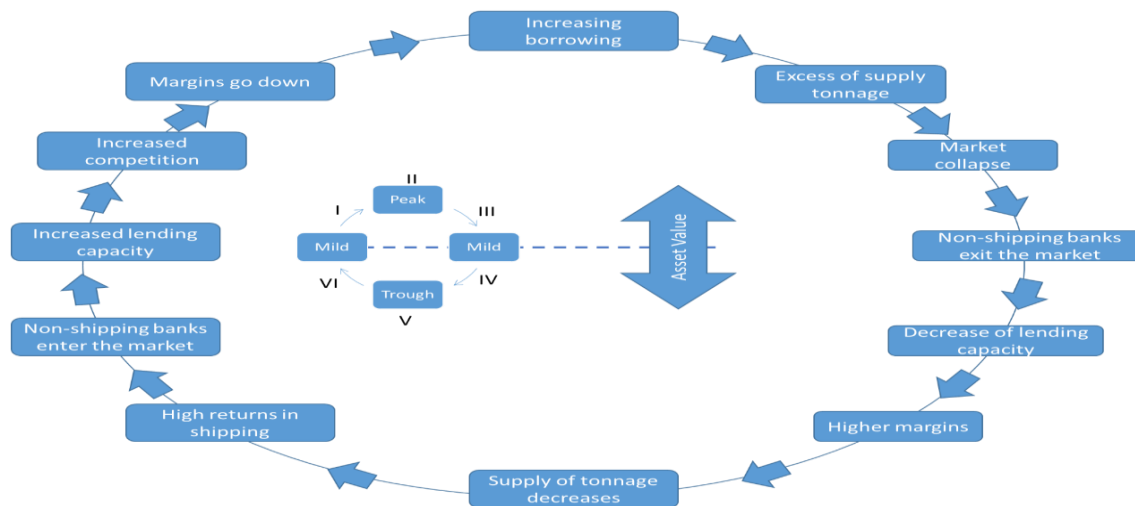


Figure 5: Ship Finance and ship cycles  
Source: (Ladis, 2012) and Author

When the market is in its trough period there is a decrease in lending capacity and there are only limited banks (specialized banks) that provide bank loans for shipping companies. Banks during this period try to decrease their risk exposure and provide lending only to trustworthy clients with stable cash flows. These clients represent the Hedge units in Minsky's theory. During this period, leverage is limited, the margins for the banks are higher and they impose strict covenants to the clients. This is currently the situation noticed in the dry-bulk and the container sectors.

As the market conditions improve, freight rates start to increase. This leads to higher returns in shipping, which attracts more banks. Therefore, there is increased lending capacity mainly to Speculative units. As the market situation improves, leverage is also increased mainly by banks not specialized in shipping. This increases the competition and lowers the margins for the banks. At the peak, ship finance through bank loans is considered relatively easy due to high returns and high asset values, leading banks to be willing to accept higher risks, lending to Ponzi units. This is currently the situation noticed in the tanker industry, especially the crude oil and product tankers.

As the market is characterized by overcapacity, freight rates start to decrease again, leading the industry into the recession period. During this period, banks still provide loans

with low interest rates and high principal amounts in order to preserve the past high returns. Though, as supply continues to outpace demand, market collapses. Equity decreases substantially and companies become overleveraged which leads to the bankruptcy of Ponzi units. Heavily exposed non-shipping banks to Ponzi units, massively write-off loans and eventually exit the market. As a result, lending capacity is decreased, as banks become reluctant to lend and consequently pricing is increasing while leverage is decreasing, covenants become even stricter as banks try to mitigate their risks.

#### ***2.4.2.1 The impact of overinvestment to the shipping cycle***

Banks and other investors, like KG funds, prior to the crisis of 2007/2008, heavily invested in shipping by providing “cheap capital” to the ship-owners as the returns in shipping were pretty high. This led also to overcapacity, affecting the time-charter rates and the values of the assets negatively. A close study of how banks can affect shipping cycles was researched by Kostas Ladis (2012) who concluded that credit and especially abundant credit in combination with time lag until new tonnage is delivered, is making shipping cycle steeper and thus the industry more volatile.

Even though the repercussions of global financial crisis in 2008 became obvious in shipping, until 2015, new vessels entered the market, especially in dry bulk sector, despite the low freight rates. This incident maintained the already existing pressure in the market while in November 2015 BDI index hit an all-time low at 498 points (BIMCO, 2015). Therefore, a new dry bulk carrier would seem as strong asset investment, with high earnings and strong security in May 2008, in which the bank participated with high leverage, by even providing up to 75-80% leverage. After six months though, this asset became akin to an undervalued asset with negative cash flows and a huge debt, creating problems to the ship-owner but also to the bank that participated in the financing agreement. Although shipping experienced an all-time low, market recovery still remains uncertain. Besides the factors that affect the availability of cargo for the dry bulk sector, scrapping activity is becoming an important tool in order to balance the market. In 2016, BIMCO expects supply side of dry bulk sector, to increase by 2% which is a lower growth rate compared to previous years, mainly due to new scrapping activity. On the other hand, excess capacity still remains a significant issue as scrapping activity is considered a problem for shipping banks. Industry experts suggest that “The most efficient way to deal with this excess capacity within a reasonable timeframe is scrapping of tonnage, but the shipping banks are not promoting this solution as it would result in large write-offs that they can ill afford” (Jensen, 2014). Therefore, banks put pressure for decreased scrapping activity which can significantly deteriorate the market even further.

### ***2.5 Financial Crisis 2007/2008 and regulation***

In all previous sub-chapters, we continuously mentioned that the financial crisis of 2007/2008 had excessive repercussions on shipping. The aim of this sub-chapter is to provide a brief insight of the roots of financial crisis, the new regulations that developed during the past years and what are the implications for the shipping industry.

### 2.5.1 Financial Crisis 2007/2008- Events

The financial crisis of 2008 is described by experts as the most severe economic crisis the last 80 years (World Finance, 2016). Main cause of the crisis was the high risk profile and behavior of big financial institutions in Europe and US, which was enough in order to put at danger entire economies, if they failed. Almost eight years later, we can still notice multiple origins of the crisis. The first to blame are the financial institutions that suggested ways to banish risk, while in reality they could not control it. Second, Central Banks played an important role, firstly, through low inflation and stable growth policies which led the investors to accept higher risks for greater return, and secondly due to the fact that tolerated the actions of the other financial institutions (The Economist, 2013). These reasons combined, led to a crisis that almost brought down the world's financial system through the bankruptcy of Lehman Brothers. More insight on the causes of the crisis are provided by Figure 4 below.

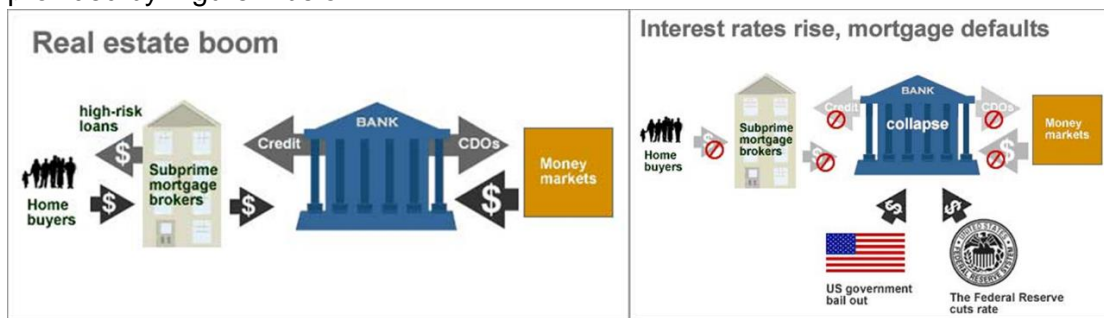


Figure 6: Causes of the financial crisis of 2008  
Source: Author via (China.org.cn, 2008)

### 2.5.2 Basel III Regulation

Afterwards the chain reaction in global economy, especially after the default of Lehman, world leading politicians, bankers and researchers collaborated in order to implement a new set of regulations that would include precautionary measures that banks should comply to, in order for later crisis to be avoided. The most well-known regulation for the financial institutions is Basel III, while also in European region the emergence of EBA had severe implications for the banking sector. Moreover, ECB subjected many of the European banks to Stress Tests and Asset Quality review. These tests, alternatively known as “financial health checks”, are comprehensive assessments that help to ensure that banks are adequately capitalized and can withstand possible financial shocks (ECB, 2014).

Regarding to Basel III regulation, based on World of Finance website and their publication of Basel III, banks will now be enforced to withhold a much bigger capital base, in other words solid assets that will be able to act as a shield for the liquidity of the bank when market will be again in turmoil. Hence, Basel III indicates that banks have to maintain lower levels of leverage (capital to assets ratio) and increase their amount of cash so as to confront temporary difficulties. Moreover, core solvency ratio is retained at 8% of risk-weighted assets (RWA) (Shearman & Sterling LLP, 2011). A new measure, the Liquidity

Coverage Ratio (LCR), was implemented from 2015 in order to ensure the capital requirements for the banks (World Finance, 2016). The design of Basel III started by the BIS (Bank for International Settlements) in order to fully implement all the measures until 2019. The main principle behind this action can be summarized in some abstracts from the Basel III main text: "A strong and resilient banking system is the foundation for sustainable economic growth, as banks are at the centre of the credit intermediation process between savers and investors,". Therefore, financial institutions should be created and operate in a way such as to protect and serve the wider economic society.

In order to assess Basel III, we need to quantify its impact for the banks. Based on McKinsey&Company report (November 2010) "Basel III and European banking: Its impact, how banks might respond, and the challenges of implementation", it is estimated that, due to the new Liquidity Coverage Ratio (LCR) discussed above, the total shortfall in short-term funding for the European banks will be €1.3 trillion, representing approximately 40% of the average liquidity held by the banks now. Furthermore, the same report, mentions that the NSFR- Net Stable Funding Ratio which is defined as the amount of available stable funding (ASF) relative to the amount of required stable funding (RSF) (ICMA, 2014)- will have an impact of €2.3 trillion to the long-term funding, which corresponds to about 10-15% of the available funding for the European banks. As a consequence, banks will be obliged to restrict their loaning activities especially to heavy assets or increase their equity which is considered as a more expensive option.

### **2.5.3 Basel III impact on ship finance**

The new regulations will have a great impact on the shipping portfolio of the banks as it is perceived as a highly capital intensive industry. The Stress Tests of ECB and the new Basel III requirements will affect the banks depending on their exposure. Based on Kostas Ladis (2012) and his case study, the impact of new regulation on ship finance can be summarized as followed:

- The increased capital requirements imposed, will lead to the increase of the Economic Capital and hence it will reduce the return on shipping loans for the banks, since they will need to hold more capital for every loan.
- Banks will roll over this reduction to the shipping companies, a fact that will squeeze even further the returns on the shipping industry itself.
- Decreasing profits margins in shipping, will increase the risk profile of shipping companies and probability of default (PD) is expected to increase to incorporate the bad market conditions included in the risk calculations and therefore risk-weighted-assets will also increase.
- Higher RWAs and increased liquidity requirements will result in an even higher increase of lending margins due to the higher capital needs of the banks
- Lastly, shipping companies with a low credit rating as for instance medium and small sized, will be seriously affected.

Consequently, margins for financing through loans will increase for the shipping companies, mainly due to capital and liquidity restrictions of the banks. The mirror image

for the banks is that they are heavily regulated and restricted and through the ECB's focus on their shipping activities. Moreover, expected returns are lower as margins decrease and risks become even higher due to the turmoil in the industry. Therefore, based on Markowitz Portfolio Theory, shipping becomes a non-lucrative investment and banks will not hesitate to even withdraw from the market as we will further elaborate on the next sub-chapter.

In order to clarify the implications of Basel III we will conclude this sub-chapter with an elaboration on the example loan provided in sub-chapter 2.2.3.3. If we assume that this loan is for a dry bulk vessel, which is considered currently a high risk asset then, based on the new regulation, the bank is obliged to keep 8% equity for this investment equal to US\$ 2m. If the shareholders of the bank agree upon providing this extra amount of equity, they will also require a higher return due to the riskier profile. We assume 15%. Therefore, the bank will have to pay back US\$ 300,000. Hence, the net income from interest for the bank is US\$ 3,886,694 (US\$ 4,186,694 – US\$ 300,000).

In general, Basel III and forthcoming Basel IV regulations will restrict banks' lending activity in shipping. Banks are lending to different asset classes and based on the new regulation, an asset class with higher risk profile requires more equity. Shipping assets require high capital and currently the market outlook is worsening as many loans in the industry are non-performing. Therefore, banks will try to reserve money for less risky assets, as for instance the housing market, creating an even bigger gap in the shipping finance market.

## ***2.6 Response of “shipping” banks to the crisis***

The outcome of the new regulations and process followed by the ECB are still uncertain, but professionals from the industry believe that the stress tests may prove that some commercial banks will not be viable in the long term and as a result they will collapse under the review procedure. Though, the fact that the new regulations will suppress the portfolios dedicated in shipping by large banks is unquestionable, as “European Central Bank has vowed to make shipping sector a core focus of its upcoming asset quality review and stress tests” (Ross & Odell, 2014).

Since banks want to avoid risk, they will try to reduce their long term exposure by providing a reduced tenor. In addition, in order to secure their positions in shipping banks require loan securities, in case of default of the borrower, and complex covenants. As securities for senior debt, banks require mortgage on the asset, corporate recourse (corporate guarantee) or control over the cash flows. Covenants are considered the additional agreements that are included in the loan contract, among which the most important is considered to be LTV ratio (Small Business F.I., 2011). Lastly, other important factors that affect shipping loans are considered to be the committed or uncommitted loan agreement, the repayment period and loan syndication (Legal Vision, 2013).



### **2.6.1 Evidence that banks withdraw from Shipping**

Some of the banks that will go through ECB's microscope are large commercial banks, heavily involved in shipping, and are established in Germany. Examples are the DeutscheBank AG, HSH Nordbank, Commerzbank and NordLB. German banks are considered to be the leaders in heavy portfolios of non-performing loans, due to the big order-book before the economic crisis of 2007/2008 (Ross & Odell, 2014). Another factor that affected the position of German banks is the KG model failure. For instance, Commerzbank and HSH have greatly extended loan terms and offered "holidays" on capital repayments in an attempt to ease pressure, but market conditions especially for containers, which consist the prime part of the portfolio of KGs and banks, put great pressure on the vessel revenues and hence on loan performance. As Ross and Odell state in their article (2014), other banks like Commerzbank, created special purpose companies in order to reclaim vessels from distressed owners and sell them, while HSH Nordbank tried to sell their debtors' loan portfolios directly to shipping companies.

These events combined with the analysis of previous sub-section on traditional ship finance indicate that now, through Basel III consequences, banks will not afford to contribute at the same levels to a capital intensive and high-risk market. The results of the financial crisis and new regulation on shipping finance can already be seen from the reaction of the largest banks involved in the sector. For example, Germany's HSH Nordbank, one of the world's biggest ship finance institution, had a portfolio of US\$58 billion invested in shipping in 2008 and by 2013 it reduced its portfolio by 40% (Heckert, 2015). Another example is Royal Bank of Scotland (RBS) which decided in 2013 to reduce drastically its portfolio of US\$15 billion invested in shipping (Seanews, 2014) and currently RBS is outing her full shipping portfolio on the market as the exit from shipping finance market is considered one of her main strategic reviews (Read & Pierce, 2015). Furthermore, NordLB is planning to axe multibillion shipping loans, from current EUR 19bn to approximately a range between EUR 12bn and EUR 14bn in the next five years, as the crisis in the sector produced a strong headwind for the bank's performance (Roumpis, 2016). In addition, DVB Bank recorded higher provisions on its shipping and offshore book as the credit loss allowances climbed from EUR 62.4m to EUR 141.5m because of the bank's legacy exposure in the shipping and offshore businesses (Pierce, 2016).

Based on TradeWinds (March 2016), Sean Durkin, president of Northern Shipping Funds, in Connecticut Maritime Association's annual shipping conference stated that European banks which provide the majority of lending in the shipping industry, face new regulations on their capitalization and their risk profile. Moreover, he added that other asset-heavy industries can rely upon mezzanine lenders or loan securitization, options that are not available in shipping and as a result, ship-owners may now face a premium 7% or 8% over LIBOR in order to acquire capital through loan. Lastly, he suggested that part of the problem for banks is fragmentation of the industry, as 80% of the companies have 15 or fewer ships and shipping industry has to consolidate in order to achieve better credit ratings. Banks' wariness can be further fueled by the outlook of Moody's on shipping industry which changed from "stable" to negative" due to continuous gap of supply and demand in the dry-bulk and container sectors (Moody's, 2016).

### 2.6.2 Changes on the landscape of bank-lending due to the crisis

Due to the financial crisis in 2008 and the shipping crisis in 2010, along with the new imposed regulation, banks became extremely reluctant to provide further lending capacity in shipping. Moreover, the requirements imposed to existing and new borrowers have changed and became even stricter. In Table 10 we present the change in banks' requirements regarding to shipping loans from the peak period in 2008 compared to the heavily distressed period of 2012 for the shipping industry. Important notice for the table is that it reflects a relative risk taking bank, as more conservative banks even in the peak period, provided approximately 60-70% leverage if the vessel was backed by a long term charter and had an extensive life cycle (younger vessels) (Ladis, 2012).

Table 4: Change in banks' requirements

	2008	2016
<b>FOCUS</b>	Reduced credit selection criteria to find new clients to keep up production	Flight to quality. Companies with good credit rating. Stricter loan terms
<b>ASSET</b>	Willing to finance older ships	Preference for new/young ships
<b>PRICING</b>	Downwards, ranging from 50bps to 150bps depending on the size & quality of the client	Pricing increasing up to 400bps mainly due to the increased funding and capital costs, as well as due to the shipping turmoil
<b>TENOR/PROFILE</b>	10-12 years with 15-17 years profile	5-7 years with 10-12 years profile
<b>LEVERAGE</b>	Up to 80% for risk seeking banks and 60-65% for more conservative banks	Around 50% and for good clients up to 60-70%
<b>PRE-DELIVERY</b>	Banks keen to finance pre-delivery	Nowadays more difficult

Source: Author via (Ladis, 2012)

Although four years passed since Ladis's research, banks still remain in the same situation, as currently Basel III will be fully implemented in 2019 and shipping crisis, especially in dry bulk sector is still ongoing. As the global financial situation may be improving gradually, banks reduce their pricing to an average of 300 bps. Generally, the other requirements remain the same.

In Figure 7 we present a comparison between 2010 and 2014 for the shipping portfolios of the largest European banks. Therefore, the conclusion of all shipping finance news and events regarding to banks, demonstrate that banks due to new regulations and also high provision for impairments and actual write-offs decreasing their profitability, forced them to reduce drastically their leverage or even exit the market. Likewise, the need for change and other available sources of financing is arising, creating new alternative financing market in shipping which will fill the cash-providing gap created by the

withdrawal of banks. From Figure 5 we noticed that as the market is moving in the recession phase, the capital provided in the market is reduced and the non-specialized banks are exiting ship finance. Consequently, the gap that is created in finance, at this period of the cycle, will be replaced by alternative sources capital. The elements of this new market of alternative sources is the main concern of our research and will be elaborated in the following sub of this chapter. Moreover, through interviews with the involved entities in shipping finance we will try to derive more information and the main requirements that arise.

