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The openness of Chinese lessors towards second-hand tonnages

by

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Abstract

This paper aims to research the openness of Chinese ship leasing towards second-hand ship financing. The shipping finance market has been reshaping in the past decade. After the financial crisis 2007/08 and the shipping crisis, the shipping industry has staged a slow and fragile recovery. Together with the enforcement of Basel III regulation, the European banks continuously withdraw from the sector; as a result, various alternatives have been active to fill the gap in the market, notably the rise of Chinese leasing companies. Through the survey conducted among professionals of shipping companies, leasing companies, banks and consultancies, we manage to investigate the perception of experts in the industry about the current financing sources of second-hand tonnages, the Chinese leasing companies' intention of expanding into the second-hand ship market and the shipowners' preference towards Chinese ship leasing. Moreover, we try to identify the strategy of Chinese leasing companies. Our results show that financing sources for second-hand ships are currently very diversely distributed. The majority of the participants (70%) indicate that Chinese lessors have taken few actions on the second-hand ship financing until now, although they show some interest in expansion. 76% of our participants expect ship leasing to maintain its focus on new shipbuilding. Limited by asset management and risk control capabilities and immature financing procedures for second-hand ships, Chinese leasing companies are cautious about bringing transactions to fruition. On the other hand, 70% of the participants find that shipowners are hesitated to cooperate with Chinese lessors. They see that Chinese lessors' requirements do not match with their performance, who seek large company structure and great business performance on the historical data. Furthermore, the industry initiatives and regulations drive the Chinese leasing industry to transform from financial leasing to operate leasing, further limiting its openness on financing second-hand ships. To briefly summarize, the openness of Chinese leasing lessors towards second-hand tonnages is minimal and may not further open in the short term.

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Abbreviations

BBHP	Bareboat hire purchase
BB	Bareboat
TC	Time charter
ECA	Export credit Agencies
IPO	Initial Public Offering
K/S	Kommandittselskap
KG	Kommandit-gesellschaft
PE	Private Equity
SSI	Semi-structure interview

Chapter I. Introduction

1.1 Background and problem statement

The shipping industry presents an evitable factor in international trade and the global economy, especially in the rapid growth of globalization in the last two centuries (Valdaliso, 2014). It is essential to global production as the market meets the points of consumers and manufacturers in different places by providing maritime transport services. According to IMO, more than 90% of international trade is carried by the maritime transport, and it is the most cost-effective way to the knowledge.

As Zannetos stated that “the shipping firm is the vessel” (Zannetos, 1966), Goulielmos argued that Zanneto’s statement was based on the perception in periods of slow communications. He stated that a shipping firm is a “multi-vessel” firm, “a set of vessels” (Goulielmos, 2018). No matter whose idea is closer to reality, we can find that the vessel is a crucial part of the shipping industry.

Shipping is a capital-intensive industry. All the participants need large scale capital to invest in the assets as well as daily expenditure. The average of a secondhand Capesize vessel decreases to $27 million by May 2020, approaching those in the other subsegments, which is $18 million for Panamax and $17 million for handysize; the price of a secondhand container ship with 9000 TEU reaches $46 million, and the secondhand VLCC for 5-year old increase slightly to $76 million in average(SHIPPING MARKET REVIEW, 2018).

Therefore, the capital structure is critical for the competitiveness of shipping companies. On the other hand, capital providers are increasingly minded to risks and rewards, which can be connected to the business structure. From a ship owner’s perspective, a sustainable capital structure can immediately increase liquidity and strategic flexibility. From a lessor’s point of view, it enables a significant reduction in risk.

Traditionally, European banks are the main financing option that the shipping industry has heavily relied on. However, as bad loans were brought in the financial crisis as well as Basel III came into force, shipping is recognized as a “high risk” industry. The European banks exited the financial markets, alternative financing options stepped into the market and bridged the gap (Peter, 2015).

There are multiple alternatives in the ship finance market. Some of the medium- and large-sized companies went to the bond market, whereas the small- and medium-sized rely on some opportunistic investments from public or private equity (Peter, 2015). Leasing for shipping is a relatively new phenomenon. It is especially offered by Chinese lessors on the newbuilding projects. Chinese leasing companies, such as ICBC leasing, Minsheng financial leasing, are active in supporting both the domestic industry and the global shipping market.

Except for the financial crisis brought a negative impact on shipping finance, oversupply is another challenge to overcome. Overcapacity is a continuous background in the industry, standing at 95,402 ships in early 2019. Bulk carriers have maintained the largest market segment of vessels in the world fleet, and oil tankers follow the second (UNCTAD, 2019). Oversupply limits the height the current cycle can go. As a result, the recovery in the freight rate will be slow.

Therefore, shipping companies are demanding financing alternatives to play a role here. The rising power of Asian nations in the market has attracted much talk. According to the UNCTAD report, over 50% of world tonnage is owned by the top five ship owning economies, which are successively Greece, Japan, China, Singapore, and Hong Kong China (UNCTAD, 2019).

Based on the situation discussed above, we can conclude that the shipping finance market is reshaping with more choices of funding. The banks withdraw the capital and various alternative financing options enter the market. As Peter stated that “Alternative financing has not just provided a new source of financing; we have also seen contraction among the alternatives” (Peter, 2015), “the unchartered waters” of the alternatives are required to provide more information to the market. In this research, we choose Chinese leasing as a representative alternative of “the unchartered waters,” and study the openness to the secondhand tonnage market segment.

1.2 Added value of the research

Based on the background and problem statement we mentioned above, we choose Chinese capital and secondhand tonnage market segment as research objects. The motivation of this research comes up to study the openness of Chinese lessors to secondhand tonnages as little action is performed so far. Investigating the openness trends of Chinese capital will present valuable insights into the future financing market. From the Chinese lessors’ point of view, their attitude towards the shipping finance market is optimistic or not decides capital availability in the market. From the shipowners’ perspective, this research can help them to understand the openness and potential of Chinese leasing as an alternative financing source in the long term.

An article arising our interest is from Valery Voinychenko (Valery, 2019); he explained the growing role of financial leasing in the procurement of seaborne cargo vessels by analyzing and comparing the shipping loan portfolio of the top Chinese leasing companies. He also mentioned that Chinese lessors are not interested in small and mid-sized transactions. Since China is one of the largest ship-owning economies in the global market, it is worth arguing that Chinese capital, to some extent, reflects the worldwide process in the industry. By the end of 2018, the portfolio of Chinese leasing in shipping and offshore reached $500 billion. The portfolio of ICBC leasing has grown to $10 billion in just a decade (Offshore Energy, 2017). Chinese leasing companies' fast development proves that Chinese capital has become one of the representative sources in the shipping finance market. Most Chinese leasing companies are focusing on big shipping companies and providing financial services to new buildings. So far, we have seen a small number of transactions on the secondhand ship market.

Therefore, attention is raised to below problems:
For investors, do Chinese lessors seek more alternatives as financing only new buildings gives not enough possibilities?
For shipowners, is there a need of more capital sources for second-hand vessels?

We will dive into the openness of Chinese capital towards the secondhand markets by conducting a survey. It is intended that this research can bring new insights to the participants and lay the foundation for further researches on the role of Chinese capital in the shipping sector. Our research intends to provide information on the strategies of Chinese leasing companies, which can help shipowners to decide if Chinese capital is the financial source they can count on in the long term.

1.3 Research questions and objectives

Based on above-mentioned problem statement, many questions arise. We developed the following line of thoughts:

<u>Main Research Question</u>
What is the openness of Chinese lessors to financing second-hand vessels?

<u>Sub-research Questions</u>
1. **What are the present financing sources of second-hand vessels?**
2. **What is the strategy of Chinese lessors?**

The first sub-research question's objective is to identify the present situation of secondhand vessels' finance market and to analyze the shipowners' need for alternative financing sources, especially the demand for Chinese capital. Through market reports and participants' responses, we will gain a picture of secondhand tonnage financial markets and understand the preference of lessors as well as lessees.