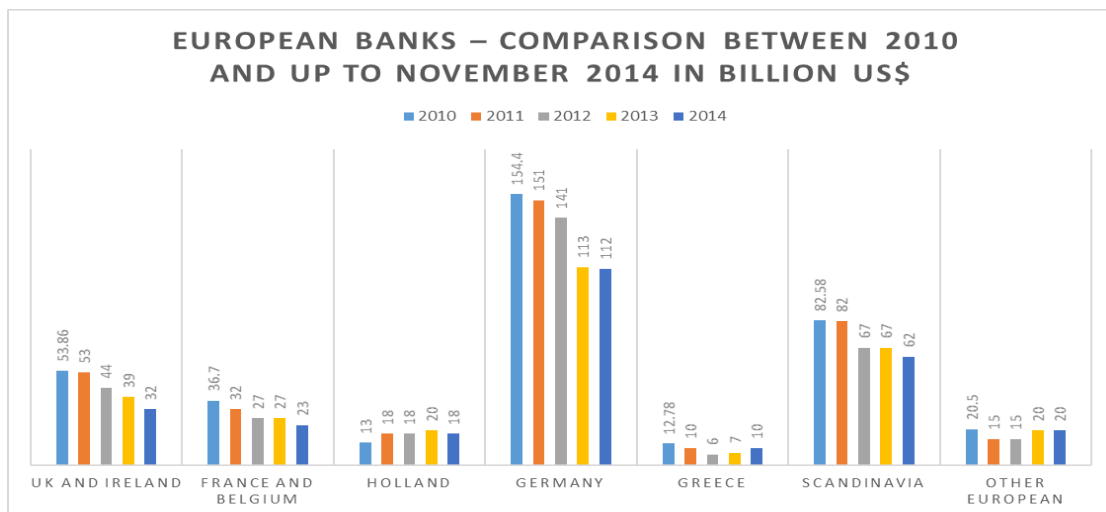


Figure 7: European banks- Comparison between 2010 and 2014 (in US\$bn)  
Source: Author via (Petrofin Research, 2014)

## 2.7 Alternative sources of capital

### 2.7.1 Use of alternative capital sources for SMEs in Europe

The financial crisis of 2007/2008 created immense concerns regarding to the companies' capacity to access traditional bank lending. Casey and O'Toole (2014) conducted a research based on the European SMEs in order to assess their choices on alternative sources of capital due to bank constraints. They tested whether bank lending constraints increase the appetite for alternative sources of external finance. They attempted to:

- Determine whether bank lending constrained SMEs:
  1. Will use trade credit, informal finance, other company loans, market financing or government grants or
  2. Apply for trade credit or other external financing
- Divide the bank constraint firms as:
  1. Credit rationed firms where loan applications are rejected outright and
  2. Self-rationing borrowers that do not apply due to high lending costs.

Their results indicate that credit-rationed firms are more likely to use and apply for trade credit while this tendency increases with the increase of the firm size and age. Moreover,

they conclude that constrained firms in general are more likely to use informal lending or loans from other companies instead of bank finance. With regard to smaller and self-rationing borrowers, Casey and O'Toole (2014) conclude that they are more likely to apply for grant finance. Lastly, the find that firms that are rejected for credit for working capital tend to turn to trade credit, while informal and intercompany lending tend to act as substitutes for rejection upon bank investment loans.

The scope of our research is mainly focused on the alternative financing sources for shipping companies. Based on KPMG report on alternative sources of capital (2012) and Zeng (2009) we can distinguish shipping companies from other SMEs as they lack the same way of organizing and they acquire a more family-oriented management structure. Therefore, we will focus and briefly explain the main ways of alternative sources described through KPMG's survey (2012), in our next sub-chapter.

### ***2.7.2 Use of alternative capital source for Shipping Companies***

Nowadays, the perspective of the financial market transformed as now the equity is provided not only by ship-owners or the shareholders, but also from additional private sources that are willing to invest, covering up to 40% of the total loan while the other 60% is provided by commercial, specialized banks and alternative sources of lending (DVB Bank, 2010). Accordingly, the basic categories of lending stay the same while the balance for each category is changing. Moreover, we need to clarify that by "alternative sources" we refer to already existent sources of capital which before the financial crisis of 2008 were rarely or not used in ship finance and are currently developing.

As mentioned before, the structure of ship finance consists of three layers: (1) senior loan (2) mezzanine finance or junior loan and (3) equity. Therefore, capital derives from debt (senior plus junior) and equity. The latter is considered as "risk capital" because through equity investors become shareholders implying that if borrower defaults then they bear the risk of losing their investment (in monetary values). Though, if shipping market is thriving, then investors experience great returns, which can be considered an incentive to invest in shipping. Debt is characterized as "non-risk capital" as lenders require collaterals in case of default. Though, returns on investment in this case are fixed and not high compared to equity. Important here is to clarify that private investors can either participate through equity or lend money directly to shipping companies. Thus, we can consider private investors as a separate category which includes entirely private funds and institutions or ordinary share issuing process from the company, not listed on the market. In the following paragraphs we will analyze some of the most important alternative sources of capital in shipping and their characteristics based on market reports from Northern Shipping Funds (2014), ABN AMRO (2011) and other sources. In Figure 8, we include the possible sources that we discovered through research on market reports, which will be compared with our results from the survey and conclude about the similarities or differences.

Important to mention is the fact the Markowitz's Model related to Portfolio theory also applies to all the investors and alternative sources of capital in shipping. The diversification of portfolio theory in this case is not only from the "product" aspect but also

from the investor side. We can notice from Figure 8 that currently more investors are involved in each layer of the loan and as a result greater diversification is achieved. Although we move towards better theoretical situations, arrangements need to take place in order for the transactions costs to decrease and expected return to increase. Investors rely on financial analysis in order to conclude about their expected return and are cooperating with existing investors in the industry in order to cope with the risks that shipping bears.

Traditional Finance		Alternative Sources
<ul style="list-style-type: none"> <li>Banks (Big Commercial/Small-Medium Specialized)</li> </ul>	<b>Senior Loan</b>	<ul style="list-style-type: none"> <li>Leasing Companies</li> <li>Insurance Companies</li> <li>Pension Funds</li> <li>ECAs</li> <li>Bonds</li> </ul>
<ul style="list-style-type: none"> <li>Banks (Big Commercial/Small-Medium Specialized)</li> </ul>	<b>Mezzanine Finance</b>	<ul style="list-style-type: none"> <li>High Net-Worth Individuals (HNI)</li> <li>Leasing Companies</li> </ul>
<ul style="list-style-type: none"> <li>Ship-owners and Family-related Funds</li> <li>KG/KS Funds</li> </ul>	<b>Equity</b>	<ul style="list-style-type: none"> <li>HNIs</li> <li>PE Firms</li> <li>Stock Market</li> </ul>

Figure 8: Alternative sources of capital in shipping  
 Source: Author compiled via (Norton Rose Fulbright, 2012) and (Northern Shipping Funds, 2014)

### 2.7.2.1 Private equity and private placement from other institutions

It consists of high net worth individuals and Private Equity firms (mainly in US). Their main rate of return lies between the range of 6-20% and their maturity is approximately five years. Important to notice here is that high net-worth individuals can also provide finance using mezzanine and not the equity part of the loan structure.

As shipping companies are struggling due to low freight rates, low market values and oversupply, private equity (PE) firms, hedge funds and venture capitals are looking for opportunistic investment options (Heckert, 2015). PE fill in the gap that the banks left behind by deciding to reduce their shipping portfolio. For example, Oaktree Capital Management is creating funds of US\$10 billion especially for investments in the shipping and real estate markets (WSJ, 2015). Another example of Private Equity investment funds involved in shipping is the fact that Kohlberg, Kravis & Roberts (KKR) bought a portion of Berlian Laju tanker loan provided by BNP Paribas and Nordea, for US\$130

million (Lloyd's list, 2014). In addition, "US private equity group KKR has inked an agreement with two Greek banks to provide capital and manage non-core and distressed assets of about EUR 1.2bn" (Dixon, 2016). Some private equity funds with banking license entered the shipping market and other funds are applying for banking license in order to compete in the same market because the exit of only three banks from the sector-Royal Bank of Scotland, Lloyd's in UK and Commerzbank- a nominal lending vacuum of US\$100 billion has been created (Karatzas, 2014).

Lastly, the new reality in ship finance will confirm if PE funds and private investors will succeed in their effort of investing into shipping. As mentioned before, private funds and investors usually have high expectations for returns on their investment, probably equal to 15% for equity investments, and a time horizon of 5 to 7 years, which forces them to see shipping market under a specific prism and time horizon which is not big enough to fit a shipping cycle (Karatzas, 2014). Regarding to the new requirements of PE, as B. Karatzas (2014) in his article "A changing seascape in shipping finance and the capital structure of vessel ownership" mentions, PE firms have brought a more institutionalized approach to investing in and also corporate governance in shipping as the "buccaneer" independent ship-owner is now replaced by board of directors and committee decisions.

Although PE provide capital and impose new requirements needed for the survival of shipping, currently shipping news mention that some of PE-funds' bets turned bad forcing them even to leave the market or restructure their management team (Stamford, 2016).

### **2.7.2.2 Public Offerings, IPOs**

In this case, companies that are already stock-listed, provide some extra shares to the market and companies that are not listed experience and Initial Public Offering (IPO). The aim of both tools is to finance internal and external growth via equity capital and the establishment of company succession (KPMG, 2012). Via the sale of shares, capital becomes available to the company in order to cover its needs for fleet expansion or even to cover debt (KPMG, 2012). Also, it is the only way in order to access in the future the bond market.

The main markets for the listed companies is New York and Oslo as we can derive from Clarkson report (2016). Important here is to clarify that the companies need to meet all the requirements of a stock-listed company indicating that it is very challenging for many shipping companies that operate as family business (KPMG, 2012).

Figure 9, provides a better insight on the size and frequency of IPO in maritime sector. As we can notice, although number of IPOs have small differences between 2010 and 2014, the amount collected through them displays great volatility. Moreover, the year with the highest IPOs in number is in 2013 and 2014 while the biggest amount collected is in 2013, as in 2014 it decreases approximately by half. Lastly, the past two years of 2015 and 2016 we can notice an enormous decrease of 78% while the amount collected for shipping in total, decreases by 99%, from 824 million USD to only 7 million USD.

Compared to the total IPOs of 2010 in shipping with the other industries, the ratio is 5% (FBR Capital Markets & Co, 2010). Important to mention is that IPOs in shipping represent only a small amount compared to the IPOs of all the industries in general.

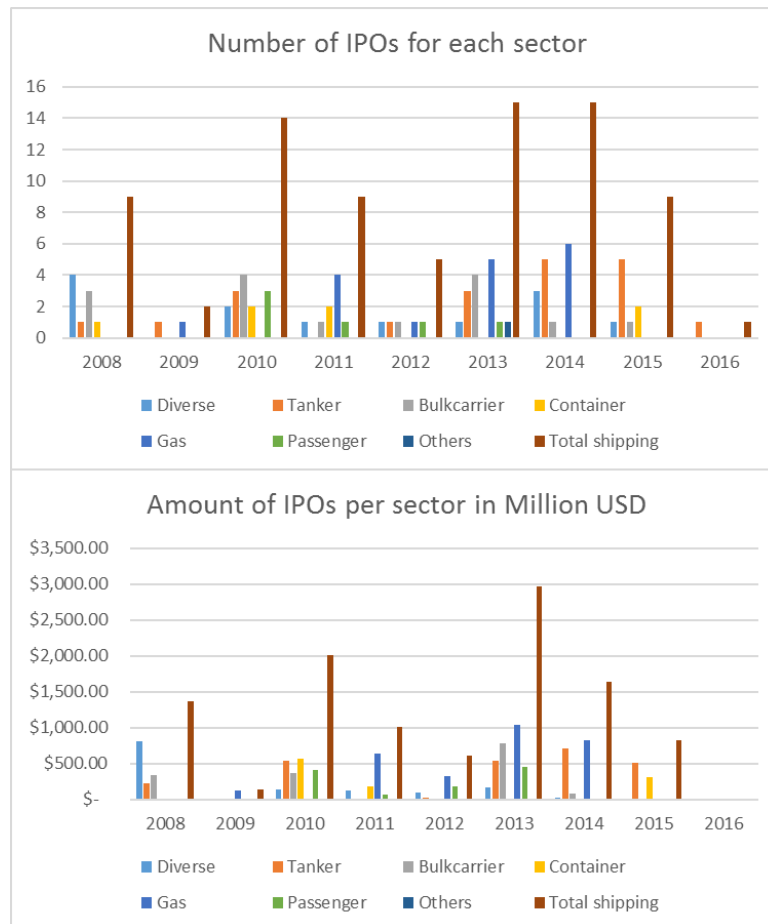


Figure 9: IPO size and frequency  
Source: Author compiled via (Clarksons, 2016)

### 2.7.2.3 Bonds

Another alternative source through the debt capital market, primarily increasing trend from the end of 2009 (KPMG, 2012). The main category is the corporate bonds. As the capital markets give access to a wider and more diverse pool of investors, shipping companies prefer this method as interest rates are lower than a bank loan - mainly between 450 to 600 bps or 700 to 1000 bps depending if it is used for senior or junior debt. Tenor period is longer (8-10 years), which is positive for the companies with long-term financial needs. Bonds are highly preferable for large players in the market while small and medium shipping companies have difficulties nowadays issuing bonds.

A shipping company can issue directly a bond or can use special purpose companies established in off-shore financial centers and issue bonds through the SPC, offering also tax advantages to the investors. Some examples are the Mitsui OSK Lines, which issued three bonds between 2008-2011 with total value of ¥70 billion (approximately US\$610 million) and the bond issued by Rickmers Holding GmbH of €200 million in May 2013 (Rickmers, 2013). There are also other types of bonds as the convertible bonds, in which the owner of the bond can transform the debt into shares and the covered bonds, which provide security in case of default (Norton Rose Fulbright, 2012). Though, they are not so often used in the shipping market.

Figure 10, provides a better insight on the size and frequency of bond-issuing activity in maritime sector. The year with the most issues of bonds in shipping, as we can notice from Figure 9, was 2009. The following years it was almost stable and gradually decreasing after 2014. The amounts collected through bonds for the shipping industry are relatively stable, with the highest ranking in 2009 with 14 billion USD. Moreover, we notice that diversified companies in shipping have an immense success on issuing bonds compared to the other sectors.



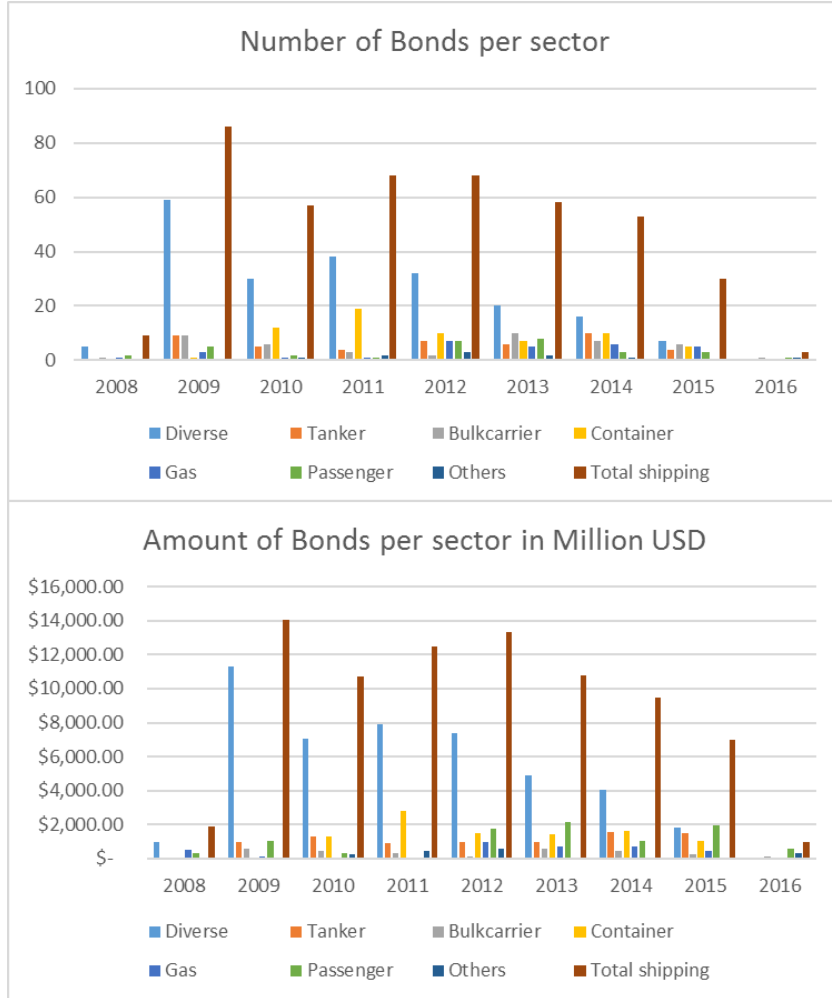


Figure 10: Bonds size and frequency  
Source: Author compiled via (Clarksons, 2016)

#### 2.7.2.4 Export Credit Agencies and Chinese Credit

Export credit agencies can be considered a stable source of financing for the shipping industry and they can be distinguished from other sources due to their special relations with governments and regulatory bodies, as for instance the world’s largest ECA, the Export Import Bank of China (CEXIM), is governed by the Chinese government (Heckert, 2015).

The main interest of these agencies is to support their domestic shipbuilding industry by providing capital to shipping companies that want to order new vessels at their domestic shipyards (Rasmussen & Ward, 2012). Moreover, new opportunities, especially in offshore energy as LNG export terminals contributed to the even more significant role of ECAs (Rasmussen & Ward, 2012). For instance, CEXIM financed the construction of 46

offshore vessel and specialized equipment in China, an investment amounting to US\$1 billion (Rasmussen & Ward, 2012).

From our research until now, European banks, including specialized banks as DVB or NIBC (Netherlands), and institutions have dominated the sector of shipping finance. After the financial crisis of 2008, though, and the limitations in the capital provided, a new source of capital arose originated in Asia. For example, ECAs, before the 2008 crisis, accounted for only 10% of shipping and offshore finance while now they account for more than 33%, amounting to US\$15 billion per year (CityGroup, 2014).

### **2.7.2.5 Other sources**

Lastly, other sources highly used in shipping and can be named as alternative, are:

- leasing companies, which can provide senior debt or mezzanine finance, through bareboat chartering,
- insurance companies with small rates up to 350 bps over LIBOR and long term maturity up to 20 years and
- pension funds that either can provide equity or senior debt with approximately the same terms as insurance companies.

### **2.8 Lessons to be learned**

Shipping finance is reshaping. The reasons are mostly related with the shipping industry itself but also there are other external factors that affected the available liquidity. Banks and investors need to determine their risk profile and their willingness for expected returns.

First of all, market reports and news reveal the strategy of many big commercial banks to withdraw from shipping due to heavy losses and new regulation (Basel III, IV). Secondly, markets as dry-bulk and containers are through the “Trough” phase of the cycle which indicates based on the shipping finance cycle, that they are even more restricted in terms of bank finance.

As banks are resistant toward shipping, alternative sources of capital are growing in order to fill the gap. As market reports reveal, Private Equity firms were the first to invest heavily in shipping due to the lucrative returns. Other sources are evolving also and the interesting point is to observe which will dominate and if eventually alternative sources will become mainstream in the future.

Although alternative sources can provide more financing in the industry, we already discussed that shipping is a difficult market to understand and especially PE firms are hiring experts to help them allocate their funds in the different segments. As we are moving towards a better theoretical model (Markowitz Portfolio Theory) because of diversification in the sources of investment but also in the investors themselves, guidance will be crucial for the decrease of transaction costs and increase of the liquidity.

Lastly, we can observe that alternative sources of capital, especially PE firms, bonds and IPOs, impose different requirements to shipping companies. For instance, we described examples of PE firms bringing a more institutionalized approach in the management of

shipping companies. In addition, bond issuance and stock markets require absolute transparency and organizational structures.

## **Chapter 3 Methodology**

### ***3.1 Survey as a method to conduct research***

As mentioned in Chapter 1, the primary tool in order to conduct our research is survey. As Baker, Singleton and Veit (2011) stated, surveys provide information related to attitudes, beliefs and behaviors, which cannot be obtained through secondary data. If we are based only on secondary data, we can infer some conclusions which may not reflect the actual situation. Therefore, the adoption of a survey method will provide us with the advantage to collect bona fide opinions from banks, ship owners and other experts in ship finance.

Furthermore, Graham and Harvey (2001) stated that surveys in a process used to bridge the gap between theory and practice. Hence, through our research we will be able to better understand, based on the experience and beliefs of experts, how banks were affected by the crisis, why they are responding negatively towards shipping finance, what are the alternative sources that are existent and to what extent the involved entities use them. Moreover, we will further investigate the changes that are necessary in order for the shipping industry to adjust to new reality, which cannot be investigated through

quantitative methods. In addition, we can infer to the fact that shipping industry is a quite notorious industry for the investors as it has its own characteristics and the public shy nature of it does not allow statistical data to be easily collected and analyzed. Also, trends evolving in many industries are easier to be investigated through the opinions of active members in the industry instead of analyzing quantitative data. Lastly, through the survey some close-type questions, will provide some reference to statistical data based on the future trends of alternative financing in shipping.

### **3.2 Hypotheses of the research**

In order to structure our survey and address our research and sub-research questions we developed several hypotheses. Based on our findings of Chapter 2 about the alternative sources of financing in shipping (chapter 2.7), we developed the following hypotheses.

- 1) Commercial banks are withdrawing from ship-finance because of their losses and Basel III.
- 2) Alternative finance for shipping especially comes from PE funds.
- 3) Intermediate parties will be created in order to arrange the transactions.
- 4) Alt. Finance will become mainstream and will be good for at least 20-25% of total transactions in shipping within few years. (Expected growth of alt. finance)
- 5) Shipping finance needs to become more professional

The first aims to analyze the reaction of banks to the shipping crisis and the regulation that financial crisis of 2007/2008 imposed. As elaborated in the second chapter, banks adopted a negative attitude towards shipping due to cyclicity and its capital intensive nature. Combined with liquidity restrictions and heavy losses banks currently are withdrawing from this specific market or they decrease their exposure in such activities. Therefore, this hypothesis is correlated to our first sub-research question and through the questionnaire we will try to confirm or reject our belief that the main reason that banks are exiting ship finance activities is the new regulations.

The second hypothesis aims to confirm or reject our belief about the most common type of alternative financing that will be used in the near future. Private equity firms, especially from United States of America, are heavily investing in shipping and establish different requirements for the vessel ownership (Munden, 2014). Moreover, private equity has already provided shipping companies with billions of capital, as for instance Oaktree Capital investment. More examples have been provided to the corresponding part of private equity in sub-chapter 2.6. Therefore, through specific questions we will try to infer about the preferences of the involved players in the market for different alternative sources of capital.

The fourth hypothesis is correlated with our third sub-research question. We will try to identify the relation between bank loans and alternative capital sources. Moreover, we will try to infer some statistical data about the size and expected growth of alternative sources in shipping industry in the near future, through beliefs and experience of the active parties in this industry.

The third and fifth hypothesis combined will provide more insight about the changes that need to be imposed in shipping in order to be attractive for alternative financing sources and if new professions will be created in the industry to arrange transactions. Through these hypotheses, we will research if professionals and institutes inside the industry believe that shipping will be more professional in the future and obtain access to more restricted capital in terms of requirements, or if it will keep its public shy nature and continue applying for traditional finance. Regarding to the new requirements, KPMG (2012) conducted a survey about the “demands placed on shipping companies to implement alternative financing models” in order to identify some characteristics and changes needed in shipping, but with no conclusion if shipping industry can accept these characteristics and become more professional. In our next chapter of results’ analysis, we will compare our findings with ours in terms of characteristics. If all our hypotheses are answered, then we will be able to answer our main research question about the long term viability of alternative sources of capital in shipping and their development. In Table 11, we summarize all our hypotheses and their correspondence to our sub-research questions.

Table 5: Hypothesis statements of the research

No.	Hypothesis Statement	Sub-research question correlation
1	Commercial banks are withdrawing from ship-finance because of their losses and Basel III.	1 <sup>st</sup> Sub-Research Question
2	Alternative finance for shipping especially comes from PE funds	2 <sup>nd</sup> Sub-Research Question
3	Intermediate parties will be created in order to arrange the transactions	4 <sup>th</sup> Sub-Research Question
4	Alt. Finance will become mainstream and will be good for at least 20-25% of total transactions in shipping within few years. (Expected growth of alt. finance)	3 <sup>rd</sup> Sub-Research Question
5	Shipping finance needs to become more professional	4 <sup>th</sup> Sub-Research Question

Source: Author

### **3.3 Questionnaire design and interviews**

#### **3.3.1 Interview Process**

After presenting our hypotheses and how we will approach them, this sub-chapter aims to provide more information about the interviewing process. The total number of participants in our survey is 13, consisting of 4 banks, 5 ship owners and 4 experts and institutions involved in ship finance, as for instance lawyers, ship finance professors/advisors and private investors (funds). We tried to diversify the portfolio of participants under the “shipping companies” and “other professionals” categories. For

shipping companies, we included participants operating in the dry-bulk (under distress), container (under distress), chemical (stable market) and crude tanker market (strong returns) in order to include opinions on alternative financing from companies that can access bank loans and companies that cannot. For other professionals, we included private funds/investors and experts as lawyers and professors in order to include academic and real life experience based sentiments. Further information about the names, positions and companies will be handled as confidential after the request of our participants. Only the supervisor of this research had access on these confidential information.

The interview process started with contacting the different companies. The contact was initiated by an email invitation with the questionnaire during June. Due to the understanding of the complicated schedule of our participants a reminder note was sent every week during June, indicating four reminders in total. The total number of contacted participants was 57. The main source of the portfolio of participants arose from the author's and his supervisor's network. With a brief explanation of our research objectives, the questionnaire was handed out 3 days before the fixed interview date. Lastly, the approaches that were used for the interview by priority are: (1) Direct face-to-face interview (2) Phone interview (3) Via email (the answers were provided written by the interviewed person). As the physical appearance of the author was limited, the main tool used was interviews via phone. Only Dutch-based companies and professionals were interviewed directly due to close proximity to the author.

### **3.3.2 Questionnaire Design**

The questionnaire was designed based on our different hypotheses in order to be able to accept or reject them through the answers that will be obtained. Moreover, the same questionnaire was developed for all the participants, despite of the difference of expertise for each of them. This was our primary concern, as we would like to notice the response of banks, ship owners and other financial experts on the same topic in which many contradictions exist between these parties.

First, we deployed a draft version of the questionnaire which was handed out to a number of banks and ship-owners for pre-testing. Valuable feedback and suggestions about the level of clarity, the objective of the questions, the accuracy, the applicability of the answers and the amount of time needed was collected. Then we implemented all the changes in order to complete the final version of the questionnaire. These changes were related mostly with the minimization of ambiguity, the format and scale and additional scenarios under the questions for clarity. Lastly, all the respondents were assured that their data and sensitive information will be kept confidential.

The questionnaire consists of four different parts. All the different parts and the corresponding questions can be found in the Appendix. The first part, "Part A: Participant's Details", provides personal details of the participant and his expertise in shipping finance.

The second part, "Part B: Traditional bank loans and alternative sources of capital in shipping", is trying to address our first hypothesis and partially the second. Moreover, through the answers we obtain information about the reasons that banks are exiting the

market and if they will invest up to the same level before the financial crisis of 2007/2008 in shipping as well as the relation of ship finance through bank loans with the alternative sources of capital. In addition, a loan structure with different available options is included in order to infer about the preferences about each option for financing a vessel and the possible range that each of the sources will participate in an exemplary loan structure. Lastly, an open question is included in order to investigate the perception of participants for the current lending environment in shipping and the relation of bank loans and alternative sources of capital. Therefore, through this part, mainly our first and third sub-research questions will be addressed regarding to why banks withdraw from shipping finance and what can be expected between the new alternative sources and traditional finance through bank loans.

The third part, “Part C: Type and size of alternative financing”, aims to address our fourth hypothesis and partially the second. Through this part of the questionnaire, we expect to distinguish the different sources of alternative capital that are available for shipping and which of them are more common based on the experience and beliefs of the participants. Moreover, we aim to retrieve facts about the segments that there is possibility for alternative finance to grow and the geographical regions or specific nations that will be involved in the new reality of shipping finance. Lastly, through closed type questions, we will infer about the expected growth and size of these alternative sources in maritime industry. Therefore, through this part, we aim to answer our second sub-research question, regarding to the type and size of alternative financing in the near future and part of our main research question regarding to the development of alternative financing in shipping.

The fourth part, “Part D: Requirements and changes in shipping industry according to alternative sources”, aims to address our third and fifth hypotheses. Through this part, we aim to distinguish the new challenges and characteristics that alternative sources of capital impose in shipping and which of these requirements differ from the current traditional financing through bank loans. Moreover, we aim to investigate further if these characteristics or requirements will be implemented in shipping based on the beliefs of the participants. In addition, we will examine the current restrictions that prevent shipping companies from accessing alternative capital sources and how they can improve their situation. Furthermore, we include closed type questions that will provide clear answer for the viability of alternative financing in shipping in the long term and if the new reality will create space for new intermediaries, meaning that accessibility of alternative sources will not be direct through the shipping companies. Therefore, this part aims to answer our fourth sub-research question and also part of our main research question regarding to the viability of alternative financing in the long term.

## Chapter 4 Analysis of the Results

### 4.1 Participants

As stated in methodology, the total number of participants in our research is 13. The total number of executives in the maritime industry reached out was 57. The process and details of the interview process were mentioned in the methodology chapter. Therefore, we had only approximately 23% positive responses. In a complicated world with many banks and even more shipping companies and maritime services we will proceed with caution as our results may prove to be insignificant due to limited participants. The outcome of the percentages in the closed-type questions may prove to be significantly higher than the reality which is justified by the bias of our participants. Shipping companies can have different point of view compared to banks as currently they are counter-parties. In addition, other professionals either present a more academic knowledge (not always apply to reality) or have specific positions and beliefs about their investment strategies, which possibly contradict with the perception of shipping companies who argue that they better understand shipping cycles and markets. Figure 11 presents the different sectors included in our survey. Lastly, we need to clarify that more information on the names, companies and positions will be handled as confidential after the request of the participants.

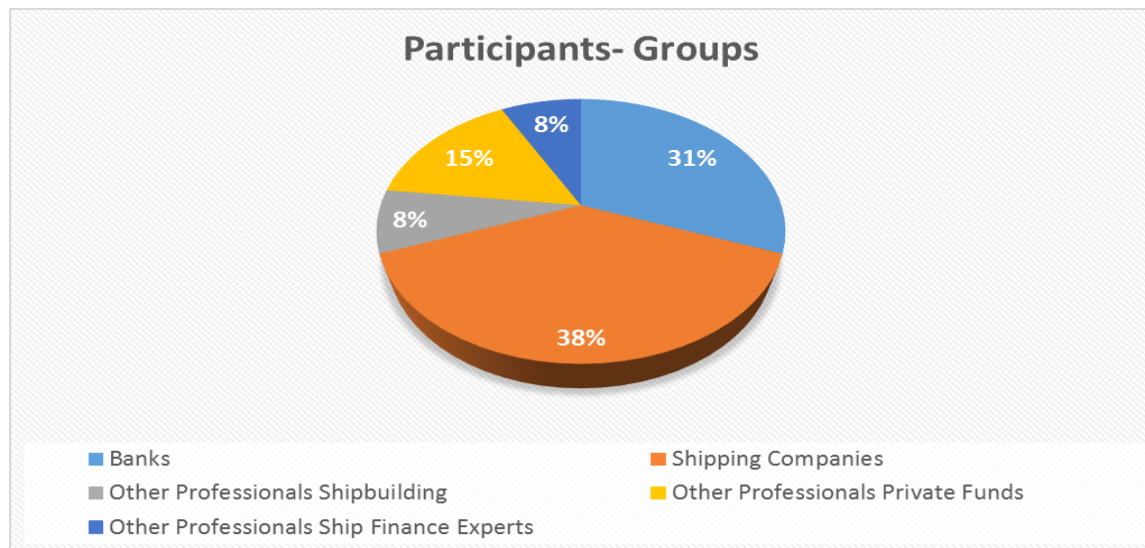


Figure 11: Participants  
Source: Author

### 4.2 Traditional bank loans and alternative sources of capital in shipping

#### 4.2.1 Why do commercial banks exit the market?

This question included options as Basel III implications reviewed through our second chapter, the heavy losses or other reasons. Figure 12, depicts that during our survey, no participants accept as true that only Basel III is the only reason that big commercial banks



are exiting the market. Specifically, 64% argues that both heavy losses and new regulation (Basel III and forthcoming Basel IV) are responsible for the situation. In addition, they argue that the first is the main reason while the latter is partially the reason. Lastly we can notice that 14% is not convinced by the two options and try to give their own explanation. One of the participants, qualifying in the shipping companies, stated that the main reason is the increased cost of money and therefore banks look for areas providing higher yields while another participant, qualifying as bank, stated that *“Market outlook especially in dry-bulk and offshore has made banks conservative as it is uncertain whether available liquidity of shipping companies is sufficient to weather the downturn”*. Therefore, expensive capital, caused mainly by Basel III regulation and riskier approach to shipping, combined with market conditions and outlook can also be considered reasons that commercial banks are resistant towards lending. Hence, through the answers we can carefully reject our first hypothesis, as banks are not exiting the market only because of Basel III but because of a combination of arguments, mainly referring to heavy losses and partially to Basel III regulation.

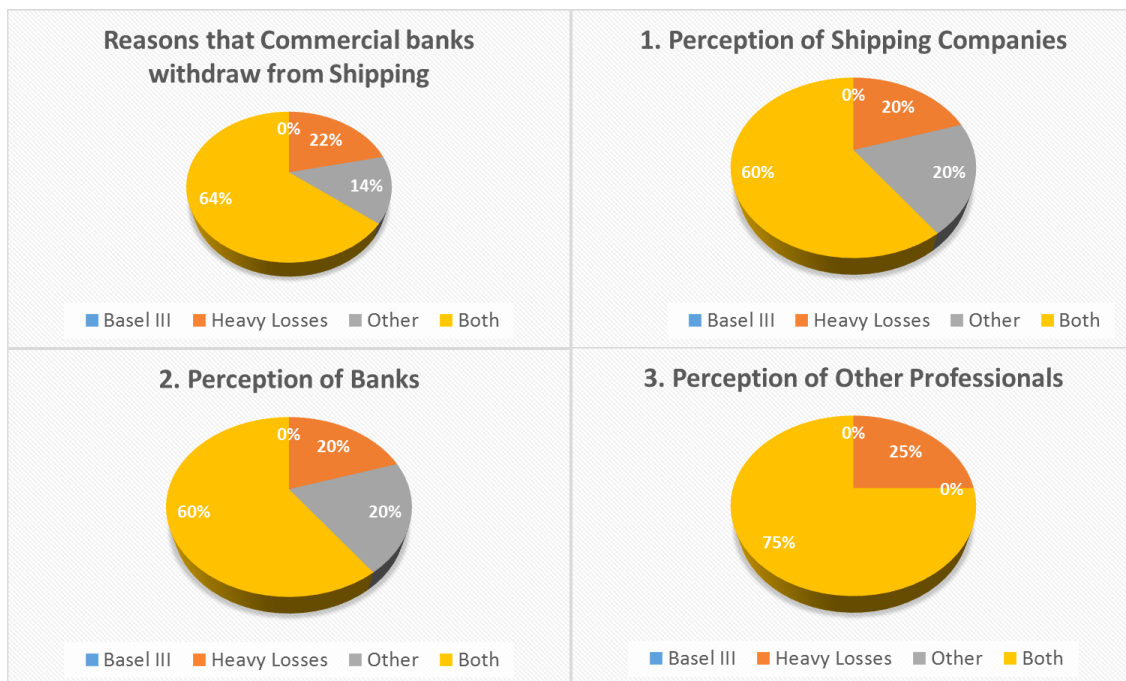


Figure 12: Reasons that commercial banks withdraw from Shipping  
Source: Author

#### 4.2.2 Commercial Banks Entering the market again in the short (<5 years) and long-term (>5 years)

This part of our questionnaire, provides insight on the beliefs of our participants about the future involvement of commercial banks in the shipping industry. As we can notice from Figure 13, only 23% of all participants believe that commercial banks will provide finance in shipping in the same levels as before the Financial Crisis of 2007/2008. This 23% is

mainly formulated by the opinion of participants qualifying as shipping companies and a limited amount of other professionals involved in the shipping finance sector. It is clear from Figure 13, that banks themselves are not willing to be involved again in the short-term in shipping. The diverse opinions of shipping companies compared to banks is mainly due to the perspective of the first that markets will improve again and banks will still continue to be involved in their transactions as they are not willing to face the new reality of ship finance. Although, we will proceed with further analysis of alternative sources in the following chapters, we can already notice an opportunity for alternative capital to evolve in shipping in the short-term.

In the long-term, we can notice a different perception. Compared to short-term scenario, as Figure 14 depicts, 54% of the participants believe that banks will be heavily involved in shipping again, when the market outlook will be positive. This is mainly due to the optimistic view of shipping companies on this issue, as 60% of them states that banks will be part of the “crazy lending” activities. Banks and Other professionals seem to be more conservative on their approach as they are equally divided based on the long-term scenario. Hence, we can conclude, with caution, that in the long-term banks will may be willing to invest in shipping again and as an outcome, to limit the growth of alternative sources.