The objective of the second sub-question is to identify Chinese leasing companies' strategies towards the secondhand vessel market. Based on the hypotheses presented in the methodology part, we will gain an understanding of the potential direction that Chinese leasing companies are willing to move towards and whether Chinese lessors will be more open to secondhand tonnage.

By researching all the research questions and the hypotheses coming up with them, we will get a picture of Chinese leasing in the secondhand shipping market and whether it will be a practical option for shipping financial services in the long term. Besides, we can gain an understanding of the future shipping finance market.

1.4 Methodology and limitations

This research relies mainly on a qualitative approach and combines with the quantitative approach supported. The primary tool is a survey of professionals or businessperson from leasing companies, shipping companies, and other ship-finance related business. Desk research, interviews and online surveys are planned to be conducted with these involved parties. The qualitative research obtains primary data through open-ended and conversational communication (Valentin, 2019). In this way, we can use measurable data to formula the facts of the targeted objects' shipping finance. On the other hand, we can understand the underlying opinions and motivations of the involved parties.

One of our limitations is the number of participants as we conduct the survey mainly by interviews and online survey. Another limitation is that the results will not be statistically representative, as qualitative research is a perspective-based method. It is essential for us to cross-reference the quantitative data (Valentin, 2019).

1.5 Structure of the research

The research consists of four more sections beyond this introduction.

Chapter II will focus on the theoretical background of the topic. We will have a thorough review of shipping cycles as well as the finance cycles in shipping. Next, traditional and alternative financing sources will be introduced and discussed. In the same chapter, we will describe the difficult times of shipping in the financial crisis and gradual recovery in recent years. Lastly, this chapter will partly answer the first sub-research question on the present financing situation of secondhand tonnages.

In chapter III, the methodology of the research will be presented. We will give a detailed explanation of the method we choose. Next, we will formulate the hypotheses that will be tested and explain their relationship to our research questions. Then we will introduce two parts of the qualitative method, which are online survey and semi-structured interviews. We will present how the questionnaire is designed based on the hypotheses, and how we conduct interviews with the targeted participants. Finally, we will present the quantitative method to be used in the study.

Chapter IV will present the implementation, results, and findings of the survey. We will analyze the size of Chinese capital open to the secondhand markets, our main research question. Next, we will understand Chinese lessors' preference or business requirements, which is connected to the second sub-research question of Chinese leasing strategies. The last is to infer the business decision for shipping companies on financing from our results in the long term.

Chapter V will come to conclusions on the findings, limitations, as well as recommendations and ideas for further research.

Chapter II. Literature review

In Chapter II, we will overview the theoretical background and practice related to the research. We will start by reviewing economic cycles in shipping and ship finance. It follows with the introduction and discussion of different financing sources, especially the rise of ship leasing. Next, we will present the shipping market circumstances over the last decade and then focus on the second-hand market. Lastly, we will conclude what we have learned from the literature review, which builds a base for the survey.

2.1 Economic cycles

2.1.1 Shipping cycles

The shipping market is cyclical, which is triggered by the factors within the sector and the external environment (Costas Th Grammenos, 2010, pp.235–256). The shipping cycles are not regular, and it varies in the different market segments. Therefore, understanding how this cycle work is critical to every industry practitioner. Stopford (2010) briefly reviewed five shipping cycle periods from 1869 to 2008; the mechanism of this cyclical behavior and causes are presented in the next paragraphs.

Supply and demand interact and determine a surplus or shortage of tonnage in the market. As it is known, when demand exceeds the supply of ships, freight rates increase, and more investments enter; as a converse, when supply overtakes demand, it drives freight rates down, and shipowners start to phase out of uneconomic sailing ships.

We have mentioned that endogenous and exogenous factors trigger the cyclical behavior of the shipping sector. Illustrated in the model, the main force on the demand side is the world economy (Costas Th Grammenos, 2010, pp.235–256). Historical statistics have shown a close correlation between world industrial production and seaborne trade. When the world industry has passed its peak, less raw materials are consumed and less transportation demand in the bulk segment. When the economy recovers, the mechanism reverses to more consumption of raw materials, increasing demand in the shipping industry. The world business cycle can be recognized as the exogenous factor of shipping cycles.

The most crucial cause of the supply side is the investment cycle (Costas Th Grammenos, 2010, pp.235–256), which we will have a detailed discussion in the next section. The time lag between the order and the delivery time makes the cycles more fluctuated. When the market is at a peak, more investments enter, and new orders are placed as secondhand tonnage is high-priced. Nevertheless, the ships are usually delivered 18 months later, or even three years, the demand changes at that time. As a result, the new deliveries drive down the freight rates even further. This endogenous nature of the shipping makes the cycle take more time to recover.

Shipping cycles can be distinguished in the following three components, which are long-term, short-term and seasonal cycles.

Long shipping cycles are driven by technical, economic, and social changes, named the "secular trend" (Stopford, 2009). The long-term trend is essential to the shipping, but the exact timing is difficult to define. Usually, a long cycle is expected to be last around 60 years. At the same time, Stopford also confirmed that the statement of Fernand Braudel, the French historian, that long cycles could last a century or more matches reality. Viewing the shipping history, the steamships popularization from 1869 to 1915 and bigger ships trend from 1945 to 1995 have contributed to a downward spiral in freight rates by increasing efficiency.

Short shipping cycles happen at varying time intervals, and the interval varies from three to twelve years (Stopford, 2009). The cycle aims to create the market mechanism by adjusting supply to demand, in which weak shipping companies are forced out, leaving the strong to survive, fostering an efficient shipping business (Jason, 2009). A typical short cycle is more straightforward to identify with four main stages: a market trough, a recovery, leading to a market peak, and a collapse follows (Stopford, 2009).

<u>The trough stage</u> has three features. The first is the oversupply of ships leading to slow steaming and queuing at loading ports. Next, freight rates approach to the operating expenses of the least efficient tonnage. Lastly, the financial pressures of negative cashflow result from low freight rates and limited credit produce.

<u>In the recovery stage</u>, the freight rates move upwards, and the balance is expected to be achieved between supply and demand. Market confidence is gradually built up, and the liquidity improves.

<u>A market peak</u> has four main characteristics. The first is the tight supply and demand as the surplus is eliminating. Next, freight rates increase to two or three times of operating expenses. The third is the over-optimism of market sentiment. Lastly, an increase in secondhand prices and new orders.

<u>The collapse stage</u> follows the peak shortly without any doubt. The imbalance in supply and demand drives down the freight rates. The market holds a skeptical attitude. Although the liquidity remains high, fewer transactions on the new buildings and secondhand tonnage are reached.

Figure 1 presents a full cycle in the LPG shipping segment over the past decade (ShipBrief, 2020). Starting with an intersection where the delivery level is out of synchronization with the growing demand, the tighter market has led to an increase in freight rates. The shipowners made a move to purchase in the second-hand market to take advantage of current conditions and place as many tonnages on the water as possible. As a result, despite the rising freight rates, new orders continued to fall for the next two years before they hit bottom. In a short time, the supply of ships exceeded demand, leading to lower rates. Shipowners are reluctant to order new ones, but due to the long-term nature of shipbuilding, the market needs time to absorb the excess tonnage before another cycle starts.