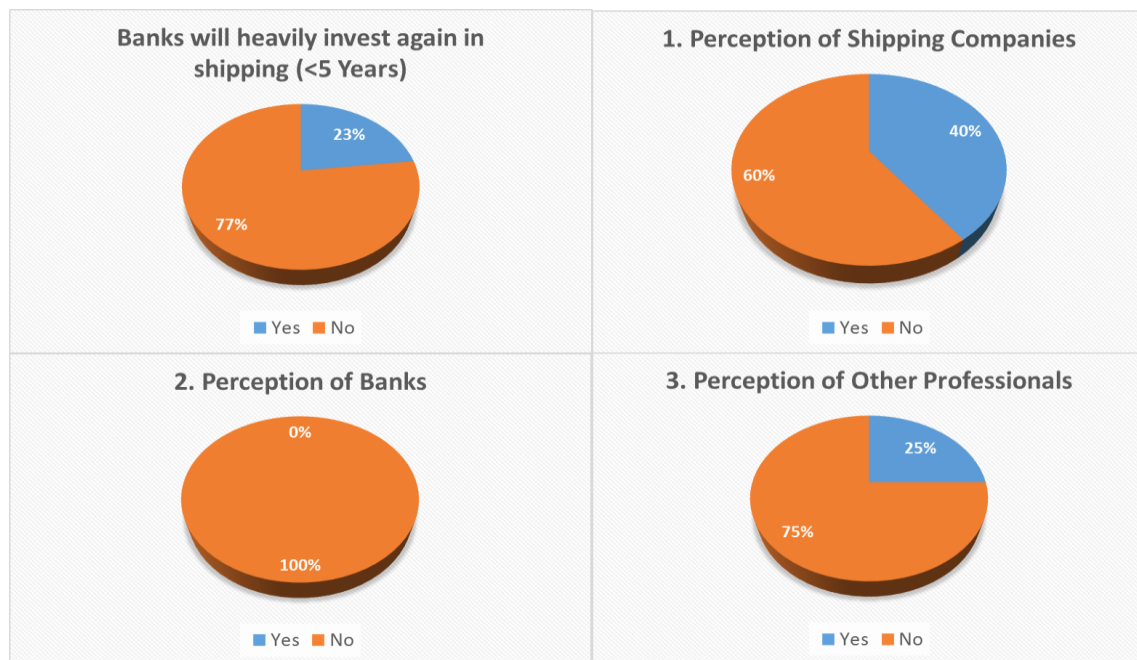


Figure 13: Will banks invest in the same level as in 2008 in shipping? (Short-term Scenario)

Source: Author

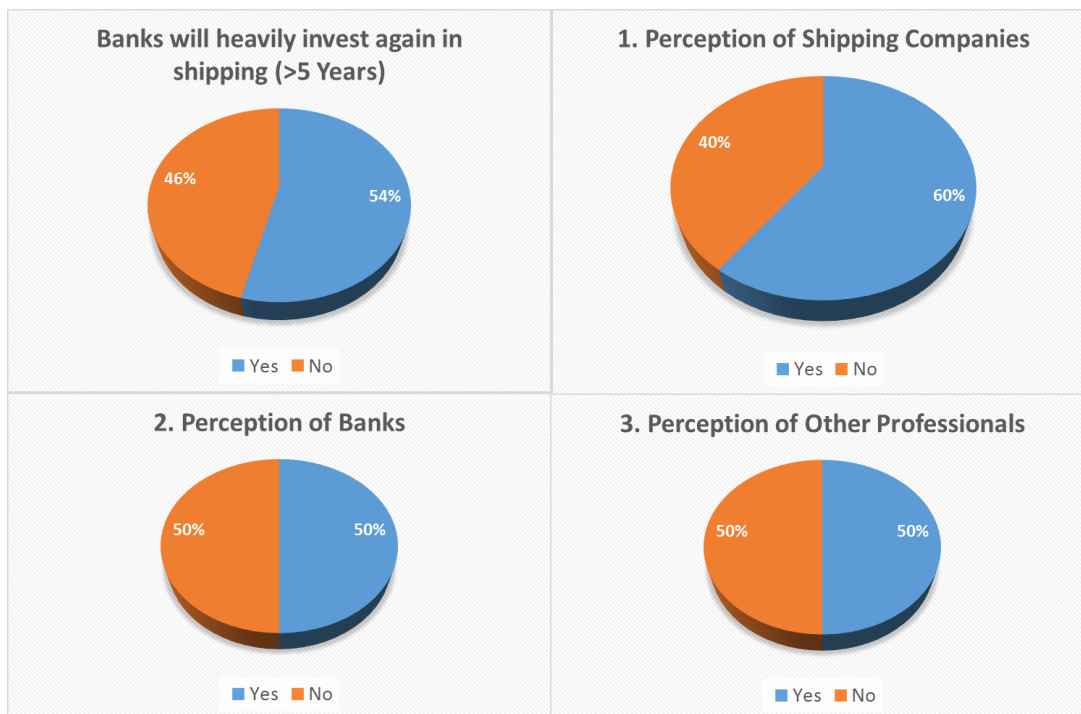


Figure 14: Will banks invest in the same level as in 2008 in shipping? (Long-term Scenario)

Source: Author

#### 4.2.3 Perception of the current lending environment in shipping and its future

Due to the nature (open-type) of the question handed to our participants, the results can vary a lot. Although, we were able to notice specific patterns in the perception of our participants on the current lending environment in shipping and its future. The first pattern is connected with the limited lending activity of the banks. As one of the participants, qualifying as shipping company, stated *“Traditional asset backed loans have historically satisfied 75% of external funding requirements in shipping. Since the start of the financial crisis in 2008, the number of active shipping banks has reduced and the ticket levels have decreased. Nowadays the percentage of loan-to-value provided through the traditional asset backed lending varies from 50% to a maximum of 65%.”*. The reasons mentioned for this behavior by our participants are mainly the constrained cash-flows and the lower profit margins of the shipping companies due to the negative market conditions and outlook of shipping.

Of course, bank finance in shipping is existent but in cases with limited capacity. This opinion distinguished among some of our participants, especially banks and private investors, lead us to the second pattern. Market segments as tankers, are strongly backed by bank lending. Therefore, there is limited need for alternative sources. In contrast, market segments as dry-bulk or offshore that are currently in the trough period

of the shipping cycle, realize difficulties and restrictions on accessing bank loans and are currently focusing on alternative ways of raising capitals as leasing companies and ECAs. Regarding to this pattern we distinguished a very interesting opinion of a participant emerging from the bank sector: *“Current lending environment in shipping is relatively good. There is available traditional financing in the Tanker segment and limited in the dry-bulk. Cash-flows are limited in the latter. Many leasing companies step in the dry-bulk market. Shipyards that are finishing construction of vessels put pressure on their banks to finance ship-owners. Hence indeed there is alternative financing in the dry bulk market.”*

Moreover, connected to the previous one, we distinguish another pattern focused on the balance sheet of the shipping companies. Bank finance is available only to “strong players” in the market and limited for the small/medium companies. The same applies also for some of the alternative sources, as for instance IPOs, bonds and share issuing. Hence, especially representatives from shipping companies mention that this strategy leads to financing companies with no actual need. In addition, a very interesting opinion from a shipping company participating in our survey, was distinguished amongst other, regarding to small medium players in the market: *“Equity Capital Markets, Debt Capital Markets, Private Equity Funds, Mezzanine finance providers and Export Credit Agencies (ECAs) have stepped in to fill part of this shortage however the overall amount of their contribution seems to be small comparing to the gap left by the sizable commercial banks.”* Combined with other opinions, this gap will be even steeper for small and medium players in the shipping market.

Regarding to the near future relation between there are two major patterns that can be detected. Approximately 46% of the participants argue that alternative sources will increase their market share compared to bank loans because of restrictions, regulations and availability to small and medium sized companies. We can distinguish an opinion from a shipbuilding company with experience in finance, that alternative sources will be good for transactions under 20 million euro while he also stated that *“Banks are increasingly restricted by regulation and compliance that will increase more the cost of funding. Hence bank in the future will become more consultants and will advise the shipping companies about (alternative) sources of finance and may partially finance a transaction”*. On the other hand, approximately half of our sample argues that the future of alternative financing and traditional financing through bank loans is highly dependable on the market situation. If the shipping market outlook improves, then banks’ appetite to lend with lower margins will grow, competing with alternative sources which tend to be more expensive. In contrast, when bank financing is constrained as nowadays, more shipping companies will tend to focus on alternative sources exploration.

Lastly, a controversial opinion regarding the future of bank loans and alternative sources, came out from a participant, qualifying as an expert (other professionals) in the industry. He stated that: *“Bank loans are still relatively cheap. This will probably change and only then alternative capital sources will be attractive for established ship owners. The only*

*reason established ship owners would not take out bank loans is to ensure they have access to several financing sources (bond market). For less established ship owners these other sources are almost not available and if banks do not wish to finance them it is generally hard to believe that there is a sound business case at all”.*

### **4.3 Type and size of alternative financing**

#### **4.3.1 Scenario Question**

This question presents five different scenarios about financing newbuilding or second-hand vessels with different characteristics and options. The purpose is to distinguish, based on the alternative sources defined in chapter 2.7, the type and size as well as the combination of alternative and traditional financing. Below we will present the analysis of the choices for each scenario. Due to space limitation, the different perspective for the three distinguished groups of participants (shipping companies, banks and other professionals) will be available on the Appendix of this paper.

##### **4.3.1.1 Scenario 1: Financing a newbuilding with a high (>75%) LtV, backed by a long term (>7 years) contract above break-even with a strong counterparty and a strong corporate guarantee**

This scenario was characterized by our participants as “golden plate”, because of the young age and long-term employment above break-even. Figure 15 presents the perception of our sample on the choice of financing.

As it is considered a lucrative investment, we can notice that most of our sources being utilized. In terms of Senior Debt, our participants highly chose the Large Commercial Banks as they believe that there is a high chance of financing. In the same category, Leasing Companies and ECAs scored pretty high, while specialized banks are not a common option, mainly due to the higher cost of financing. In terms of Mezzanine Finance, again Large Commercial Banks seem to be the most common option, while in terms of equity we notice that stock market with IPOs and shares issue as well as PE firms score high in the preferences of our participants. Ship-owners are always included by default in all our options therefore we do not pay attention to the choice but only in the percentages of the loan structure in Figure 15.

As this scenario is characterized as excellent investment option, the amount of senior debt is equal to 70% while the shipping company only offers 12% of equity. If we compare it with the different perception amongst our three groups we notice that banks are more restrained as their average range of Senior Debt is 65%, while investors and other professionals are more willing to invest on Senior Debt with an average range of 75% (Figure 26, Appendix).

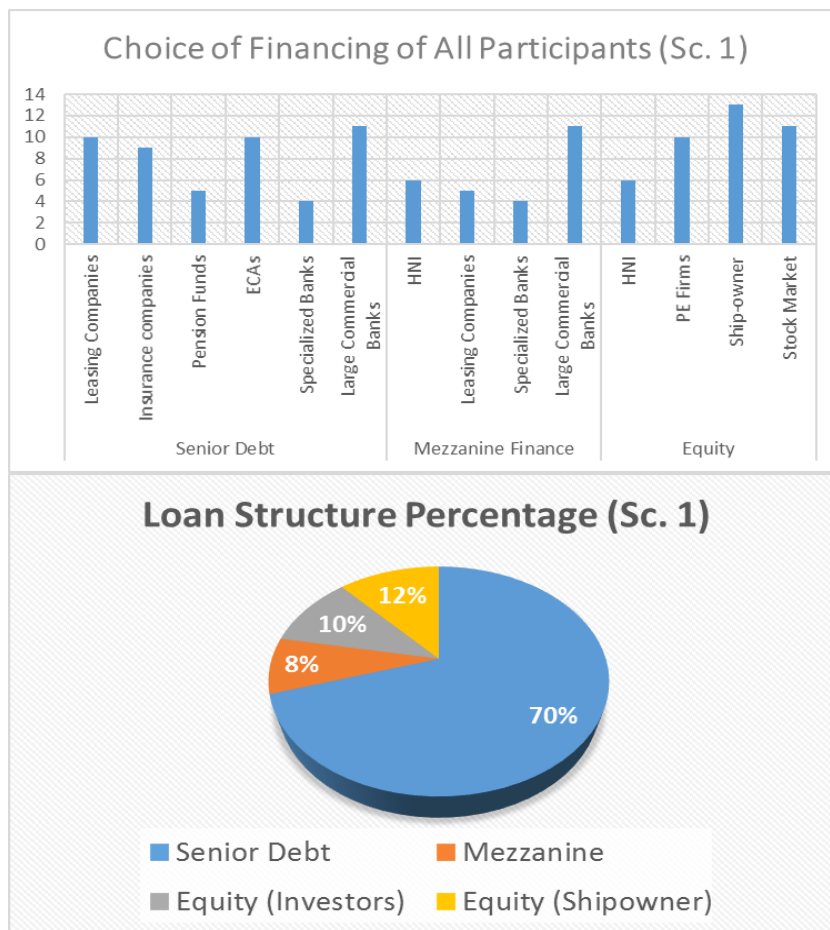


Figure 15: Choice of Financing Sources and loan structure (Sc. 1)  
Source: Author

**4.3.1.2 Scenario 2: Financing a newbuilding with a regular (ca. 60%) LtV, on a single ship basis, with the vessel trading spot, just above break-even level, with a corporate guarantee that provides some comfort**

This scenario was not characterized as a lucrative investment amongst our participants. Figure 16 represents the perception of our sample on the choice of financing.

In this case, Senior Debt is mainly covered by leasing companies and ECAs, while Commercial banks seem more reluctant to invest. Specialized Banks seem pretty active especially in the Mezzanine layer while equity will be mainly covered by the ship-owner as PE firms or HNIs seem more reluctant. Stock market may be a medium option according to the results.

As we notice from the loan structure perception, as this scenario is considered riskier compared to the first one, the average of senior debt amounts to 62% (decrease by 9%) while the equity required by the ship-owner or investors amounts up to 33% compared to

22% in the previous scenario. In addition, the perspective of the different groups about senior debt layer is the same while big differences are noticed in the equity part, as banks require higher equity from the ship-owner while the latter prefer more equity from external investors (Figure 27, Appendix)

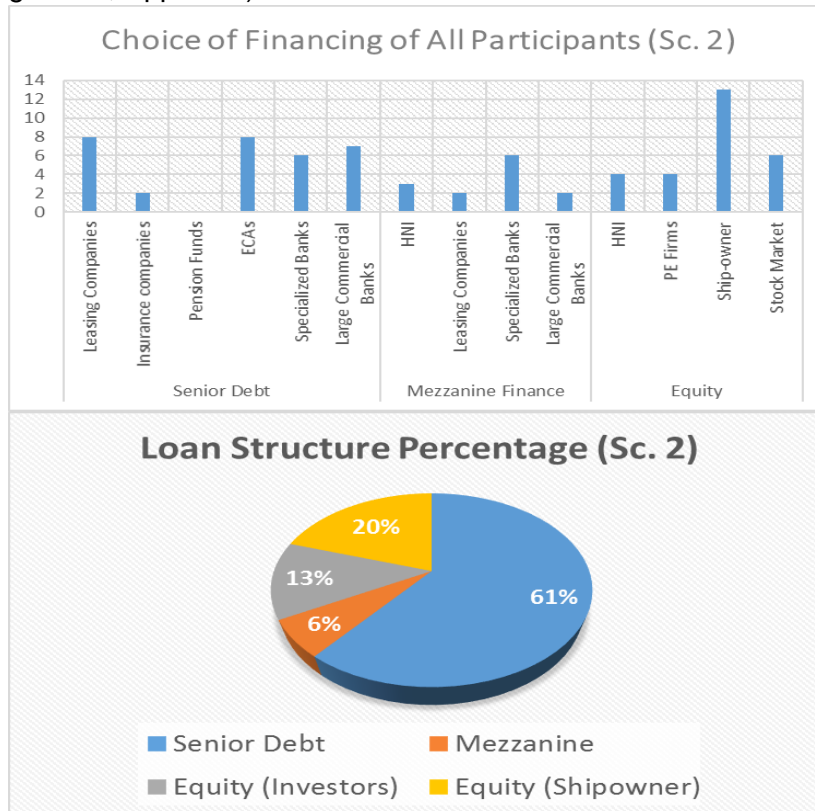


Figure 16: Choice of Financing Sources and loan structure (Sc. 2)  
Source: Author

#### **4.3.1.3 Scenario 3: Financing a newbuilding that will be trading spot, with a high (>75%) LtV on a standalone basis, and cash flow below break-even in the first two years**

This scenario was characterized as the worst case between our newbuilding vessels scenarios. Figure 17 depicts the perception of our sample on the choice of financing.

In this case, senior debt is mainly covered by the ECAs, as they would try to provide assistance to domestic shipyards for the delivery of the vessel, as the income is below break-even point. HNIs would seem as the appropriate choice in terms of mezzanine and equity. The perception of our participants excludes possibilities as pension funds and stock market as it is considered a very risky investment.

Based on the loan structure perception, senior debt amounts only to 49% while the required (combined) equity is 31% (an increase of 9% compared to scenario 2).



Furthermore, the perspective of different groups about senior debt layer is highly differentiated with the banks being more offish compared to banks and other professionals. In addition, banks prefer higher mezzanine and equity compared with the other two groups. (Figure 28, Appendix)

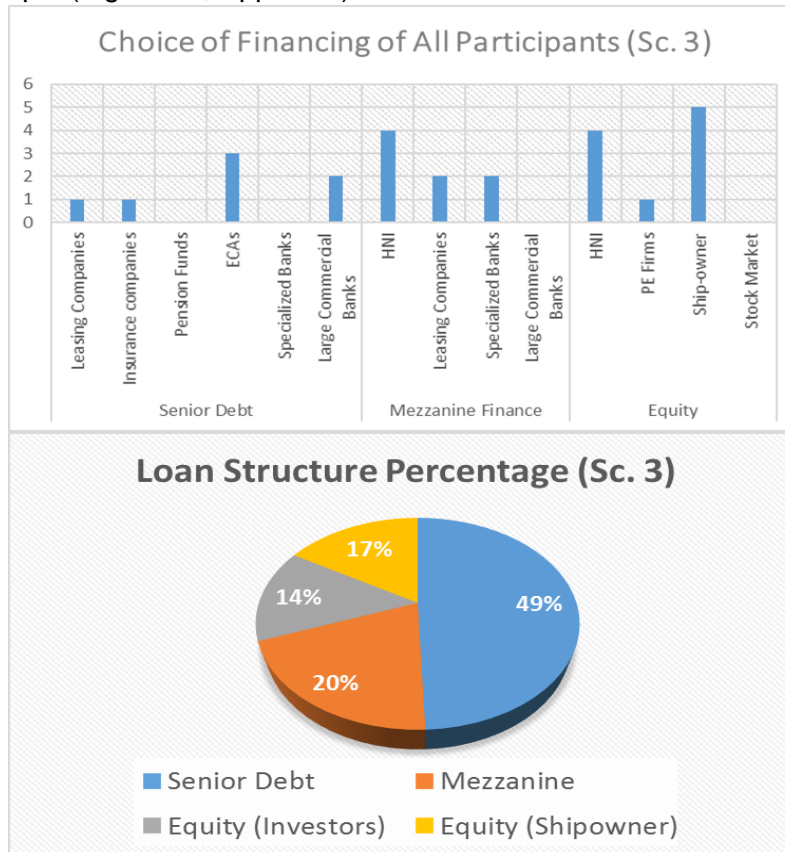


Figure 17: Choice of Financing Sources and loan structure (Sc. 3)  
Source: Author

**4.3.1.4 Scenario 4: Financing a five-year-old second hand vessel with a regular (ca. 60% LtV), backed by a 3-year time-charter contract, above break-even level and a corporate guarantee that provides some comfort**

This scenario was characterized as a “sound” investment in the secondhand market, amongst our participants. Figure 18 depicts the perspective of our participants in the choice of financing.

In this case, as it is connected with the second hand market, we notice ECAs being non-active, as mainly their operation depends on newbuilding projects. Senior debt and mezzanine layer are highly occupied by specialized banks while equity is mainly provided by PE firms and the ship-owner. Insurance and leasing companies have limited activity in the senior loan, with the latter being more actively involved in the junior loan.



As we notice from the loan structure, 60% on average is covered by senior debt and equity amounts to 26%, lower than the previous two scenarios. Moreover, the perception of the different groups about senior debt is the same while ship-owner seem to choose higher mezzanine and lower equity which contradicts with the opinion of banks and other professionals (Figure 29, Appendix)

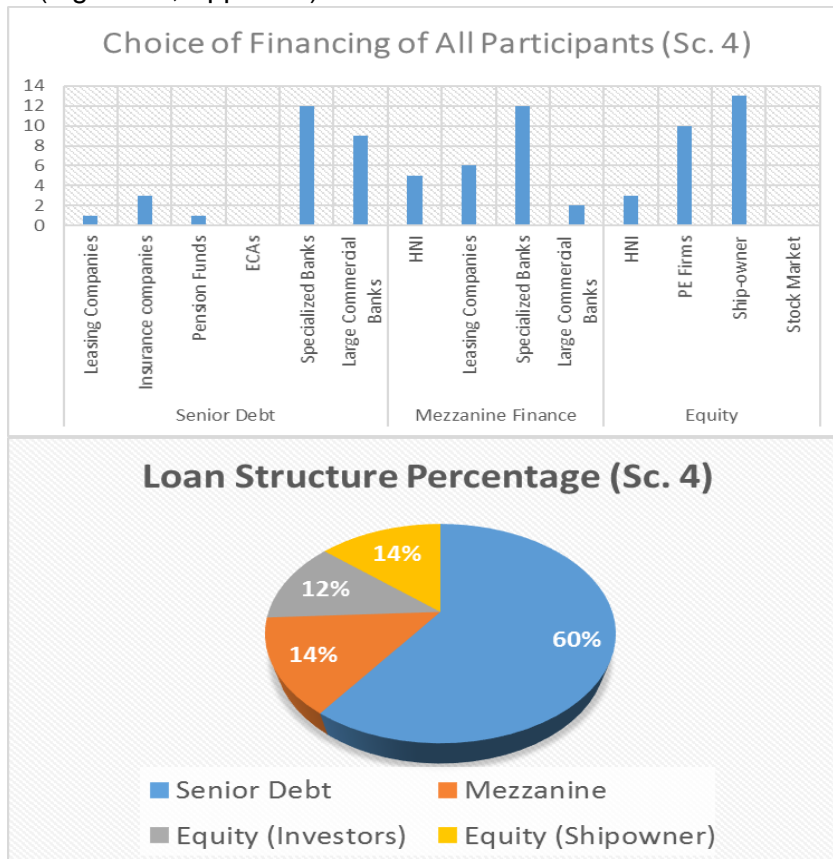


Figure 18: Choice of Financing Sources and loan structure (Sc. 4)  
Source: Author

**4.3.1.5 Scenario 5: Financing a five-year-old second hand vessel trading spot on a standalone basis, with a regular (ca. 60% LtV) and cash flow just above break-even level**

This scenario was characterized as not a good investment in the current market by our group of participants. Figure 19 depicts the preference of our participants in the choice of financing.

In this scenario we notice again ECAs being absent for the aforementioned reason. Again, specialized banks cover senior debt while they are cooperating with HNIs in the mezzanine layer. In addition, HNIs and PE firms will cover the required equity besides the ship-owner.

As we notice from the loan structure, 42% is the average of senior debt, significantly lower than the previous scenario. Mezzanine layer climbs to 21% and equity also is 37%, an increase of 11% compared to the previous situation. Likewise, the perception amongst our three groups is highly different in terms of senior debt, as shipping companies would choose a higher senior debt and lower investors' equity percentage compared to banks and investors, while they are at the same level for the required equity by the ship-owner (Figure 30, Appendix)

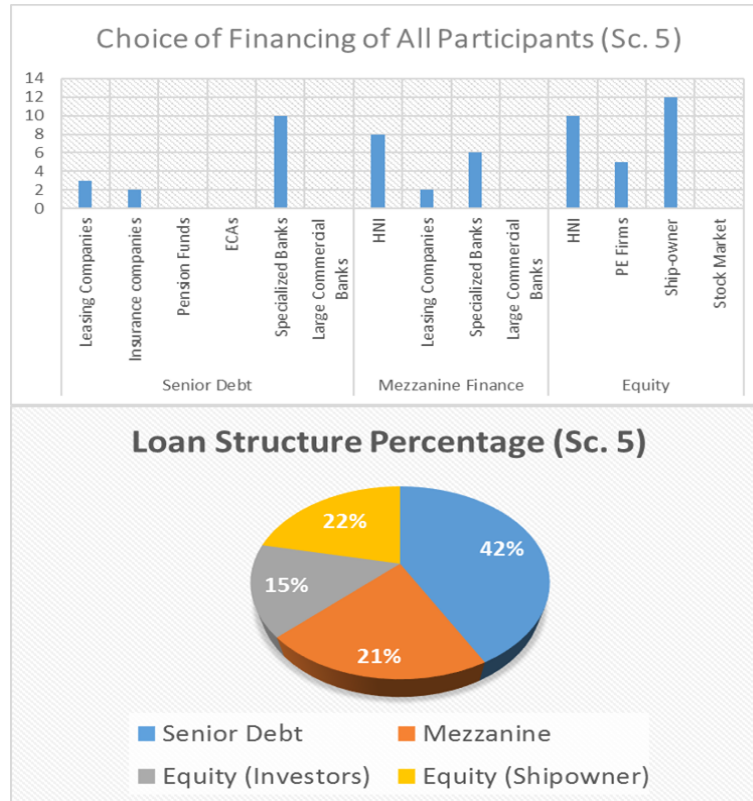


Figure 19: Choice of Financing Sources and loan structure (Sc. 5)  
Source: Author

### 4.3.2 Existence and development of alternative sources in shipping

Based on their expertise, we asked our participants to list the alternative sources of capital which are currently active in the shipping market. A lot of alternative sources where defined including sources that we did not specifically distinguish in our theoretical description. We listed all the sources mentioned and list them based on the frequency mentioned. Therefore, from Table 6 we can notice that the most frequent source of alternative financing in shipping, based on the perspective of our participants, is the Private Equity firms, followed by insurance and leasing companies. Important to clarify here is the fact that the most frequent does not imply that include also the highest transaction amounts.

Table 6: Alternative Sources of Capital (sorted by frequency)

	fr.	%	S.C fr.	B fr.	O.P fr.
<b>Private Equity Firms</b>	9	17%	4	2	3
<b>Insurance Companies</b>	7	13%	2	2	3
<b>Leasing companies</b>	6	11%	1	3	2
<b>ECAs</b>	5	9%	2	1	2
<b>Pension Funds</b>	4	8%	1	1	2
<b>JOLCO Structure<sup>3</sup></b>	4	8%	1	2	1
<b>Specialized banks</b>	3	6%	1	1	1
<b>High Net Worth Individuals</b>	3	6%	0	1	2
<b>Islamic banks</b>	2	4%	1	0	1
<b>Special tailored Products by banks<sup>4</sup></b>	2	4%	1	1	0
<b>Crowdfunding</b>	2	4%	1	1	0
<b>KEXIM Bond Structure</b>	2	4%	1	0	1
<b>M.E Oil funds</b>	1	2%	1	0	0
<b>Logistics and Trading Companies</b>	1	2%	1	0	0
<b>KS Partnership</b>	1	2%	0	1	0
<b>JV Partnership with financial investor or ship-owner fund<sup>5</sup></b>	1	2%	0	1	0

Source: Author

Regarding to the development of these sources, based on the answers provided, we conclude that all of them have potential of developing in the shipping industry with exception of the Islamic and the Middle East oil funds, due to the temperament of these sources. In addition, PE funds in our responses include also distress funds which in the short-term will develop further as they look for opportunities to invest in acquiring senior debt or providing financial relief to distressed companies.

<sup>3</sup> Japanese Operating Lease with Call Option: An operating lease where a Japanese corporate buys the equity portion of a vessel in order to get depreciation benefits and typically, a JOL will involve the purchase of the vessel by a Japanese lessor, which leases it to shipping companies. The JOL will generally be leveraged by a term loan facility provided to the lessor to fund the debt portion of the acquisition cost of the vessel while Call Option indicates the right but not the obligation to purchase the vessel in the future (JOL, 2016).

<sup>4</sup> Banks are offering a combination of debt and wealth management (equity) as the transaction is considered trustworthy when banks are involved (Yeallapurkar, 2016).

<sup>5</sup> Joint Ventures (JV) with participation of financial investors and ship-owners

Our participants fondly believe that alternative sources will grow currently because of medium and small players in the market opting for financing. For leasing and insurance companies we distinguished an answer from a participant, qualifying as bank. He stated that *“Leasing companies will further develop because they have better control of the vessel as they own it and also they have low transaction costs when they exit. They can simply cancel the contract and appoint another commercial manager for the vessel. They may give up 80% with low price environment (dry bulk market). They usually face a bareboat hire and they take action pretty quickly when things are not going as expected. Capital structure of leasing companies can help as it consists of 40% equity and 60% finance and especially in US they are interested in ship leasing. Moreover, there are Japanese leasing companies with PE involved in order to provide ship leasing services to companies. Insurance companies in general they need a learning curve for shipping and they need to grow and accept higher risk or else the amount of transactions will be quite limited”*.

Another interesting opinion regarding to alternative sources distinguished amongst the shipping companies' participants. It was stated that although we can notice high activity of ECAs, their development depends on the newbuilding appetite which based on the current market situations it will decrease. Moreover, the same participant stated that bonds are closely related and are available only for large shipping companies, confirming our assumption to exclude them from our research.

Another response arising from a shipping company contradicts with the others as this specific participant states that vast majority of finance will remain with traditional bank lending, with alternative sources usually becoming popular for a short time and then failing. Specifically, participant qualifying as a bank stated that large banks will step out completely and PE firms, insurance companies and ECAs will further develop.

The results of this question indicate that the most frequent answer about alternative sources is private equity combining PE funds, HNIs, family-oriented capital while limiting the Pension Funds as a choice because of the riskier profile of the shipping industry. This fact can be combined with the summarizing results of the scenario question analyzed above by excluding though traditional financing through banks and ship-owner required equity. Figure 20, depicts that the most highly chosen answer is also private equity firms and high net worth individuals which can be considered a form of private equity. Therefore, we can conclude that in the short-term private equity is considered as the primary choice of our participants. Based on this conclusion we can accept our second hypothesis.

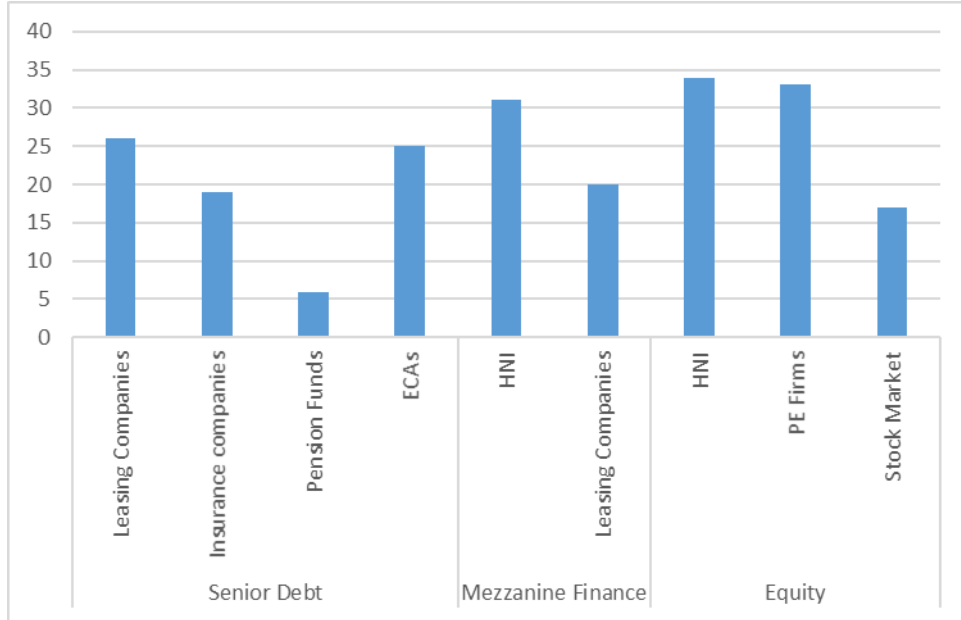


Figure 20: Most often choice of financing (all scenarios, excluding banks and ship-owner equity)  
Source: Author

### 4.3.3 Shipping segments and regions of expected alternative capital inflows

Based on the answers of the participants we counted their responses according to the different shipping sectors that they believe that alternative financing can further develop. The results are depicted in Table 7 based on their frequency.

We notice that dry bulk sector scores high due to its distress situation and opportunities for asset purchase in very low prices. Following is the tanker sector as a result of its high yields. Moreover, a great belief between participants is that green projects in shipping will attract alternative sources due to the environmental marketing and regulations currently evolving in shipping. A very interesting answer describing the belief of a shipping company about investors and their choice of sector was distinguished:

*“Investors will be receiving a multitude of projects for investment. If he is decided that a part of his portfolio will go into real assets, with shipping representing an X percentage, he will seek to discover how his money will work best in the limitations his own Investors provide [...] Today oil exploration is a bloodbath, really valuable assets may come for sale from distressed or even bankrupted operators at a fraction of their cost, however, their operation is equally expensive, therefore unless employment of such assets is secured at above break even, this sector will remain dead [...] Containers is another*

Table 7: Shipping Sectors with Development of Alternative Sources

<b>Dry Bulk</b>
<b>Tanker (Product, Chemical, Crude)</b>
<b>Container</b>
<b>Gas Carriers</b>
<b>Green Shipping Projects</b>
<b>Cruise (Passenger)</b>
<b>Offshore</b>

Source: Author

sector suffering these days. With the coming of the ultra large carriers (20,000 TEU) the previous big mamas (9-12000 TEU) look puny and unless a specific market for them opens up will have a considerable difficulty to survive [...] The LNG sector appeared promising for a time as there would be a huge changeover from dirty oil to clean cheap and abundant Gas. This is another catastrophe investment, as a good unit today to be built commands a price of around 180 million dollars. A price which has little or no chance of appreciating [...] Crude Tankers have been experiencing a long boom which makes assets expensive, and for an investor this is the worst case scenario [...] Finally, the dry bulk is their sector of choice. The size of the assets to be invested in is then a very interesting debate. The question is: Small and relatively safe but with low volatility? Or large expensive but with a huge upward return once markets move?"

Regarding to the region of expected inflows, the frequency of the answers was recorded and translated into the correct order the highest to lowest. Therefore, Table 8 depicts the results. More specifically, the majority of our participants stated that US and Asia will be the main providers of capital, due to new regulations in Europe, while the European region and Asia will qualify as the users of the new sources. Hence, companies domiciled in Europe and Asia will be the main users of alternative capital which will be sourced through US and Asia (Asia qualifies as finance provider and user).

Table 8: Regions in which Alternative sources will develop

<b>Europe (Greece, Norway, Germany)</b>
<b>US</b>
<b>Asia (China, Japan)</b>
<b>Middle East-Saudi Arabia (Qatar)</b>

Source: Author

Again a very interesting opinion about the regions that largest inflows of alternative capitals was distinguished amongst the shipping companies' participants: *"The regions/nations which provide the best source of Operators will have the largest inflow. Every shipping asset without proper Management, irrespective of state of market, needs to be properly maintained and operated, otherwise: 1. Loss of value, 2. Expensive operation, 3. Danger of detention, delays, and breakdown with loss of hire and operating income, reputation. Hence we indicate areas with a Maritime Cluster."*

#### **4.3.4 Expected Growth in Alternative Financing in Shipping**

In this part, two closed typed questions were developed in order to directly define the perspective of our participants about the expected growth of alternative financing in the shipping industry. The results are depicted through Figure 21 and 22.

Based on our sample, which can be criticized as limited though as aforementioned, we can conclude that growth is highly expected in shipping. Especially, the perception of the banks and Other professionals seem to be absolutely positive. Important though is to clarify that our participants, especially the ones qualifying in the bank sector, believe that alternative sources will grow but also traditional financing through bank loans will be existent as the major part of the senior debt layer.

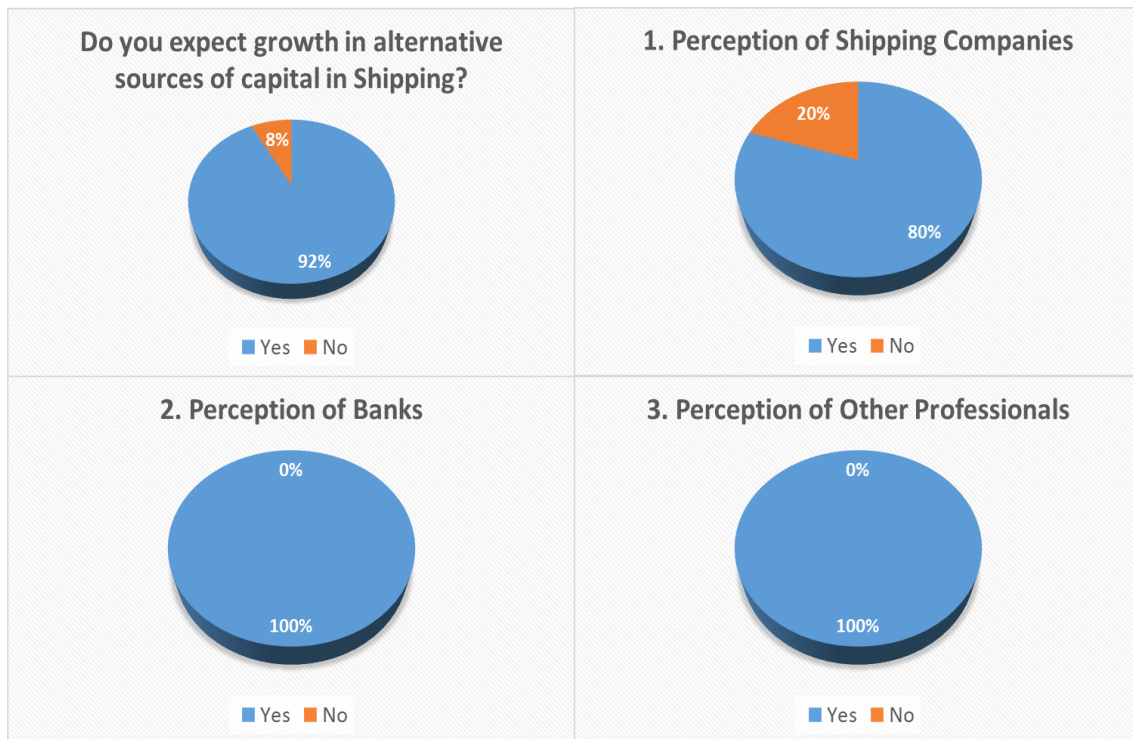


Figure 21: Perception of expected growth of alternative sources of capital in Shipping  
Source: Author

A more complete insight is provided when we directly ask the participants if alternative sources can become mainstream choice for 20-25% of all transactions in shipping in the short-term (<5 years). In this case the total average responses indicate that alternative sources have the potential. Hence, based on our results we can confirm our fourth hypothesis.

Although, different opinions arise, the majority (60%) of the participants qualifying as shipping companies disagree mainly because they argue that shipping is a conservative business always relied upon banks. Therefore, the stance of the shipping companies towards alternative capital sources indicates that they are conservative. Only one quarter of our bank participants do not expect alternative sources to become mainstream, while all the other professionals expect positive growth for these sources in the shipping industry. The results are depicted in Figure 22.

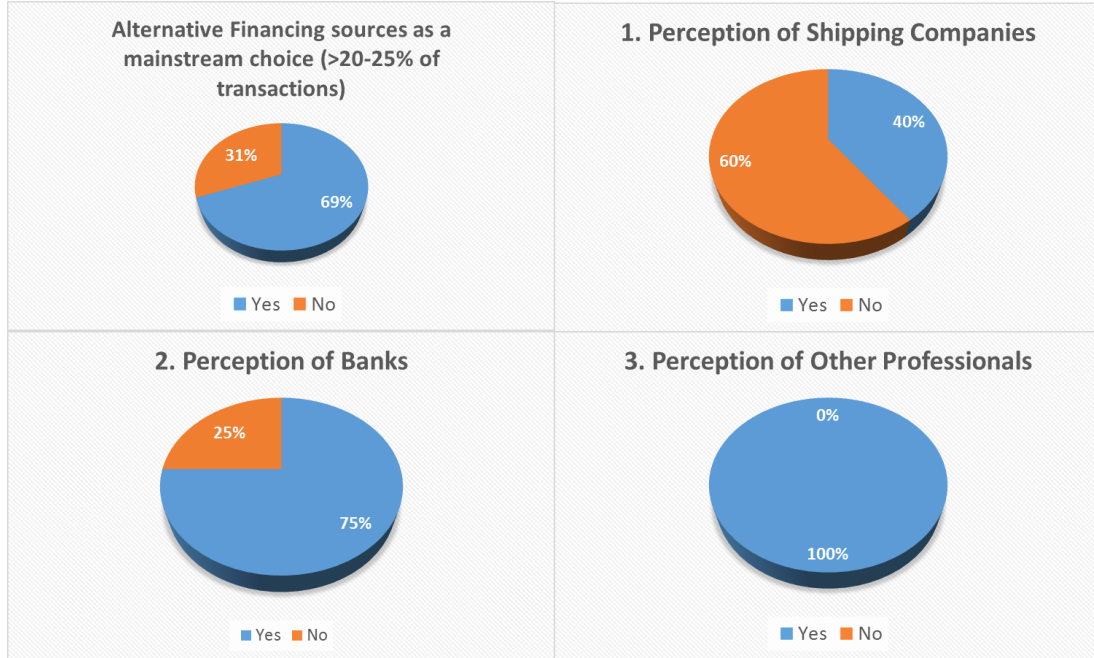


Figure 22: Alternative sources as mainstream choice in shipping  
Source: Author

#### ***4.4 New requirements imposed by alternative sources of capital in Shipping***

Although we concluded that alternative financing is expected to grow in size, it is not for free. As we described in our theoretical background, new sources impose new requirements in order to invest in shipping. Through the last part of the questionnaire we will try to discover the perception of our participants about the new characteristics and if eventually they will be implemented in shipping.