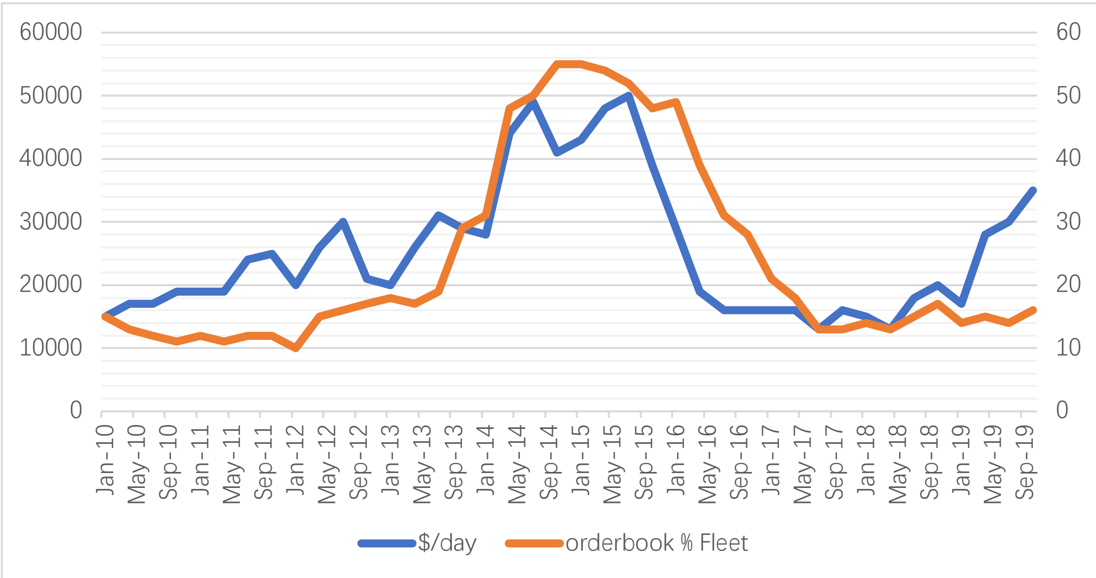


Figure 1: LPG Carrier Earnings Index ($/day) and Orderbook % Fleet (%)

Source: Clarksons Research, 2020

Figure 2 presents the four stages in a dry cargo shipping market cycle. It is worth finding that counter-cyclical ordering may lead to the failure of recovery, as shown in Year 8, and this unique behavior of the shipping industry can limit the height of the peak in Year 9.

Seasonal cycles are frequently observed in the shipping market. The fluctuations reflect the seasonal pattern of the seaborn trade (Stopford, 2009). For example, the timing of harvests in the agricultural trades causes the transportation demand to increase, and freight rates rise seasonally. Another similar example is observed in the crude oil trade, connected with the oil stocking up movements before the winter. Clarksons research has pointed out that the fourth quarter was the most frequent period to witness the highest average ClarkSea index in the last 29 years, counting 13 years in total; On average, the fourth quarter was 9% higher than the average of the first to third quarters (www.hellenicshippingnews.com, 2019).

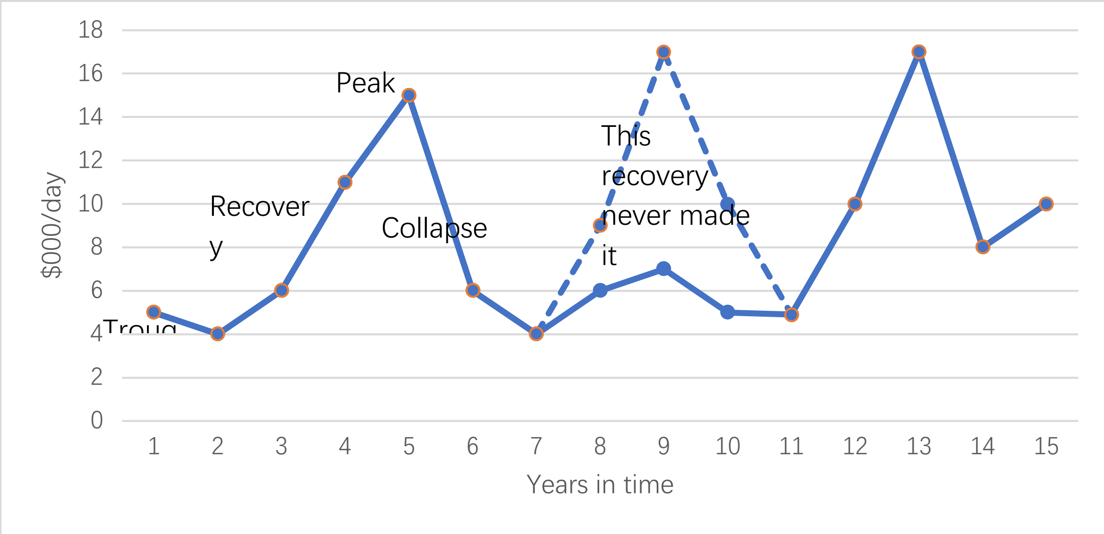


Figure 2: stages in a dry cargo shipping cycle

Source: Stopford, 2009

2.1.2 Shipping finance cycles

As mentioned in the previous section, the investment cycle is a primary driving force on the supply side of shipping cycles. Relatively, the cyclical behavior of investment can be observed in different stages of a typical shipping cycle. In this section, we will present the cyclical mechanism of ship financing cycle.

Similar to the shipping cycles, the financing cycle has four main stages based on asset value. In Ladis's statement, the stages are divided into the trough in value, the peak, and two periods of mild value between (Ladis, 2012).

- <u>Trough in Value</u>

The trough in value corresponds to the trough stage in shipping cycles. When the market is in the trough, one of the main characteristics is the overcapacity of ships. In this stage, the asset value reaches the lowest point in its cycle. Non-shipping banks exit the market; meanwhile, limited specialized banks provide limited financing services to shipping companies. As a consequence, there is a low volume of lending in the market. Higher margins and limited leverage forces banks to impose strict covenants, and shipping companies have limited financing sources in the trough.

- <u>Mild in Value 1</u>

In the recovery stage, the extreme imbalance between the supply and demand gradually eliminates, and the capital demand grows simultaneously. As liquidity improves, the value of asset increases to its mild stage. With the freight rates moving upwards, market confidence slowly builds up. Strict financing conditions become more flexible, and margins become lower compared to the trough stage. Under the influence of sentiment that markets become prosperous, non-shipping banks return to the market.

Peak in Value

At the peak, the asset value approaches its highest point; it embodies in the higher prices of secondhand tonnage which move way above their replacement cost, and the sale prices of ships which move above the newbuilding prices (Stopford, 2009). High earnings attract more and more opportunistic lenders to enter the market, enabling a high lending volume realized in the financing market. Lowe margins and higher leverage stimulate the financing services to be more adaptable. Newbuilding orders increase rapidly until few berths are left. However, such an ideal situation may not happen in reality. Due to the nature of the time lag between the new order and delivery time, the overcapacity may remain for years. Besides, the market recovery may abort as opportunistic investors anticipate the recovery and order large volumes of cheap ships. Supply dampens off the recovery as well as the rising of asset value.

Mild in Value 2

There is another mild value phase from the peak to trough, in which capital demand reduces and competition increases. This phase matches the collapse stage in the shipping cycle. The excess in supply drives down freight rates as well as earnings, making the market sentiment skeptical. Commercial banks start to withdraw the capital, and few transactions are reached on sale & purchase.

Table 1 summarizes and lists the characteristics of each stage in each economic cycle.

Table 1. Characteristics of Shipping and Financing Cycles Stages

Stages	Shipping Cycles	Shipping Finance Cycles
Trough	1. Oversupply of ships 2. Freight rates fall to the operating expenses of the least efficient tonnage. 3. Financial pressures of negative cashflow and tight credit 4. Increased demolition	1. Non-shipping banks exit the market 2. Low volume of lending in the market 3. Higher margins and limited leverage 4. Impose strict covenants
Recovery/Mild value	1. Freight rates move upwards 2. Balance is expected to be achieved between supply and demand. 3. Market sentiment swings between optimism and doubt 4. Liquidity improves.	1. Capital demand grows simultaneously 2. Liquidity improves 3. Market confidence slowly builds up 4. Non-shipping banks return to the market.
Peak	1. Tight supply and demand as the surplus capacity eliminates 2. Freight rates increase to two or	1. Opportunistic investments to enter the market 2. High volume of lending

Stages	Shipping Cycles	Shipping Finance Cycles
	three times of operating expenses 3. Over-optimism of market sentiment 4. Increase in secondhand prices and new orders.	realized in the financing market 3. Lowe margins and higher leverage 4. Financing services to be more adaptable
Collapse/Mild value	1. Imbalance in supply and demand drives down the freight rates 2. Fewer transactions on the secondhand tonnage are reached. 3. Peak newbuilding orders are arriving 4. Confused sentiment	1. Capital demand reduces and competition increases 2. Market sentiment skeptical 3. Commercial banks start to withdraw the capital 4. Few transactions are reached on sale & purchase.