##### ***4.4.1 Requirements imposed in shipping and their difference compared to banks***

As regulation imposed great restrictions in lenders, alternative sources of capital are the option available especially for small and medium companies. Based on the perception of shipping companies, one of the characteristics clearly defined is transparency and better evaluation of vessel prices and cash-flow statements. In addition, transparency and detailed financial information, increased scrutiny and governance, significant improvement of the management activities, restrictions related to the age of the vessels, liquid structures and most important employment of the vessel are other characteristics mentioned. Critical factor is considered the stability in the market as most of the alternative sources managers may lack of experience in the shipping sector.

In terms of investment, higher margins, through better performance, are required while if investment apply to distressed companies, the funds need to appoint an experienced operator. In addition, the size of the company and hence the size of investment is another



characteristic required, as investors prefer consolidation and commodity type vessels so as to be easily operational and face less fixed costs which make the investment even more expensive if not done in a large scale. Better transaction flows are also required as new sources create more complex layers of debt with larger volume of documentation required.

An interesting answer by a participant qualifying as bank, was distinguished amongst others. He distinguished based on his experience, different alternative sources and their main requirements:

- Leasing Companies: Higher Margins
- Insurance companies: Stable contracts, long term charters
- Pension Funds: Stable contracts, long term charters
- ECA: Ship-owner profitable for the past 3 years and shipyard in their own country
- HNI: tax incentive and high margin
- Stock market: Strong appetite and sentiment for improved returns in the stock exchange. If the stock price of oil companies goes down the stock price of shipping companies (tanker sector) is going down.

In terms of difference with requirements from the banks, our participants mainly refer to transparency in the transactions, although currently banks are asking for even more information and compliance. A common strategy was for banks to lend to less transparent structures mainly due to the security of the mortgage on the asset. Another difference was spotted on the management requirements (family owned companies compared to corporate governance) and on the cost of financing, as banks have higher cost currently but alternative sources need to accept higher risk. Furthermore, banks were keen on lending to “cloudy” structures with single ship companies, while alternative sources and especially PE firms, require higher size of investment and commodity type of vessels. Therefore, consolidation can be considered also a different requirement compared to the “irrational” bank-lending period in shipping.

#### ***4.4.2 Implementation of the new requirements in shipping***

As we can notice from Figure 23, only a small fraction of our participants (8%) believe that the new requirements cannot be implemented in shipping. These participants derive from the Other Professionals category specifically as fund managers. The argument is that shipping companies of course are able to deal with the new characteristics but the main question lays on their appetite to comply with them. Although, the general perception on this question is that shipping industry will have to adjust in order to be able to qualify as a viable option for alternative financing because of the lending constraints imposed on banks.

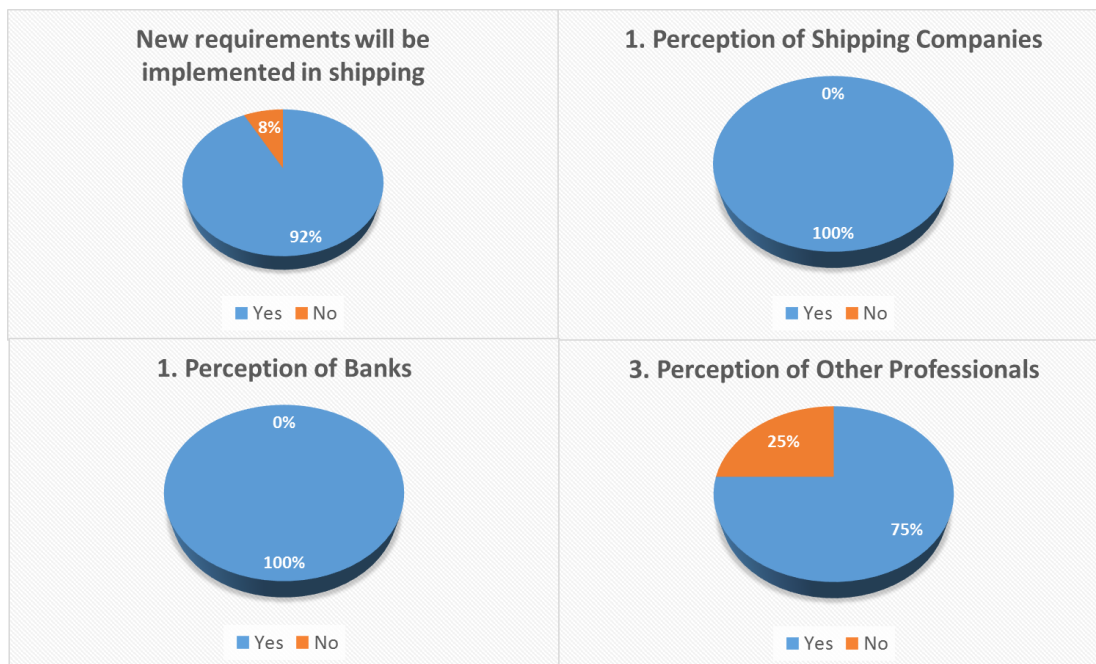


Figure 23: Implementation of the new requirements in shipping  
Source: Author

#### ***4.4.3 Factors that prevent shipping from accessing alternative sources and appropriate measures***

This part of the questionnaire aims to provide further insight on the factors that prevent the whole shipping market from contacting alternative financing sources. The ability to present strong balance-sheets and performance determines the access to liquidity in low prices. This factor indicates the imbalance in the finance market described before. Moreover, significant factor is the cyclical markets of shipping and the lack of vast experience in understanding the dynamics of supply and demand.

In addition, this section of our research is closely related to the requirements analyzed in the previous sub-chapters. Corporate governance structures and not family oriented management is another factor preventing shipping companies accessing alternative sources. Furthermore, for small and medium sized companies it may be the case that alternative sources are characterized by higher cost of capital. In addition, our participants, especially shipping companies, refer to the fact that transaction costs are also higher compared to bank loans. Besides that, investors and other professionals mention that currently the market has no interesting projects to demonstrate (investment grade projects). Moreover, as our participants mention, especially from the banking sector, the charter rates need to climb into higher levels in order for the returns in the shipping industry to increase, as currently they are in low levels and prevent alternative investors to provide liquidity. Lastly, factors as the size of the vessel and operations affect financing as currently the trend indicates that smaller (<3000 dwt) (short sea dry bulk and

small chemical segments) vessels is a difficult market as there is low transparency. The results are low private equity involvement and low appetite for investment from alternative sources as they do not understand these markets.

Amongst the recorder answers, we distinguished one from a participant qualifying as a fund manager. He states that shipping is an opaque industry with a culture that promotes “Inbred incompetence”. Therefore, he argues that incapable and ignorant people in the industry create a restrictive environment towards alternative sources.

In order to cope with the changes of new reality in ship finance, shipping companies should be able to adjust to the new requirements, according to our participants’ perspective. Improvement of management, transparency, clear financial reporting and compliance are some of the measures that shipping companies need to take into account in order to evolve. Moreover, shipping companies need to consolidate and stand in a better position towards the charters. A very interesting opinion that combines most of the characteristics is presented, arising from an expert in the banking sector. He answered with three measures that shipping companies should implement:

1. *“Team-up with the shipper and obtain long term charter contracts (eg IKEA for a 10-year T/C and design a green project-vessel, then Pension Funds and insurance companies could finance up to 80%-90%)*
2. *Attract PE finance with building-up a company with commodity type vessels and try to make a plan to stock-list the company as PE firms like to buy low and sell high and exit (5 years)*
3. *Team up with the shipyard for new-buildings in order to attract ECAs and Leasing Companies (mainly China and Korea)”*

From the answers we recorded, we noticed that each and every participant paid great attention to the corporate management factor. Therefore, we conclude that shipping companies need to become more professional in terms of management and transparency by abandoning family-oriented management and opaque reporting and compliance (acceptance of our fifth hypothesis).

#### **4.4.4 The need of new intermediates to manage the transactions**

As transaction layers increase and new entities enter the market, without specific knowledge as defined in our theoretical part, through this question we would like to examine the perspective of our sample on the need of new intermediate people able to arrange the transactions and reduce costs. Figure 24, depicts the results.

The insight we obtained is that our sample is approximately split, with a slight trend towards positive answer (54%). This is formulated because of the vast differences among our different groups. Shipping companies and other professionals are positive, while banks are mainly negative. As a result, we can confirm our third hypothesis but with caution as our sample is limited and the trend is slightly positive.

Explanation on the positive answers is that new investors in shipping will need people with knowledge of the shipping market and its cyclical nature. Hence, there will be the need of “translators” in the market. On the other hand, the majority of the bank participants argue that banks will be able to consolidate the transaction layers and become advisors for alternative sources managers. Although alternative sources are evolving in shipping, participants believe that there is still a lot of knowledge and expertise to be gained through the new reality of ship finance.

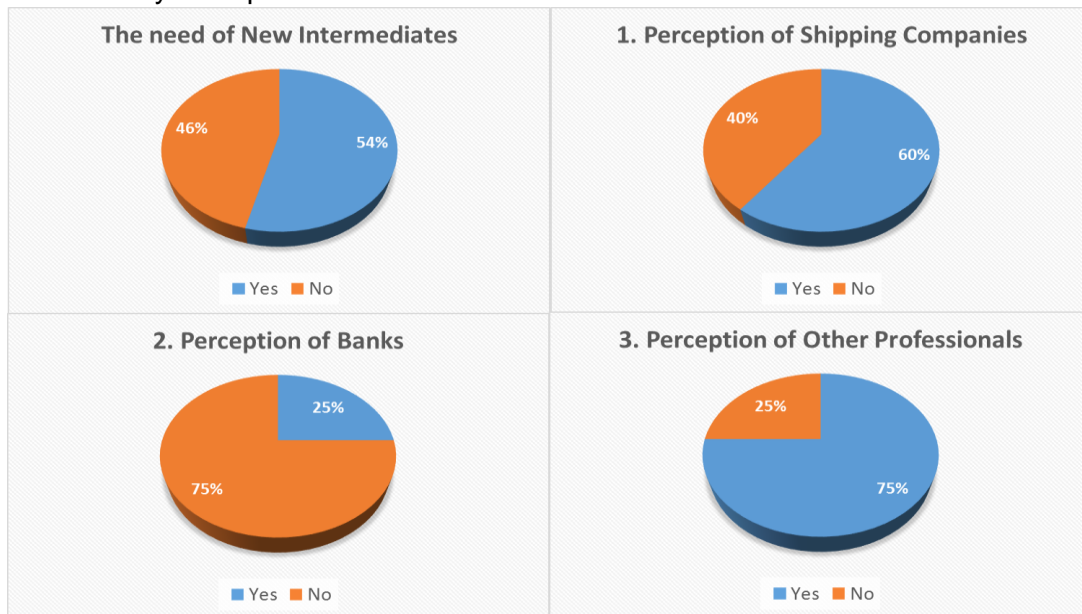


Figure 24: The need of intermediates in shipping  
Source: Author

#### **4.4.5 Availability and Viability of Alternative Funding in Shipping in the Long-term**

This question is aiming to address the perception of our participants on the viability of alternative sources in the long-term (> 5 years). The insight we obtained is positive as 62% of our sample believe that alternative sources of capital in shipping are a viable and available option for shipping companies in the long-term. Specifically, shipping companies do not perceive availability of alternative funding in the long term in contrast with banks and other professionals. The results are presented in Figure 25. We can conclude that there is confidence in shipping about the sufficient existence of alternative capital. Shipping Companies again seem to be conservative as they present a negative attitude towards the availability of alternative funding in the long term.

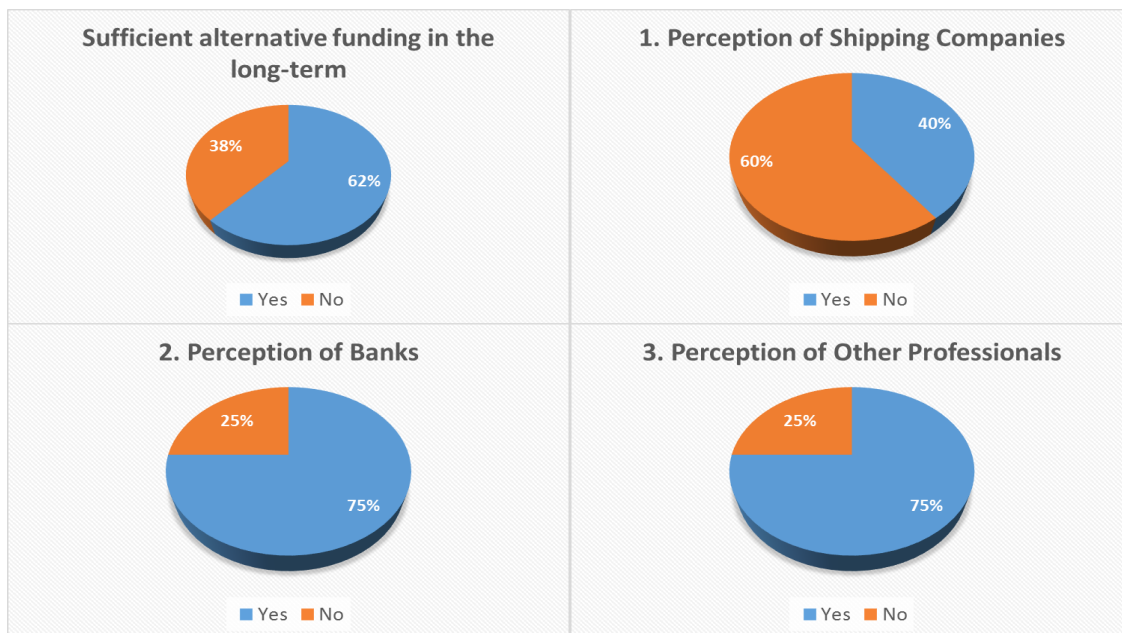


Figure 25: Availability and viability of alternative financing in shipping (long-term)  
Source: Author

#### 4.5 Lessons to be learned

As a concluding chapter, we summarize our results. To begin with, we present in Table 9 our hypothesis table and the outcome of each one.

Table 9: Hypothesis Statement test

No.	Hypothesis Statement	
1	Commercial banks are withdrawing from ship-finance because of their losses and Basel III.	Accept Hypothesis
2	Alternative finance for shipping especially comes from PE funds	Accept Hypothesis
3	Intermediate parties will be created in order to arrange the transactions	Accept Hypothesis
4	Alt. Finance will become mainstream and will be good for at least 20-25% of total transactions in shipping within few years. (Expected growth of alt. finance)	Accept hypothesis
5	Shipping finance needs to become more professional	Accept Hypothesis

Source: Author

Through our hypothesis and their correlation to our sub-research question we can conclude the following remarks:

- Based on our results, commercial banks are exiting currently the shipping industry due to mainly the heavy losses and partially the Basel III regulation while other reasons as the higher cost of capital and current market outlook seem to be also considered as significant factors. (Sub-Research question 1)
- Combination of different questions provide us with further insight on the type and size of alternative financing. Table 6 filters the different types of alternative sources mentioned, based on their frequency. This table combined with Figure 20 indicate that the most common source is currently considered Private Equity through funds and HNIs. Our loan structure figures (Figures 15,16,17,18,19) provide insight on the size of the available alternative sources of capital, based on each case scenario. (Sub-Research question 2)
- In the near future, based on our results, we can expect growth of alternative financing in shipping, which based on the perspective of experts in the industry can be available up to 25% of the transactions. Traditional bank lending activities will be reduced but not diminish. Based on the perspective of our participants the market conditions and investment grade projects will define the appetite of banks to invest in shipping. Mainly, new financiers will demonstrate sector focus activity specially for tankers and green shipping while they will try to avoid riskier markets as for instance offshore. Moreover, our participants support that banks will not invest in shipping in the near future but maybe in the long-term. Based also on Markowitz model analyzed in our theoretical part, we can conclude that based on the sentiment of our participants, banks will further spread their portfolio with the usage of alternative sources. Hence, shipping finance will reshape with alternative financing growing with the help and coordination of banks- mainly small and medium specialized banks. (Sub-research question 3)
- As we analyzed in previous sub-chapters, alternative sources of capital bring changes in shipping due to new requirements. Better management (corporate management of 21<sup>st</sup> century), information flow, transparency, compliance, green projects and sustainability, long term employment of vessels are some of the factors frequently mentioned by our participants. Furthermore, our results indicate that new intermediates will be created in the shipping finance market to support the managers of alternative sources. (Sub-Research Question 4)

## **Chapter 5 Conclusions and Recommendations**

The main goal of this research is to address the issue of the gap in shipping finance created by the absence of big commercial bank in the market. Therefore, we analyzed the reasons why banks decided to limit or withdraw their presence in the shipping industry followed by the sentiment of the involved parties, assessed through questionnaire, in shipping about the existence and development of alternative sources of capital.

### ***5.1 Answer to our Research Questions***

Starting with our first sub-research question, we looked into the perception of the participants in our research about the reasons that banks are currently conservative towards lending activities in shipping. The main answer backed by 64% indicates that both heavy losses and new regulations (Basel III and forthcoming Basel IV) are crucial factors affecting the current situation in shipping finance.

Our findings, based on the answers of shipping companies, banks and other shipping finance experts, indicate that the most common way of alternative financing is considered private equity (17% of the answers regarding to the existence of alternative sources in shipping). It can be used in multiple ways depending on its usage and source. Private equity can include HNIs, PE funds, Pension Funds or family-oriented capital covering different layers of a shipping loan. As experts stated during our survey, private equity requires a return of 15%-20% with a maximum investment horizon of 5 to 7 years. Moreover, significant proved to be leasing and insurance companies. Leasing Companies have become more active, especially the ones oriented in Japan as for instance JOLCO structures. Insurance companies are considered as a new player in the market. Both of them can be used to cover either senior loan or mezzanine layers, they have approximately 15 to 20 years of investment horizon and cost of 350 bps above market rate. In addition, other sources were mentioned as ECAs which have significant lower cost of finance (up to 200 bps), based on our participants, and cover mainly the senior debt layer. Pension funds was another source mentioned, mainly for senior debt with 350 bps interest rate and investment horizon of 20 years. Hence, for our second sub-research question we can conclude that there are many sources mentioned with significant size if combined, with private equity to be the most dominant and cover all the three different layers of a shipping loan. The size of each source depends also on the assessment of the investment project as we have concluded based on the scenario question formulated in our questionnaire.

In order to answer our third sub-research question, we designed a specific question and combined others regarding to the growth of alternative sources of capital. Therefore, the perspective of our participants indicate that alternative financing should be available for 25% of the transactions in shipping loans while 62% believes that alternative financing would be a viable option in the long-term. Moreover, our participants indicated that the relationship between traditional bank lending activities and alternative financing will always change based on the market outlook and the cost of capital. Therefore, banks will

not exit the market but they will provide all-inclusive packages to clients combining both bank loans and alternative sources. Connected with Markowitz Theory analyzed in Chapter 2, banks will spread their portfolio with the combination of alternative sources of capital.