Source: author

2.2 Financing sources

In the shipping industry, the traditional way that ships are financed is by bank debt, and new sources of finance have become available in the years following the global crisis (Miliotis, 2017). Debt finance, equity finance, and mezzanine finance are the three main groups in ship finance (Henderson and Harwood, 1991, p.76). We will have an overview of the literature of the representative financing sources in each group, which are bank debt, Private Equity, K/S and KG funds, public offering of equity, ECAs, and leasing. This section is presented to gain an understanding of the capital supply in shipping financing markets.

2.2.1 Bank debt

As the traditional shipping finance source, bank debt can be traced back to the mid-nineteenth century when mortgage finance came into financing maintenance of the fleet. Initially, the debt was on a conservative basis, and the loans were arranged for three to five years with time charter contracts required or a first mortgage on modern ships. The 1960s to the mid-1980s saw a bank's dominance over funding ships with credit backed by governments. Low fixed interest and eighty percent advance made it an appeal in the market. Meanwhile, shipyards were able to obtain more orders with assistance (Henderson and Harwood, 1991b, pp.67–68). Although shipbuilding credit schemes lost the market afterward and alternative sources of capital gradually emerge, bank debt is expected to remain the primary source of ship financing in the next years, according to Norton Rose Fulbright's survey.

2.2.1.1 Risk management

The shipping industry is highly capital-intensive, and it is more financial speculation than other asset-based cyclical industries. The market conditions are unstable, and there are frequent wild swings in asset values, making shipping finance exposed to volatility. However, banks never seek risk. A bank's priority is to appraise shipping risk and secure its investment. The risks can be briefly summarized into two types, the industry-related and project-related lending risks.

According to the statement of the HSBA Handbook on Ship Finance (Orestis Schinas et al., 2016), industry-related risks can be divided into:

a) risks relating to the shipping industry, such as cyclicality of the markets, performance and credit risks of the charterers, regulatory changes and associated costs of compliance, political and world economy risks, operations in various jurisdictions, etc.
b) risks relating to the company, such as risks associated with other investments, indemnity risks, conflicts of interest, etc.

The project-related risks should be considered when borrowers and lenders discuss and mitigate risks in the loan agreement, which are counter-party risk, interest rate risk, freight rate risks and asset values.

The above-mentioned risk factors indicate that thorough risk management strategies are crucial to bank investors. Either the general rules for the bank's lending policy or additional clauses in the loan agreement should embody the assessment of these risks.

2.2.1.2 Market scene of banks in shipping

Commercial banks are the most vital source of debt finance in the ship finance market by borrowing from the capital and money markets (Stopford, 2009). They mainly provide short term loans of two to eight years, limiting the tenor of loans, and they are unwilling to provide long term financial services. Besides, specialist maritime banks that are mainly in Germany and the Netherlands provide credit to shipping. These shipping banks provide funding by obtaining capital in the market or issuing bonds, it is attractive that tax concessions are available for the local investors. These banks have the expertise in shipping, enabling better financial services and collaboration with shipowners.

Figure 3 lists the top 25 global banks' lending to shipping as of December 2018. The Asian banks present a growing dominance in the ranking; The Export-Import Bank of China counts $17.5bn at the top, and the Bank of China comes the fourth with $16bn. Besides, the European banks still hold a majority in the Top-25 list.

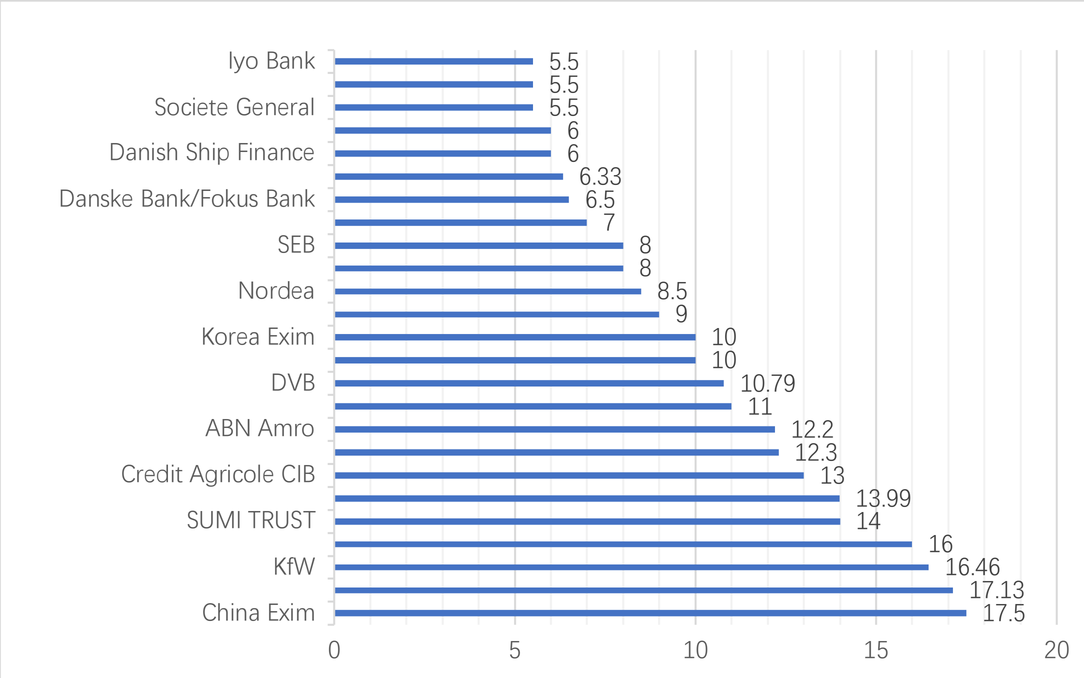


Figure 3: Top 25 global banks' shipping portfolios till end 2018

Source: Petrofin Research, 2019

According to Petrofin Research, the total amounts of loans decline to $300.7bn, which were $345bn at the end of 2017 and $355.25bn at the end of 2016. We can find a sign that banks are continuously reducing their exposure in the shipping sector; the reduction rate has gained momentum from $10bn to $44.3bn. From Figure 4, we can conclude that the downward trend primarily comes from European banks, contributing a 14% decline in an exposure. Figure 5 puts the European banks under the microscope. The German banks have been on a steep drop in the last decade, cutting 75% portfolios from $154bn to $38bn. The Scandinavian banks also reduced their exposure to half of the loans in 2010. Most European banks are withdrawing from the shipping sector, while it is worth finding a slight increase in portfolios of French banks, which is mainly contributed by BNP Paribas.

The main reasons for the declining willingness of European banks to finance ships are listed as follows:

First, high loan losses and provisions in the financial, shipping, and economic crisis. European banks, which lent heavily to the sector during the boom decade, suffered heavy toxic debt burdens after the crisis.

Second, capital constraints due to Basel III/IV and increased European Central Bank supervision and monitoring. Compared with other financing types, the improving regulations, supervision, and risk management require banks to set aside more capital for shipping financing, which means that many western banks now consider shipping financing to be unprofitable.

Third, change of strategy to reduce the risk of their investment portfolios.

Last but not least, the inability to raise new funds, leading to deleveraging (Petropoulos, 2017b).

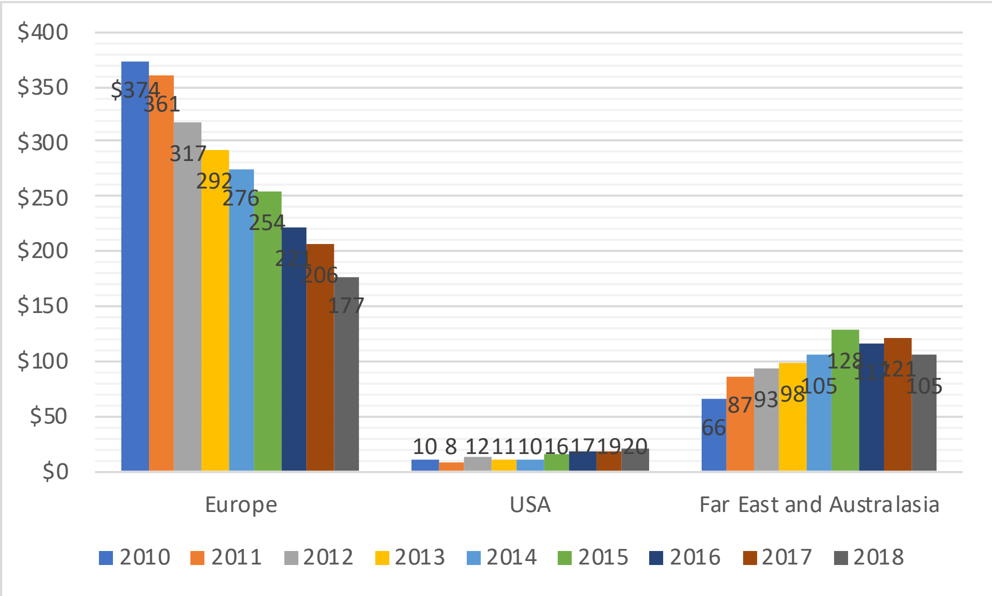


Figure 4: Breakdown of Global ship finance portfolios according to geographical area, in US $bn

Source: Petrofin Research, 2019

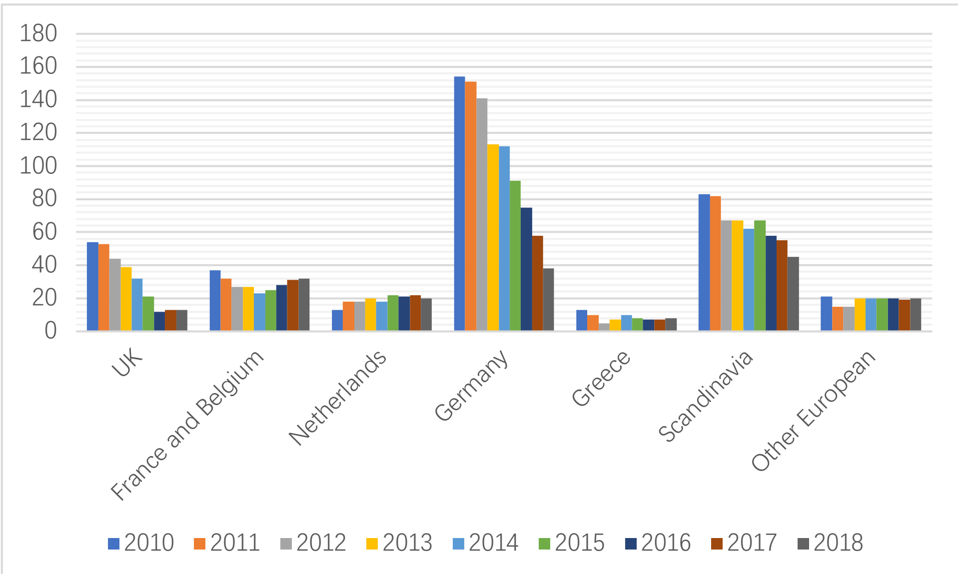


Figure 5: European banks' global ship finance development, in US $bn

Source: Petrofin Research, 2019

2.2.2 Alternative financing sources

As mentioned at the beginning of the section, new ship financing sources have gradually emerged and rapidly developed after the 2007/8 global financial crisis and the market crash in 2010. In the next section, we select to introduce private equity, K/S and KG funds, public offering of equity, and ECAs, bonds, and financial leasing. We will focus on the characteristics of each alternative as well as its market development.

2.2.2.1 Private Equity

Private equity is considered as the primary source of funding next to bank debt. Private Equity Funds (PEFs) seek high investment returns within a fixed period; therefore, they have been drawn to the sector in the last decade as asset values for both new-build and second-hand vessels have touched the bottom after the financial crisis of 2007/2008 and shipping crisis 2010. PEFs take advantage of the gap, which results from commercial banks continuously withdrawing the exposure in shipping, and rapidly expand in the ship finance market. According to Marine money's report, PE investment has reached $38 bn since 2007 (Marine money, 2019). Since many of their investments are confidential and do not have to be reported, the current estimates of the total PEF vary from one research house to another, and the total number may not be accurate. Still, it is no doubt that private equity will be an essential source of funding for ship finance when looking into the future.

PEFs take various forms, such as purchasing existing shipping debt from banks, preferential or direct equity participation in public and private companies, joint ventures with owners, and direct ownership of ships (Petropoulos, 2016). In this form of financing, a selected and limited number of investors are offered the opportunity to invest in the equity part of actual vessels, such as friends, relatives, or venture capitalists. This funding method exists in almost every shipping company with a degree that varies (Daniel, 2004). Private equity is less regulated and more commercial in terms of the approach, enabling needed capacity and flexibility offered to the ship finance market (Petropoulos, 2016). The return rate varies from 6% to 20%, and the maturity is around five years. Private equity invests most in dry bulk, tankers and other traditional trades, while misses the opportunity to invest in today's rapid growth sectors, such as cruise and gas. PE investments by sector are shown in Figure 6.

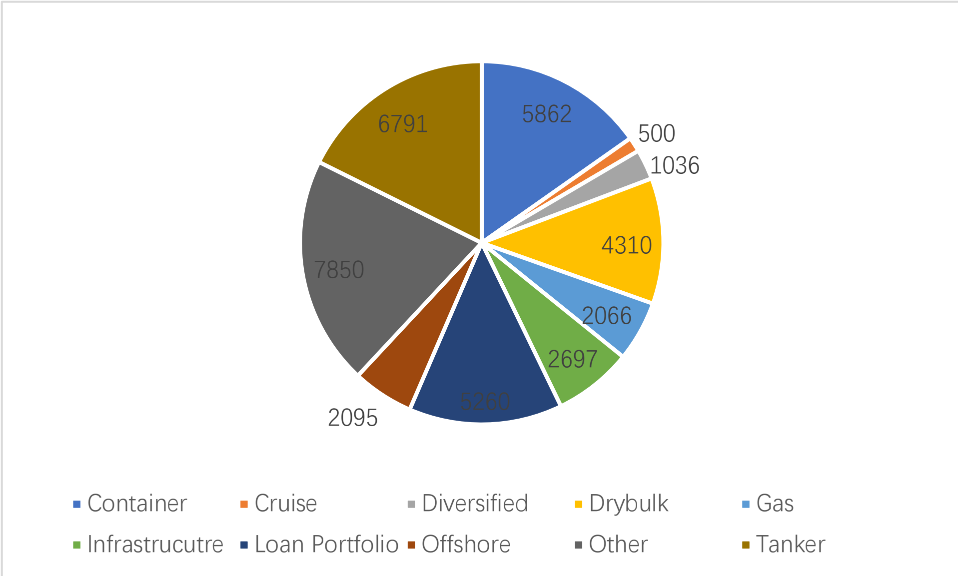


Figure 6: PE Investments by Sector, in mUSD

Source: Marine Money Inc, 2019

2.2.2.2 Public offering of equity and IPOs

The public offering of equity and IPOs enables shipping companies to reach a wider potential circle of investors by arranging a public offering of stock to be traded on the stock exchanges around the world (KPMG, 2011). New York, Oslo, Hong Kong, Singapore and Stockholm are the main stock markets for shipping stock (Stopford, 2009).

Accessing the public equity market is not easy; most of the companies that are already listed on the stock market are "multi-sector" companies. The two-thirds of shipping companies' market capitalization is owned by the top 20 companies, while small companies are excluded from this form of funding because of high volatility. The opportunistic nature of shipping makes small business incongruous in the stock market (Stopford, 2009). The corporate structure specified by the stock markets will slow down the decision making of shipping companies. On the other hand, the consistent profit growth year on year which the equity market looks for, is challenging for small businesses.

An initial public offering (IPOs) is necessary for a private company to raise equity in the public markets. This form of funding can increase the degree of publicity as well as the company image (KPMG, 2011). A company going public should consider three factors when pricing the IPO, its net asset value (NAV), the yields of comparable public companies, and the enterprise value based on the company's EBITDA compared to similar listed companies (Stopford, 2009).