The fourth sub-research question investigates the new requirements in shipping because of the rise of alternative capital sources. The expertise of our participants indicate the most important change that alternative funding brings into shipping is management and transparency. Shipping companies need to focus on better corporate management instead of family-oriented management and to provide better information and reporting. Other requirements are sustainability, green shipping projects, long-term employment of assets, better information flow and consolidation. Although there is a new reality formulated in shipping finance, our participants seem to be optimistic as 92% believe that the new requirements will eventually be implemented in shipping. In addition, there is a strong belief that new intermediaries will be created in shipping finance market, which will operate as translators for the managers of the alternative capital sources.

Combining all four sub-research questions we can address our main research question. The limitation of bank funds is a fact as all of our participants recognized. New alternative sources as for instance PE funds, insurance companies, leasing companies and pension funds are entering the shipping market with different risk profiles and capital structures. Moreover, it is expected to develop even further in the future and become a mainstream choice especially for the small and medium companies that cannot easily access bank loans or bonds. The new sources of capital impose also new characteristics in the shipping industry which based on the sentiment of our participants will be fully implemented in the long-term. Therefore, the outcome of this research is that alternative financing is currently positively developing in shipping and it will be viable in the long term while the new characteristics imposed in shipping companies will be thoroughly implemented. In other words, alternative sources are currently evolving and as the new characteristics in shipping are implemented they will continue to evolve with an even higher pace.

## ***5.2 Recommendations***

Another goal of this research is to provide also advice to the ship-owners about the implementation of the new requirements imposed by alternative sources of capital. Therefore, shipping companies need to adjust and implement new characteristics. Our recommendations are stated in the bullet points below.

- First of all, especially for traditional shipping companies originating in Greece, Norway and other countries, it is crucial to implement new management strategies differentiating from the family-oriented business model.
- Moreover, it is crucial for the market to consolidate as smaller companies will confront difficulties in accessing even alternative funding. Based on the sentiment especially sourcing from investors that participated in our survey, bigger



companies and commodity type vessels are considered better opportunities for investment as well as easier to understand.

- Ship-owners should also effort to sign long-term employment contracts for their assets while they should also efficiently choose shipyards in order to access capital sourcing from ECAs.
- Additionally, based on the opinion of our participants, ship-owners should try to focus on new investment grade projects focused on green shipping and sustainability.
- Last but not least, our research, based on the sentiment of our participants, indicates that shipping companies should be able to better organize their network towards alternative sources in order to better understand their needs and adjust properly to them.

### ***5.3 Limitations and Further Research***

As mentioned in the introduction of this paper, our research is mainly focused on participants domiciled in the European Region. Due to the difficulties of accessing the participants, mentioned in the methodology chapter, combined with the limited time to complete the research, affected the maximum number of our participants. Lastly, most of the interviews we completed via email, while only 3 where conducted with personal approach from the author.

In addition, this research is a preliminary step into defining the development of the alternative sources in shipping and their viability in the long term. Therefore, the selection of optimal source or the modelling of sources based on the regulations and the characteristics of each asset in shipping could be considered as topics for further research. Additionally, it would be really interesting to further investigate the relationship between alternative capital sources and banks in shipping and if there is the possibility for the banks to organize and provide all-inclusive solutions to their clients. Moreover, another interesting topic based on our research would be to examine the cargo markets and regions that could notice evolvement of the alternative sources. Lastly, we would recommend to further explore if alternative sources of capital can provide assistance in the stability of the shipping industry in the long term. Will they be able to reduce cyclicity?

## **Bibliography**

- ABN AMRO. (2011). *Shipping Finance and Investment: Current Trends in Ship Finance*. Istanbul: 3rd Mare Forum in Ship Finance.
- Amu, F., & Millegard, M. (2009, February 9). Markowitz portfolio theory.
- Bennett, P. (1999, July-August). Portfolio Theory and Bank Lending: Avoiding Concentrations of Credit Risk through Strategic Diversification. *The Journal of Lending & Credit Risk Management*.
- BIMCO. (2015). *THE SHIPPING MARKET IN 2015 AND LOOKING FORWARD*. London: BIMCO.
- Britannica. (n.d.). *The Financial Crisis of 2008: Year In Review 2008*. Retrieved from Encyclopedia Britannica: <http://www.britannica.com/topic/Financial-Crisis-of-2008-The-1484264>
- Casey, E., & O'Toole, C. (2014). Bank lending constraints, trade credit and alternative financing during the financial crisis: Evidence from European SMEs. *Journal of Corporate Finance*, 173-193.
- China.org.cn. (2008, November 12). *The causes of the crisis*. Retrieved from CHINA.ORG.CN: [http://www.china.org.cn/business/financial-crisis/2008-11/12/content\\_16754156\\_2.htm](http://www.china.org.cn/business/financial-crisis/2008-11/12/content_16754156_2.htm)
- CityGroup. (2014, March/April). Shipping finance: a new model for a new market. *Global Trade Review*, pp. 74-75.
- Clarksons. (2016). *Capital Market Monthly*. London: Clarksons Research.
- Dixon, G. (2016, May 18). *KKR moves into Greece with billion-dollar loan deal*. Retrieved from TradeWinds: <http://www.tradewindsnews.com/finance/753489/kkr-moves-into-greece-with-billion-dollar-loan-deal>
- Drobetz, W., & Merikas, A. G. (2013). Maritime Financial Management. *Transportation Research Part E: Logistics and Transportation Review*, 52, 1-2.
- Drobetz, W., Gounopoulos, D., Merikas, A., & Schröder, H. (2013). Capital structure decisions of globally-listed shipping. *Transportation Research Part E*, 49-76.
- DVB Bank. (2010). Shipping Finance in 2010. *Shipping Finance in 2010*.
- ECB. (2014, April 10). *Comprehensive assessment*. Retrieved from European Central BankL: Banking supervision:

<https://www.bankingsupervision.europa.eu/banking/comprehensive/html/index.en.html>

- European Commission. (2016, 04 05). *EC-Growth: Internal Market, Industry, Entrepreneurship and SMEs*. Retrieved from What is an SME?: [http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index\\_en.htm](http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index_en.htm)
- FBR Capital Markets & Co. (2010). *IPO for Shipping & Offshore -The Past, Present, & the Future*. London: Marine Money Conference.
- Gallo, A. (2014, November 19). *A Refresher on Net Present Value*. Retrieved from Harvard Business Review: <https://hbr.org/2014/11/a-refresher-on-net-present-value>
- Hampton. (1986). Analysis- Shipping Cycles (Part 1&2). *Seatrade*, 19.
- Harwood, S. (2006). *Shipping Finance, 3rd Edition*. London: Euromoney.
- Harwood, S. (2006). *Shipping Finance, 3rd Edition*. London: Euromoney.
- Heckert, H. (2015). Shipping industry seeking alternative financing. *Shipping Insights Briefing*, 1-4.
- Ivestopedia. (2016). *Credit Cycle*. Retrieved from <http://www.investopedia.com/terms/c/credit-cycle.asp>: <http://www.investopedia.com/terms/c/credit-cycle.asp>
- Jensen. (2014, January 16). *Shipping news is not so bright*. Retrieved from Financial Times: <https://next.ft.com/content/6e9f0578-7ec5-11e3-8642-00144feabdc0>
- Karatzas, B. M. (2014, October 31). *A changing seascape in shipping finance and the capital structure of vessel ownership*. Retrieved from Cayman Financial Review: <http://www.compasscayman.com/cfr/2014/10/31/A-changing-seascape-in-shipping-finance-and-the-capital-structure-of-vessel-ownership/>
- KPMG. (2012). *Ship financing in flux*. Germany: KPMG.
- Kravets & Kravets. (2014, October 14). *The rise and fall of the German "one ship KG" financing model*. Retrieved from Kravets & Kravets: Lawyers to the shipping trade: <http://www.kravets.de/kk-report/2014/10/14/rise-and-fall-of-one-ship-kg-financing-in-germany>
- Ladis, K. (2012). *Ship Finance after the crisis*. Rotterdam: Netherlands Maritime University.
- Legal Vision. (2013, May 1). *8 key terms to consider when reviewing a loan agreement*. Retrieved from Legal Vision: <https://legalvision.com.au/8-key-terms-to-consider-when-reviewing-a-loan-agreement/>

- Lloyd's list. (2014). *Key Shipping moves by private funds*. Retrieved from Lloyd's List: <https://www.lloydslist.com/ll/static/classified/article440167.ece/BINARY/privateequity-timeline>
- Luenberger, D. (1998). *Investment Science*. Oxford: Oxford university press.
- Marine Money. (n.d.). *KG STRUCTURE – OPEN FOR MORE THAN BOXSHIPS*. Retrieved from Marine Money Offshore: <https://www.marinemoneyoffshore.com/node/5750>
- Market Realist. (2013, July 3). *New Capesize price jumps most in 5 years, positive for dry bulk shipping stocks*. Retrieved from Market Realist: <http://marketrealist.com/2013/07/new-capesize-price-jumps-most-in-5-years-positive-for-dry-bulk-shipping-stocks/>
- Market Realist. (2014, June 27). *Must-know: Where are we in the economic and shipping cycles?* Retrieved from Dry bulk shipping investors' must-know mid-2014 overview: <http://marketrealist.com/2014/06/the-shipping-cycle/>
- Markowitz, H. (1927). Portfolio selection. *Journal of finance*, 77-91.
- Minsky, H. P. (1992, May). The Financial Instability Hypothesis. *Levy Economics Institute Working Paper No 74*.
- Moody's. (2016, March 17). *Moody's: Outlook on global shipping sector turns negative as supply-demand gap widens and EBITDA declines*. Retrieved from Moody's: [https://www.moodys.com/research/Moodys-Outlook-on-global-shipping-sector-turns-negative-as-supply--PR\\_345863](https://www.moodys.com/research/Moodys-Outlook-on-global-shipping-sector-turns-negative-as-supply--PR_345863)
- Munden, R. (2014). The Cayman Islands- emerging trends in vessel finance. *Shipping Finance Review*, pp. 34-37.
- Northern Shipping Funds. (2014). *Alternative Ship Financing*. London: Marine Money Academy.
- Norton Rose Fulbright. (2012, 02 28). *Capital markets: an alternative financing avenue for the shipping industry*. Retrieved from Norton Rose Fulbright: <http://www.nortonrosefulbright.com/knowledge/publications/63569/capital-markets-an-alternative-financing-avenue-for-the-shipping-industry>
- OECD. (2007). *Report on ship financing*. OECD.
- Petrofin. (2015). *Trends in Global finance in the current market*. Athens: Petrofin.
- Petrofin Research. (2014). *27th Annual Ship Finance & Investment forum 2014 London*. London: PETROFIN RESEARCH.
- Pierce, A. (2016, February 25). *DVB Bank provisions rise at 'testing time'*. Retrieved from TradeWinds: <http://www.tradewindsnews.com/finance/386830/dvb-bank-provisions-rise-at-testing-time>

- Rasmussen, C., & Ward, H. (2012, August). Shipping Markets and Finance. *Maritime Professional*.
- Read, A., & Pierce, A. (2015, August 3). *RBS exit will be 'orderly'*. Retrieved from TradeWinds: <http://www.tradewindsnews.com/finance/360635/rbs-exit-will-be-orderly>
- Rickmers. (2013). Rickmers bond. *Rickmers around the globe*.
- Ross, A., & Odell, M. (2014, January 13). *European banks face tough 2014 as ECB focuses on shipping*. Retrieved from Financial Times: <https://next.ft.com/content/aa034d9a-6bf1-11e3-a216-00144feabdc0>
- Roumpis, N. (2016, April 7). *NordLB to cut shipping loans worth billions*. Retrieved from TradeWinds: <http://www.tradewindsnews.com/finance/391464/nordlb-to-cut-shipping-loans-worth-billions>
- Schinas, O., & Kewitsch, S. (2015). Loans and Risk Management Considerations. In O. Schinas, C. Grau, & M. Johns, *HSBA Handbook on* (pp. 33-54). Hamburg: Springer.
- Schumpeter, J. (1954). *History of Economic Analysis*. New York: Oxford University Press.
- Seanews. (2014, December 12). *European banks resume lending to shipping companies*. Retrieved from Wrold Shipping- Seanews: <http://www.seanews.com.tr/news/141129/European-banks-resume-lending-shipping-companies/>
- Shearman & Sterling LLP. (2011). *The New Basel III Framework: Implications for Banking Organizations*. London: Shearman & Sterling LLP.
- Small Business F.I. (2011). *Understanding Bank Loan Covenants: What You Need to Know Before You Sign*. L.A.: THE RECEIVABLES EXCHANGE.
- Stamford, J. B. (2016, March 17). *Gurus exit as hedge funds lick wounds*. Retrieved from TradeWinds: <http://www.tradewindsnews.com/weekly/389392/gurusexitashedgefundslickwounds>
- Stopford, M. (2009). *Maritime Economics 3e*. New York: Taylor & Francis e-Library.
- The Baltic Exchange. (n.d.). *The Baltic Exchange- About us*. Retrieved from What are the Baltic indices?: <http://www.balticexchange.com/about-us/faqs/>
- The Economist. (2013, September 7). *Crash course: The origins of the financial crisis*. Retrieved from The Economist: <http://www.economist.com/news/schoolsbrief/21584534-effects-financial-crisis-are-still-being-felt-five-years-article>
- Van Klink, A. (2016). *Shipfinance*. Rotterdam: MEL.

WSJ. (2015, April 10). *Oaktree Nears \$10 Billion Finish Line for Distressed Debt Funds*. Retrieved from Wall Street Journal: <http://www.wsj.com/articles/oaktree-nears-10-billion-finish-line-for-distressed-debt-funds-1428679382>

Yang, Z., & Chen, J. (n.d.). *Elements of ship finance*. Dalian Maritime University.

Zannetos, Z. (1966). *The theory of oil tankship rates: an economic analysis of tankship operations*. Cambridge, USA: MIT Press.

Zeng, Y. (2009). *A study of Ship Financing Practices in Hong Kong*. Hong Kong: Faculty of Business, Hong Kong Polytechnic University.

## Appendix

### First Part: Figures of Chapter 4 Analysis and results

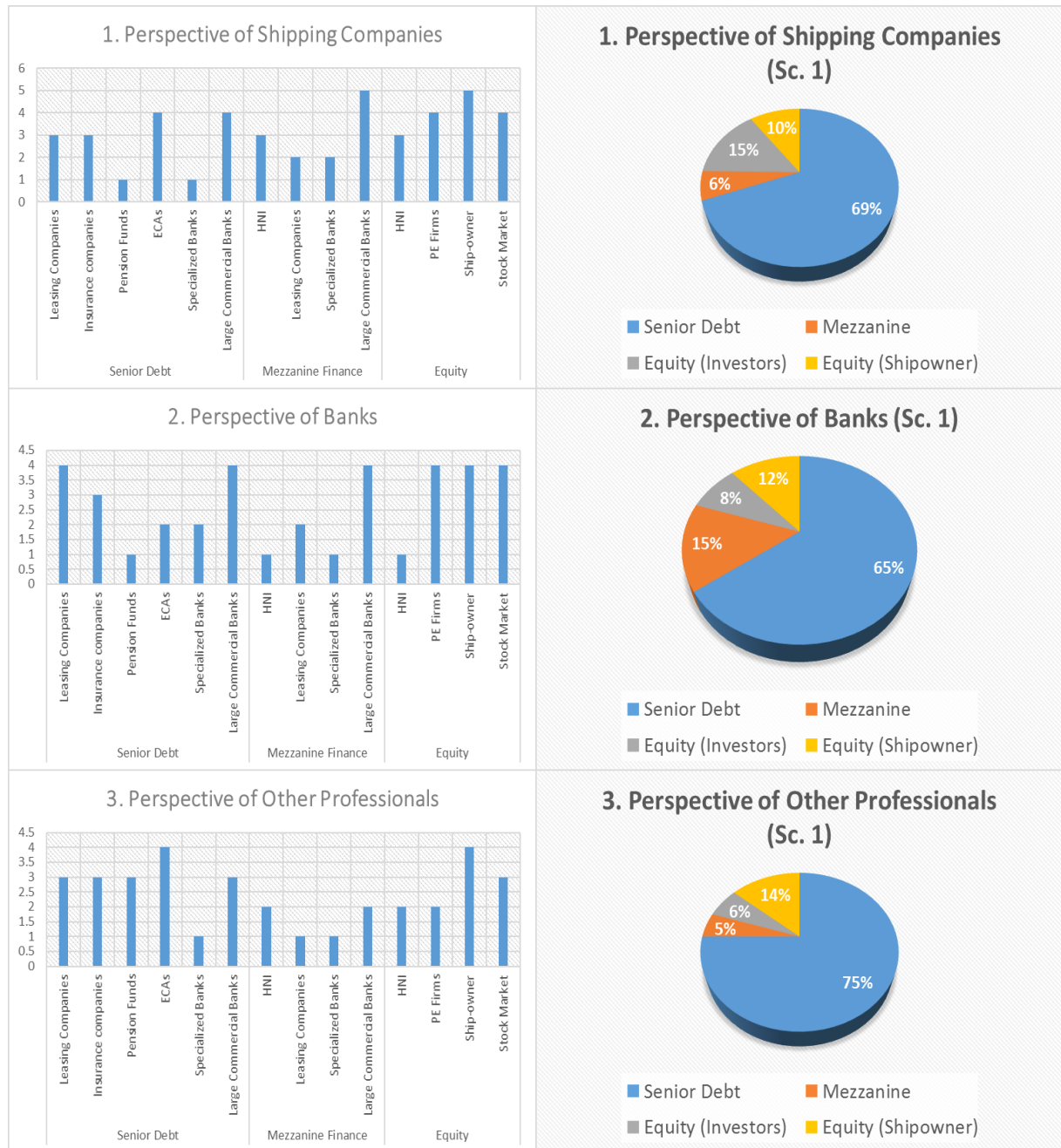


Figure 26: Financing Choices and Loan Structure for each group (Sc. 1)  
Source: Author