The market for IPOs in global shipping has remained weak in recent years. Negative earnings and irregular dividend payments weaken the investor appetite for shipping sector IPOs (A. Lakshmi, 2019). Facing limited investor interest, many shipping companies had to withdraw their IPO offerings. It is notable that GoodBulk officially withdrew its plans for initial public offerings at the end of 2018 after postponing the launch in June. There have been few IPOs for mainstream shipping companies in the US capital market in the past five years, regardless of their investment themes (Dimitriadis, 2018). On the contrary, secondary offerings continue to be an essential funding mechanism for listed shipping companies to raise money. Oslo becomes the preferred platform for publicly listed shipping companies to raise equity (A. Lakshmi, 2019).

2.2.2.3 Bonds

Issuing bonds is another way to access the capital markets. It is some extent, similar to an IPO: an investment bank ("bondholders") purchase bonds from the shipping company ("issuers"), then process the placement, and draft offer documents dealing with several topics such as the summary of financial data, risk sectors. The issuer needs to pay interest payments (called coupons) to bondholders. At the end of the term, the capital will be repaid to the bondholders (Stopford, 2009).

As shipping companies have more exposure to volatility, the yield is usually higher than average. Drewry Maritime Financial Research (DMFR) analyzed 61 shipping bonds with the minimum issue size of 100 million U.S. dollars. More than 60 percent of the total issue amount is from container shipping and port sectors (Drewry Research, 2017). Since container shipping lines contribute the most of the shipping bonds, four reasons are detected behind: first, the improving market rebound YTD; secondly, the low-interest-rate environment; third, declining exposure from the bank sector; lastly, the contractual structure of securities and their unsecured nature (Drewry Research, 2017).

2.2.2.4 Export credits funding

Export credit finance has been an essential source of capital in funding newbuilding programs. Most export credit agencies (ECAs) are government-controlled or quasi-governmental organizations (Alexopoulous and Stratis, 2017). The lending volume of ECAs is rapidly on the increase after the 2008 financial crisis, especially from ECAs in shipbuilding economies such as Korea and China. ECAs provide substantial assistance to their local shipbuilding activities by offering direct ECA funding or issuing an ECA guarantee and an insurance policy (Alexopoulous and Stratis, 2017).

The shipowners who raise the funding by ECAs can have large amounts of capital available and allow House Banks' capacity for non-ECA deals. Compared with commercial banks, ECA Finance's underwriting policy is more stable. It can optimize the financial condition by increasing leverage, extending the repayment period and reducing financial costs. It also has advantages in financial channels because it provides additional credit lines in addition to banks and expands financial channels for owners. Also, ECA Finance can prevent banks from facing risks and help them achieve their capital relief goals. However, the approval process makes ECAs funding time-consuming. In addition, the OECD rule specifies a twelve-year profile restriction, which is another disadvantage (Eurofin and Seafin, 2016).

ECAs have suffered a tough time as there are few newbuilding orderbooks in the current market. ECA finance faces several challenges, such as the infeasible analysis of financial condition because of the unavailable time charter, unsuccessful vessel delivery under the underwritten project, and waiver request for the financial covenants under the facility agreement (Sinosure, 2017).

2.2.2.5 Norwegian K/S and German KG funds

Norwegian K/S and German KG funds are both equity finance with limited liability partnerships. The K/S partnership raised a substantial amount of capital during the late 1980s and fell out of favor in the early 1990s; KG funds emerged in the mid-1990s and gradually lost the competitive position in the last ten years. Both methods rely on the tax benefits; the structures of them are introduced in detail as follows.

The K/S partnership is set up by two or more individuals or legal entities committed to capital. It requires a “general partner” appointed by the organizer to accomplish the invitation to equity partners. The K/S companies are usually on a one-ship basis and subcontract management out (Stopford, 2009). Although it lost favor due to reduced tax advantages, it remains an attractive example of ship finance opportunism.

The “Kommandit-Gesellschaft” (abbreviated to KG) has a limited liability company registered in Germany as a general partner, and private investors as limited partners. The system is usually used to invest in a single ship by setting up a limited liability fund (Süreyya, 2016). The KG companies became a fascinating investment as private investors can have a return of 8% after tax (Stopford, 2009). The scheme is shown in Figure 7. The general manager purchases a ship from a shipyard or an owner with a time charter obtained; the 50-70% of the purchase price is raised from a bank loan, and about 30-50% is raised from high net worth investors and the general manager. This mechanism has been a drive for capacity growth, enabling the shipowners to expand its fleet size.

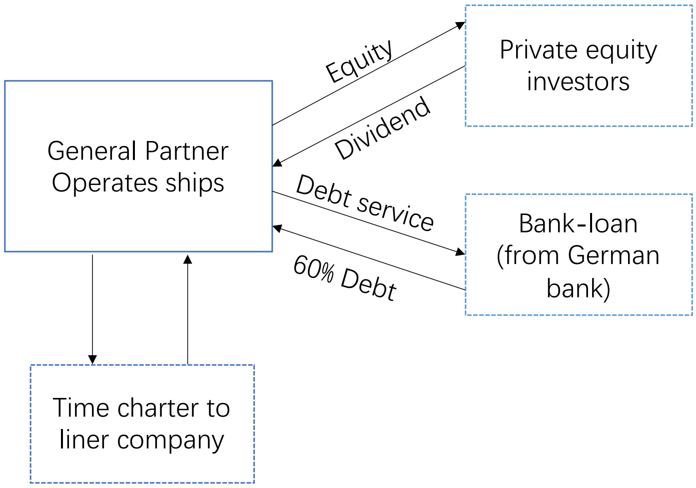


Figure 7: KG finance model

Source: Martin Stopford, 2009

However, the KG model is gradually losing much of its appeal due to declined tax benefits, higher capital costs, and increased competition from other financing alternatives (Stopford, 2009). In addition, information asymmetry is considered one of the main threats to the KG mechanism's success. Since the equity shares cannot be traded readily and publicly available information is absent, private investors turn their backs and incline towards other alternative investment opportunities (Süreyya, 2016).

2.2.2.6 Leasing ships

Leasing is a powerful financing tool to separate the vessel's usage and ownership; the lessor acquires the ship identified by a lessee and leases it back; in return, the lessee operates the asset and pay lease payments regularly to the lessor (Stopford, 2009). The structure offers a long-term finance option, usually ranging from 5 to 10 years at a fixed rate. It often covers higher percentage loans, having taken the owner’s capital into account, usually 25-35% of the initial purchase price (Petropoulos, 2019). Therefore, leasing has become an attractive and powerful financing option in today’s low U$ interest rate environment and rapidly risen in the ship financing market.

2.2.2.6.1 Operating lease and finance leasing

The operating lease and the finance lease are two typical leasing structures; the former is widely found in financing containerships, and the latter is more commonly used for LNG tankers and cruise ships. These two different structures handle risks in different ways. The three essential risks to be considered in a leasing structure are:

1. The revenue risk
2. The operating risk
3. The residual value risk

In the operating lease structure, the lessor bears most of the risks. The lessee can use their discretion on the termination and return the equipment at the end of the lease; the lessor is responsible for conducting maintenance. The operating lease covers a relatively short term of the asset's life, and it is not shown on the balance sheet in general. In short, the lessor is the owner and bears economic risks in an operating lease.

Unlike the operating lease, the lessor in a finance lease model focuses on a financier's role, leaving all operating responsibilities to the lessee. If the lessee wants to terminate the contract early, full compensation must be paid to the lessor. A financing lease is often a long-term contract, and it needs to be shown on the balance sheet. In short, the lessee is the owner and runs the economic risks in a financing lease.

The typical finance lease structure is presented in below Figure 8. The lessor provides the capital and orders the newbuilt ships that comply with the lessee's specification and then lease out to the lessee under a long-term contract, e.g., a bareboat contract. The lessor owns the ship but never operates it. Instead, the lessee leases the ship and operates it. That is to say, as Stopford summarized, "the lessor has little involvement with the asset beyond owning it." Charter payments are paid from the lessee to the lessor on a regular basis, and the lessee has the right of "quiet enjoyment" of ships. Notably, this type of lease usually obligates the lessee to purchase the vessel at the end of the lease, called bareboat hire purchase (abbreviated to BBHP).

The financing lease model is an attractive way of funding. On the one hand, it offers the capital in the way similar to senior loans provided by commercial banks; the implied costs range from 4% to 7%, depending on the leverage ratio, transaction size, and availability of company guarantees (Petropoulos, 2017). On the other hand, it covers a more extended period of funding, which can last up to fifteen to twenty-five years, depending on the ship's age. Last but not least, the lessee can transfer the value risks to the lessor.

The constraint of this structure is that the lessor is likely to have strict qualifications on the lessee, such as good profit, well-establish company structure, Etc. Another drawback is the slow action to the changes as the lessee is tied into a long-term agreement. Thirdly, since the asset ownership belongs to the lessor, a missed payment will cause the lessor to "take over" the asset, and the initial capital promised by the lessee and the payment as of the default date will be lost (Petropoulos, 2017a).

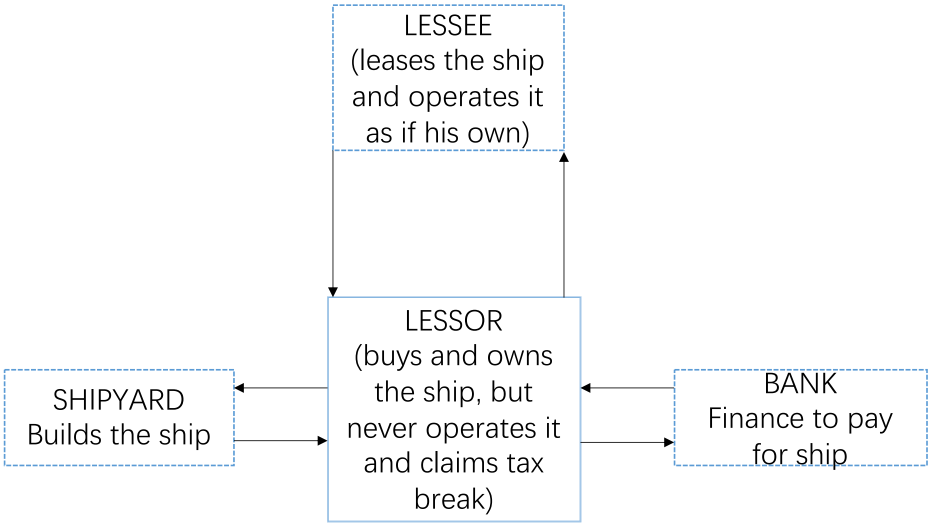


Figure 8: Typical lease finance model

Source: Martin Stopford, 2008

2.2.2.6.2 Rise of ship leasing

The rise of ship leasing is mainly initiated by Far Eastern Leasing companies over the last decade. Chinese and Japanese leasing companies are key players in the ship leasing market.

Japanese leasing

After a long inactive period, Japanese leasing companies renewed their interest in lending to shipping in the past ten years. Surplus funds that could not be satisfied by Japanese ship owners and the continuous withdrawal of many western banks encourage a growing appetite for Japanese ship finance (Petropoulos, 2019b). It is notable that Japanese leasing companies favor Japanese linked clients; they carefully select the shipowners who have a long-term cooperation record (David, 2019).

With the vigorous development of the Greek shipping industry and the high emphasis on ship quality, efficient ship management and enhanced professional knowledge, Greek shipowners have become the main target of financial customers for Japanese leasing. The process is strongly facilitated by the Japanese trading houses, which have local branches in Greece, London, Singapore, and elsewhere, actively introducing Japanese financial institutions to international owners. With the trading houses business fast developing, there is also an increasing trend to bypass the trading houses. Such transactions are often facilitated by more flexible financing packages and combining financing services such as second-hand purchasing and chartering (Petropoulos, 2019).

The following are two Japanese ship financing structures: a traditional Japanese leasing structure and the other is an evolutionary structure developed by Fearnley

Securities, named the Multi-tranche structure. In the traditional structure, the lessor's capital structure consists of a 70% to 100% bank debt and equity ranging from 0 to 30%; the lessee's capital structure is a 100% lease. While in the latter one, the borrower's capital structure comprises 70% of senior debt and each 15% of junior debt and equity. The Multi-tranche loan structure combines the best loans in the world: debt financing provides a competitive advantage for reducing capital costs; mezzanine debt is lower than the barrier of equity, which further reduces WACC; lastly, equity financing expands the scope of repayment and realizes cash breakeven (Money, 2018). The two structures' successful operation enabled Fearnley Securities to raise approximately US$7 billion in capital from Jan. 2016 to Nov. 2018 and conduct more than 20 transactions.

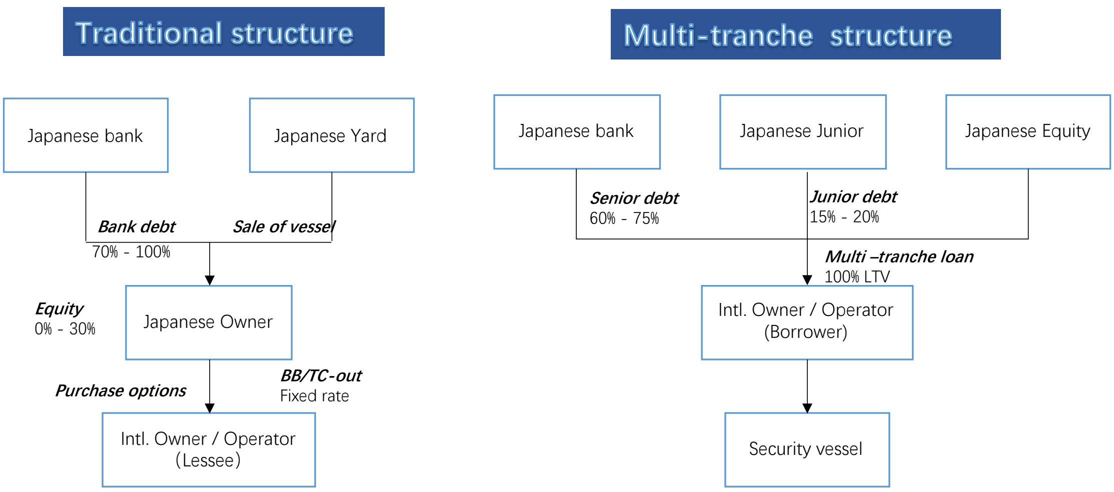


Figure 9: Traditional and Multi-tranche Japanese Leasing Structure

Source: Fearnley Securities, 2018

Chinese leasing

The main competition lies in the rise of Chinese leasing. The number of Chinese leasing companies has enormously increased in the past decade. The declined financing cost on par or even lower than banks enables the Chinese leasing business to grow tremendously. Although banks continue withdrawing from the shipping sector, Chinese leasing has risen by 9% in 2018, exceeding $50 million in aggregate (Petropoulos, 2019).

In 2007, the first five financial leasing companies were established in China, which are Bank of Communications Financial Leasing CO. Ltd, CMB Financial Leasing, CCB Financial Leasing CO. Ltd, ICBC Leasing, and MINSHENG Financial Leasing. All are supported by banks. By the end of 2018, the number of leasing companies in China has rapidly increased to 69, among which eight financial leasing companies' assets are over RMB 100 bn. The following table lists some active Chinese leasing houses classified by the back parties.