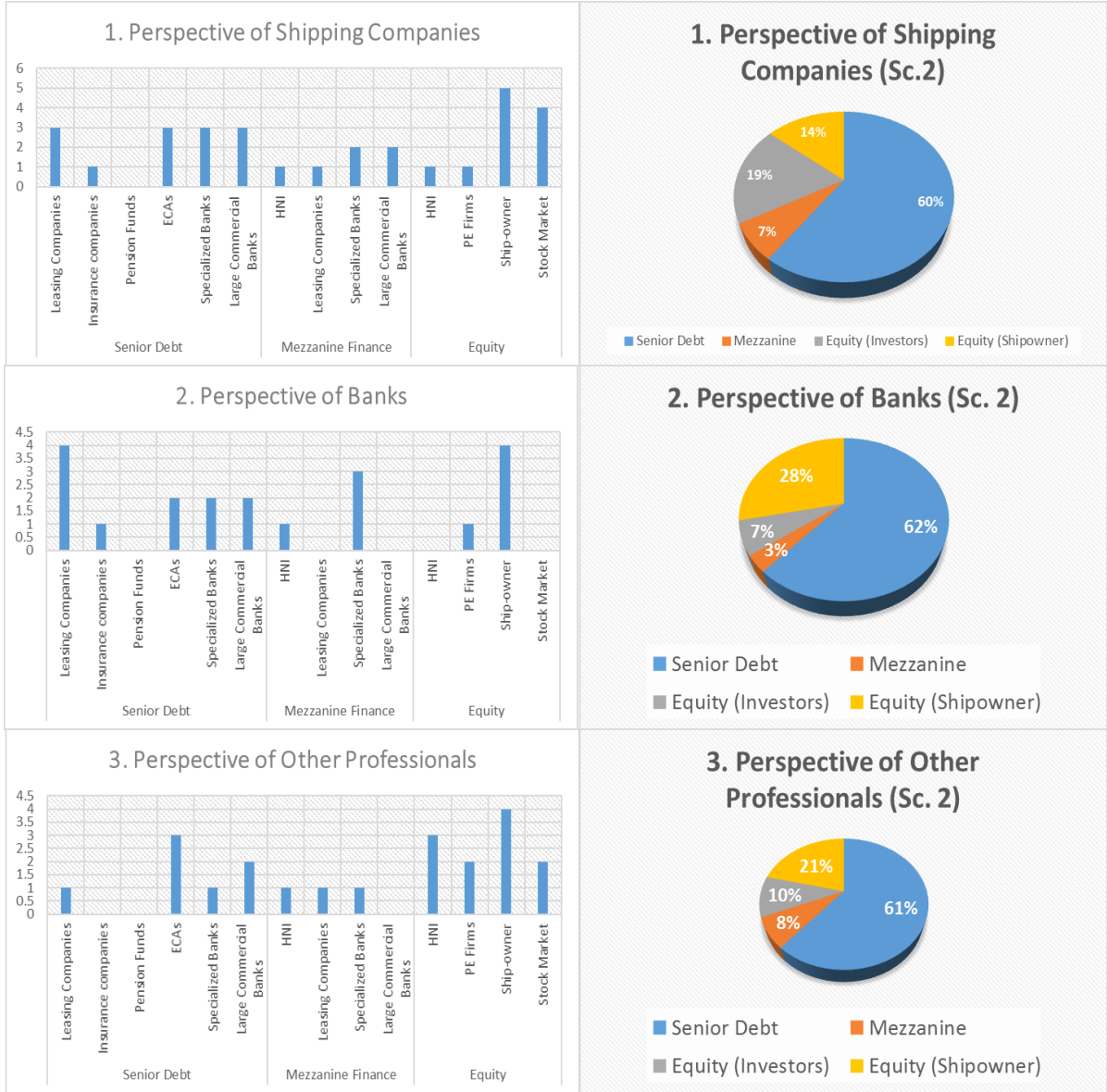


Figure 27: Financing Choices and Loan Structure for each group (Sc. 2)  
Source: Author



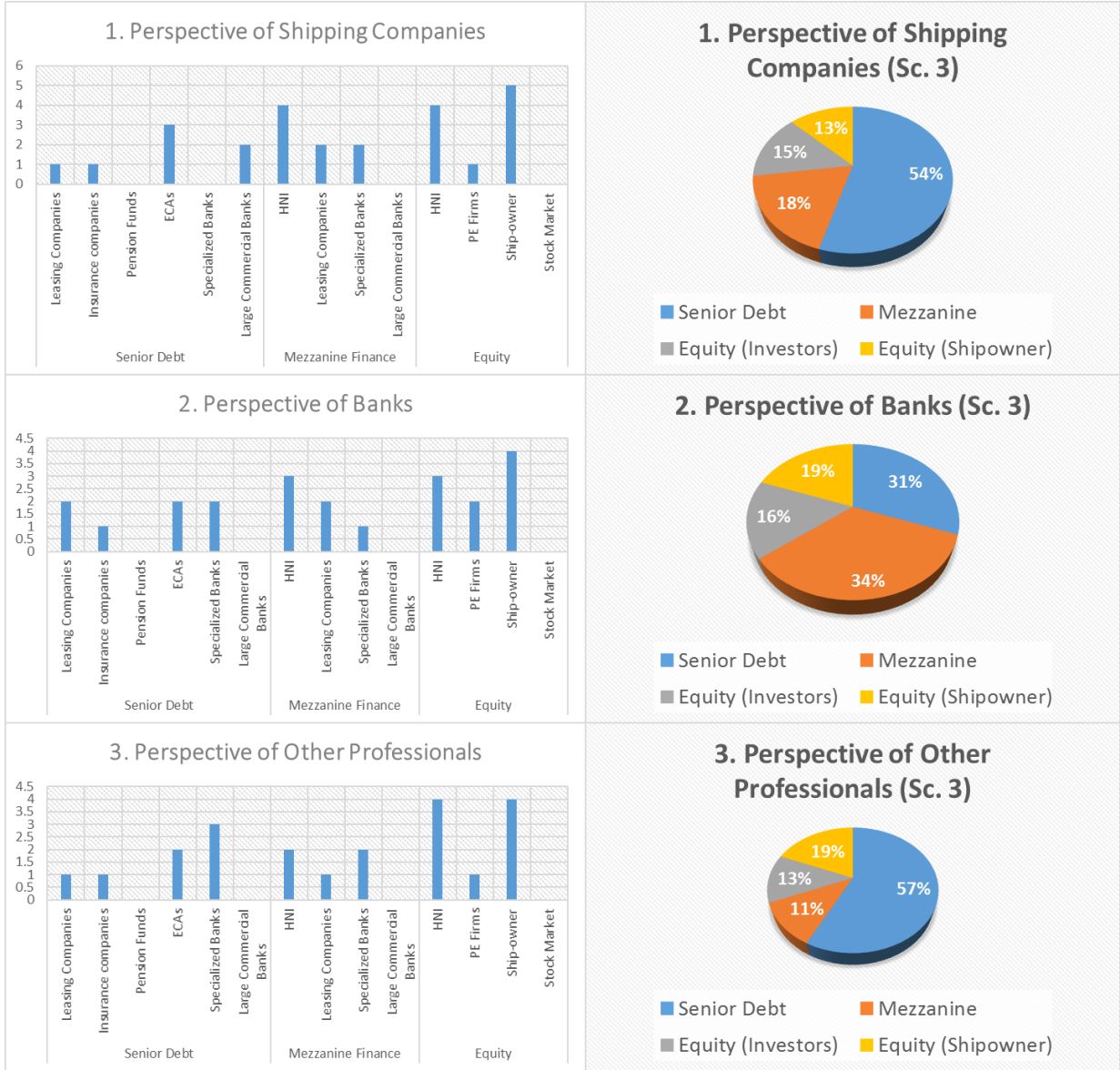


Figure 28: Financing Choices and Loan Structure for each group (Sc. 3)  
Source: Author

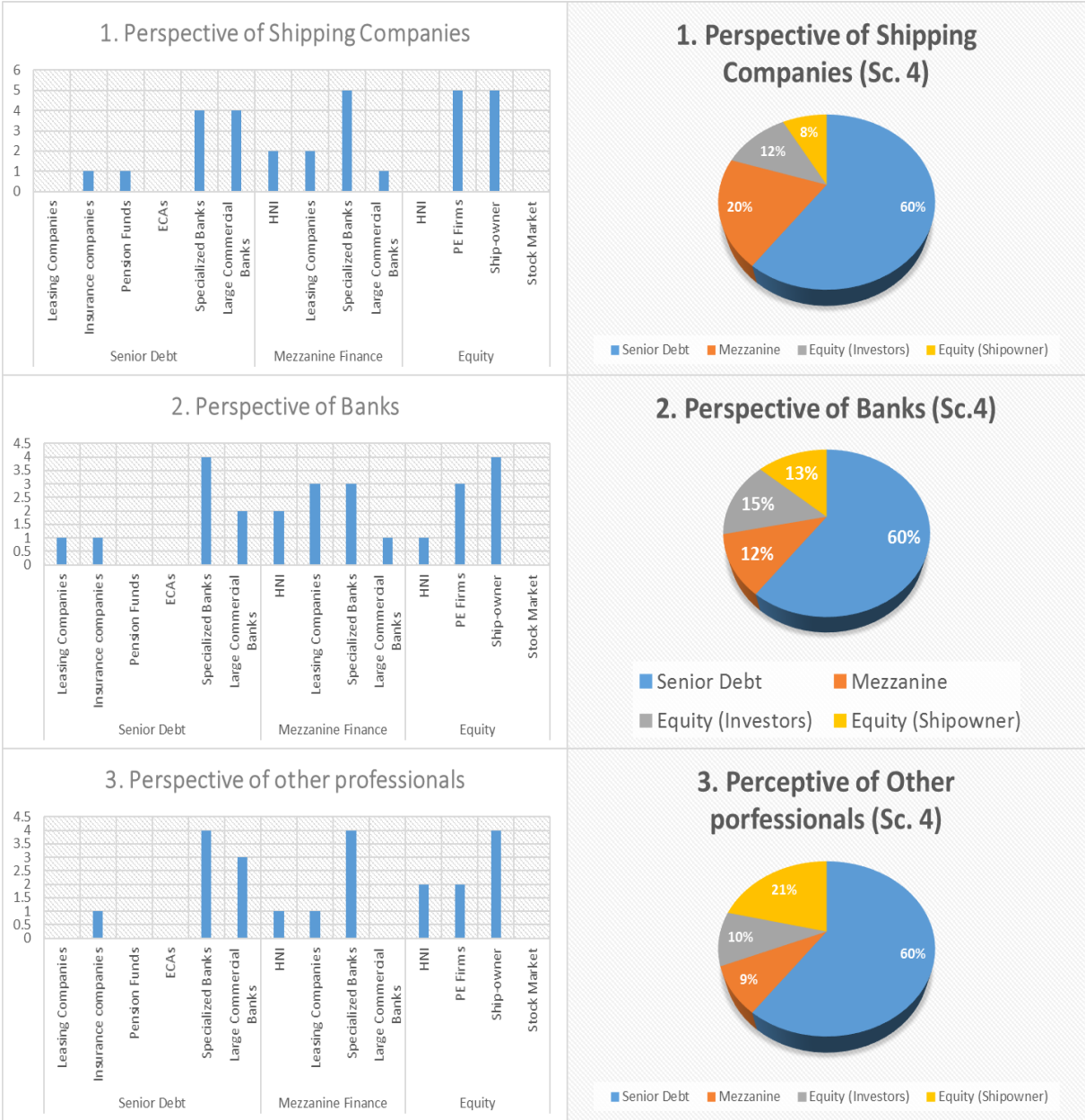


Figure 29: Financing Choices and Loan Structure for each group (Sc. 4)  
Source: Author

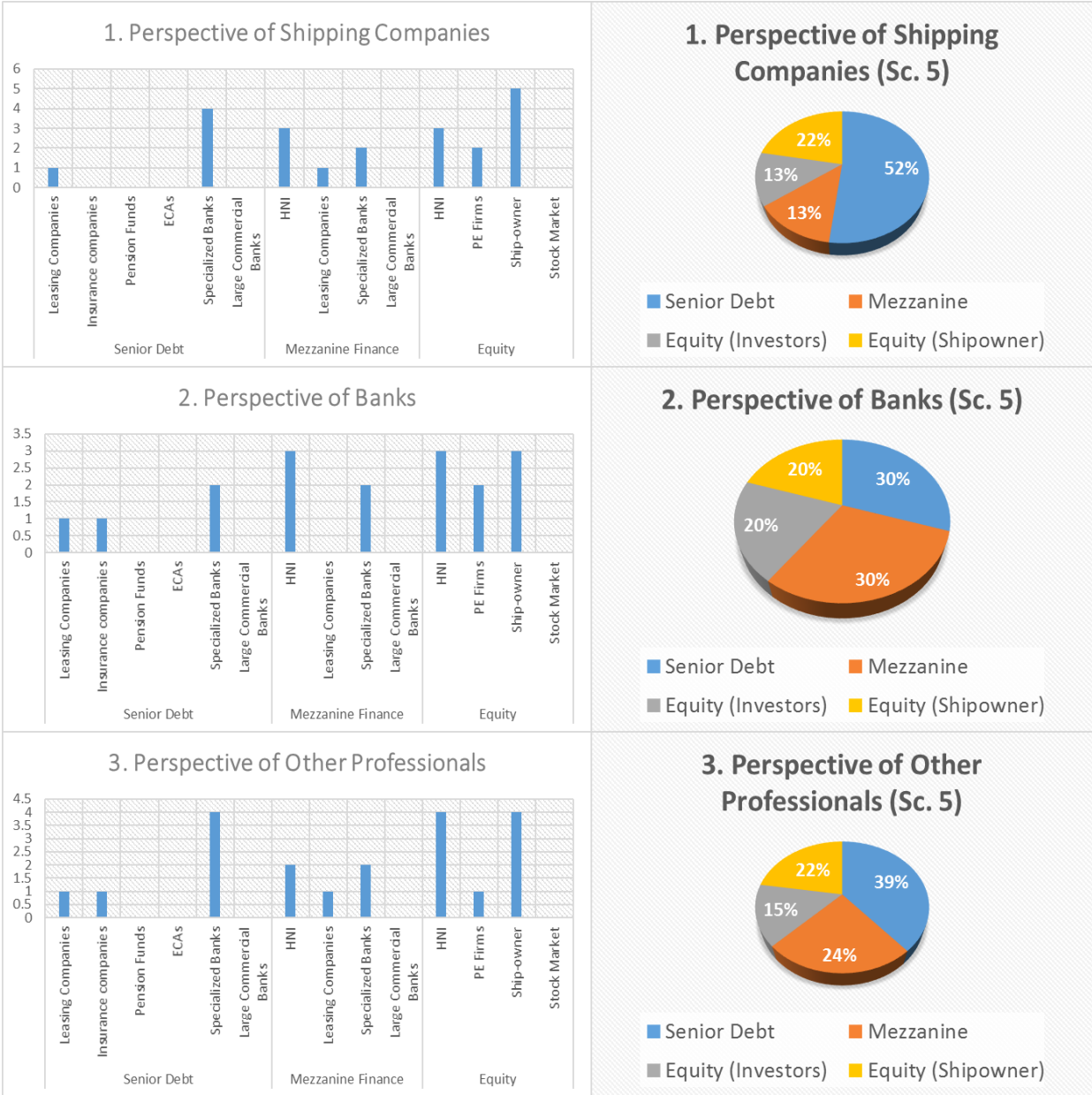


Figure 30: Financing Choices and Loan Structure for each group (Sc. 5)  
Source: Author

## Second Part: Questionnaire



The purpose of this questionnaire is to better understand the requirements of traditional and alternative shipping finance sources, based on the market sentiment as well as to define the unmet demand in capital and how this demand can be met.

### Confidentiality

Please be assured that all the data and information collected through the following questions will be treated with great confidentiality and under no circumstances will any of the answers be revealed in third-outside parties.

### Part A: Participant details

Please indicate whether you are:

1. Bank	<input type="checkbox"/>	Name of participant:	.....
2. Shipping company	<input type="checkbox"/>	Company' name:	.....
3. Some other professional involved in ship finance	<input type="checkbox"/>	Position in the company:	.....

### Part B: Traditional bank loans and alternative sources of capital in shipping

1. Commercial banks are "exiting" shipping finance market because of (You can choose more than one option):

a. Basel III regulation	<input type="checkbox"/>
b. Heavy losses and balance sheet shrinking	<input type="checkbox"/>
c. Other (Please fill in the blank space)	.....

Explain how it affected the lending capacity of the Banks (if you chose "Other"):

2. Do you believe that banks will provide finance again in shipping at the same level as before the financial crisis of 2008? (Short-term < 5 years)

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------

3. Do you believe that banks will provide finance again in shipping at the same level as before the financial crisis of 2008? (Long-term > 5 years)

Yes

No

4. What is your perception of the current lending environment for shipping companies, between bank loans and alternative capital sources? Do you believe that it will change in the future?

5. Based on the distinction of loan structure below, in every case, which of the available options do you believe is the best for financing a new-built vessel of a shipping company based on the different scenarios? Please indicate the number of each scenario for each different selection of the structure. You can use multiple numbers in one box.

Scenarios:

1. Financing a newbuilding with a high (>75%) LTV, backed by a long term (>7 years) contract above break-even with a strong counterparty and a strong corporate guarantee.
2. Financing a newbuilding with a regular (ca. 60%) LTV, on a single ship basis, with the vessel trading spot, just above break-even level, with a corporate guarantee that provides some comfort.
3. Financing a newbuilding that will be trading spot, with a high (>75%) LTV on a standalone basis, and cash flow below break-even in the first two years.
4. Financing a five-year-old second hand vessel with a regular (ca. 60% LTV), backed by a 3 year time-charter contract, above break-even level and a corporate guarantee that provides some comfort
5. Financing a five-year-old second hand vessel trading spot on a standalone basis, with a regular (ca. 60% LTV) and cash flow just above break-even level.

<b>a. Senior Debt</b>		
i.	Leasing Companies	<input type="checkbox"/>
ii.	Insurance companies	<input type="checkbox"/>
iii.	Pension funds	<input type="checkbox"/>
iv.	ECAs (Export Credit Agencies)	<input type="checkbox"/>
v.	Small/Medium Sized Specialized banks	<input type="checkbox"/>
vi.	Large commercial Banks	<input type="checkbox"/>
<b>b. Mezzanine or Junior Debt</b>		
i.	High net worth individuals	<input type="checkbox"/>
ii.	Leasing Companies	<input type="checkbox"/>
iii.	Small/Medium Sized Specialized banks	<input type="checkbox"/>
iv.	Large commercial Banks	<input type="checkbox"/>
<b>c. Equity</b>		
i.	High net worth individuals	<input type="checkbox"/>
ii.	Private Equity Firms	<input type="checkbox"/>
iii.	Ship-owner/related to ship-owner funding	<input checked="" type="checkbox"/>
iv.	Stock market listing (IPO), issue new shares	<input type="checkbox"/>

6. Based on your choices above, provide an example structure of a loan (% senior debt, % mezzanine, % equity) for every scenario (five in total).

Senior Debt	Mezzanine	Equity (Investors)	Equity (Ship-owner)
-----	-----	-----	-----
Senior Debt	Mezzanine	Equity (Investors)	Equity (Ship-owner)
-----	-----	-----	-----
Senior Debt	Mezzanine	Equity (Investors)	Equity (Ship-owner)
-----	-----	-----	-----
Senior Debt	Mezzanine	Equity (Investors)	Equity (Ship-owner)
-----	-----	-----	-----
Senior Debt	Mezzanine	Equity (Investors)	Equity (Ship-owner)
-----	-----	-----	-----

**Part C: Type and size of alternative financing**

1. Based on your experience, which sources of alternative financing do you expect in the shipping industry?





2. Based on your answer in Question 1, which of these sources do you believe that can develop further into shipping? Why?

3. If we suppose that alternative financing is existing, in which shipping market segments do you expect the largest inflow of alternative capital? Why?

4. If we suppose that alternative financing is existing, in which regions/nations do you expect to develop even further?

5. Do you expect growth in alternative sources of capital in shipping?

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------



6. Alternative financing sources defined above will be mainstream and available for at least 20-25% of all the transactions in shipping in the short-term (< 5 years).

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------

**Part D: Requirements and changes in shipping industry according to alternative sources**

1. Based on your sentiment and expertise:

a. Which requirements do alternative sources of capital set on shipping? Why?

b. Which of these requirements mentioned above, differ from these applied to bank loans (traditional finance by banks)?

2. Do you believe that the requirements defined in Question 1 (Part D), can be implemented into shipping?

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------

3. Based on your sentiment and expertise:

a. What are the factors/characteristics that prevent shipping companies from using alternative finance sources?

[Empty text box for answer to question 3]

b. What measures could shipping companies take in order to improve their chances of securing credit through alternative sources of capital?

[Empty text box for answer to question 3b]

4. Do you believe that alternative sources of capital are a viable option for the shipping companies in the long term? In other words, will there be sufficient alternative funding in the long term for the shipping industry?

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------

5. Based on your sentiment and expertise:  
a. Do you believe that alternative sources of capital in shipping will create the need of new intermediate in order to arrange/manage the transactions?

Yes <input type="checkbox"/>	No <input type="checkbox"/>
---------------------------------	--------------------------------

b. Explain why

[Empty text box for answer to question 5b]



# Thank you!

\*If you would like to receive the results of the survey, please fill in your email address below:

-----