Table2: Chinese leasing houses backed by banks, shipyards, investment companies and industry leaders

Backed by Major Banks	Backed by Shipyards	Backed by Investment Companies	Backed by Industry Lenders
ICBC	CSIS Leasing	China HUARONG	AVIC INTERNATIONAL Leasing
CCB	CIMC Finance	China Minsheng Investment	TAIPING & SINOPEC Financial Leasing
Bank of Communication Finance Leasing	COSCO SHIPPING Leasing		FAR EAST HORIZON
ABC Financial Leasing	China State Building Corporation Leasing		
China Development Bank Leasing			
Minsheng Financial Leasing			

Source: Petrofin Research, 2019

Reviewing the transactions achieved by Chinese leasing companies till now, we can find that Chinese lessors favor medium to large owners with the newbuilding projects. According to the latest survey launched by the Alphabulk research, the Chinese ship leasing company owns 80% of the VLOC orders and 20% of the Capesize orders. In terms of breakdown, about 23% of the total orders of Capesize and VLOC in quantity come from Bocom, 22% from CSSC, 19% from ICBC, and 12% from China Development Bank (Sam, 2020). Figure 10 illustrates the rapid development of each Chinese shipping financing leasing institution.

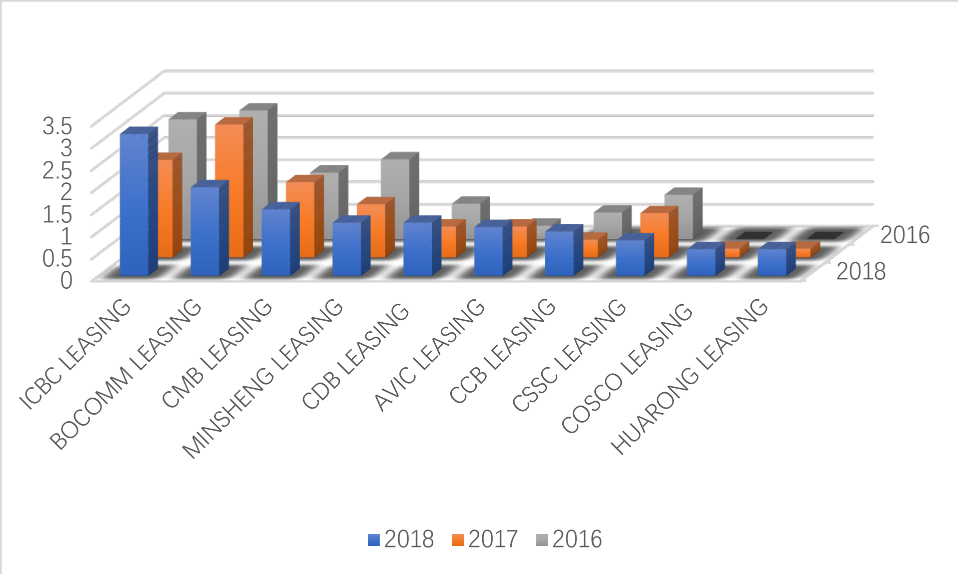


Figure 10: Shipping Leasing Drawdown from 2016 to 2018 of Chinese Leading Financial Leasing Companies in $Bn

Source: Bank of Communications Financial Leasing, 2019

In addition, Chinese leasing companies have started to address smaller owners' demands, as noted by Ted Petropoulos, founder of Petrofin Research. However, only a few successful transactions are reached as of the date.

2.3 Financial crisis and recovery

Previous sections present an introduction to the shipping and financing concepts that are related to our research. From this sub-chapter, we will have a thorough discussion of the realistic development of the shipping industry and financing markets in the recent decade. We will follow the timeline from the financial crisis in 2007/2008, through the hard recovery till 2019, and end with the recent economic shock of COVID-19. This section aims to present a brief insight into current market conditions, as well as implications for the shipping industry in the future.

2.3.1 Global financial crisis 2007/2008

The financial crisis of 2007-2008 was a severe global economic crisis that led to the Great Recession.

The precipitating cause is the housing bubble in the United States, resulting in the development of the American mortgage crisis and first bankruptcies (L. Grigor′ev, 2009). The deregulation in the financial industry since 1999 allowed banks to invest in derivatives; banks demand more mortgages and sell to a hedge fund on the secondary market. However, the oversupply led to the downturns of the housing prices when the Federal Reserve raised the fed funds rate in 2004; banks stopped lending as derivatives' values collapsed (Amadeo, 2015). The second stage is the surge of the liquidity crisis. The banks reduced to lend loans significantly, and only trade with the money getting from the central banks (L. Grigor′ev, 2009). The distrust within the banking system rapidly spread, causing the third stage of the financial crisis. The credit paralysis harmed the current economic transactions and further investment in the future (L. Grigor′ev, 2009).

As established earlier on, bank debt is the traditional and primary source of shipping finance; the financial crisis of banks in 2007-2008 has a profound impact on the ship finance markets without any doubt. It put a constraint on the supply as limited investment moves are offered by banks. On the other hand, the demand for shipping services is restrained as a result of the liquidity crisis in international trade, given that the demand for transportation is a derived demand (Meenaksi, 2009). Therefore, a sharp decrease in the freight rates and a strong increase in financing costs made shipping companies and banks deeply involved in the crisis. Hundreds of banks failed to get interest back and face immense losses. In addition, the massive surplus of supply and irrational ordering aggravate the decline in vessel values and freight rates.

2.3.2 New regulations and the slow recovery in a post-crisis era

In the Global Financial Crisis, many commercial banks reduced their exposure to the shipping industry or exited the sector entirely; loans to shipowners from up to $94 billion in 2007 collapsed to $38 billion in 2010 (ReissLewis and LLPMorgan, 2016). In response to the crisis, the regulatory bodies have stepped up their efforts to set up initiatives for the commercial banking industry. Basel III is one of the initiatives that can make a significant impact on the banking system as well as shipping loan portfolios.

The framework is promulgated by the Basel Committee on Banking Supervision (BCBS) in 2010. Although the initiative is not explicitly directed towards shipping loan portfolios, the liquidity standards of the Basel III affect the availability and terms of shipping loans (ReissLewis and LLPMorgan, 2016). The committee set up two minimum standards for funding and liquidity; the first is the Liquidity Coverage Ratio (LCR) standard, which requires banks to maintain sufficient high-quality liquid assets to meet its liquidity needs under severe pressure lasts 30 days. The second standard is the Net Stable Funding Ratio (NSFR) standard, which requires banks to finance assets with the least stable source of funds according to the asset's remaining term and other liquidity risk conditions (ReissLewis and LLPMorgan, 2016). As a result, banks started to adjust portfolios, in particular for long-term bank financing. The pressure that the Basel III placed on commercial banks raises their concern in long-term financing for ships, and shipping companies are increasingly turning to alternative investment sources.

In Dec.2017, the Basel Committee on Banking Supervision (BCBS) formally announced a new proposal to set capital requirements for the banking industry, often referred to as "Basel IV." Compared to Basel III, the changes are only regarded as completing the "Basel III" reforms, which were agreed in principle during 2010-11; the

Basel Committee itself calls it "Final Reform". Although the new regulations can still withstand the risks of the financial crisis and force banks to reserve more funds for backing, the new "Basel IV" ship financing rules will make banks' costs lower than previously expected (Nastali, 2017). Since 70% of ship loans are provided by banks using methods based on internal ratings, no matter Basel III or IV put into force, EU shipping financing would receive a strong impact. The possible consequences for banks would be reduced exposure to the shipping sector and the financing capital of new shipping loans, as well as the pricing, would be significantly increased. These facts have been proved in the trend of European banks' continued withdrawal from the shipping industry in recent years.

Since 2017, the shipping industry has been in a slow recovery, benefitted from global economic growth. For example, take the dry bulk industry; some bulk shipowners and operators have profited from the Chinese tremendous growing demand for coal and iron ore in 2017. Therefore, the dry bulk fleet is expected to grow in order to match the increasing demand in 2019, as BIMCO estimated in Figure 11 (BIMCO, 2017). In reality, the fundamental market conditions in 2018 kept improving with the Baltic Dry Index (BDI) remained rising compared with the same time in 2017. However, the recovery is fragile as the fleet is growing too fast. Newbuilding interest increases, and demolition activities weaken. As a result, there was no massive improvement in the fundamental balance in 2018 as predicted (BIMCO, 2018). In 2019, the continued slowdown of global trade volume growth made the norm of uncertainty remained in the shipping industry. Overcapacity remains a conspicuous characteristic despite a decline in fleet growth.

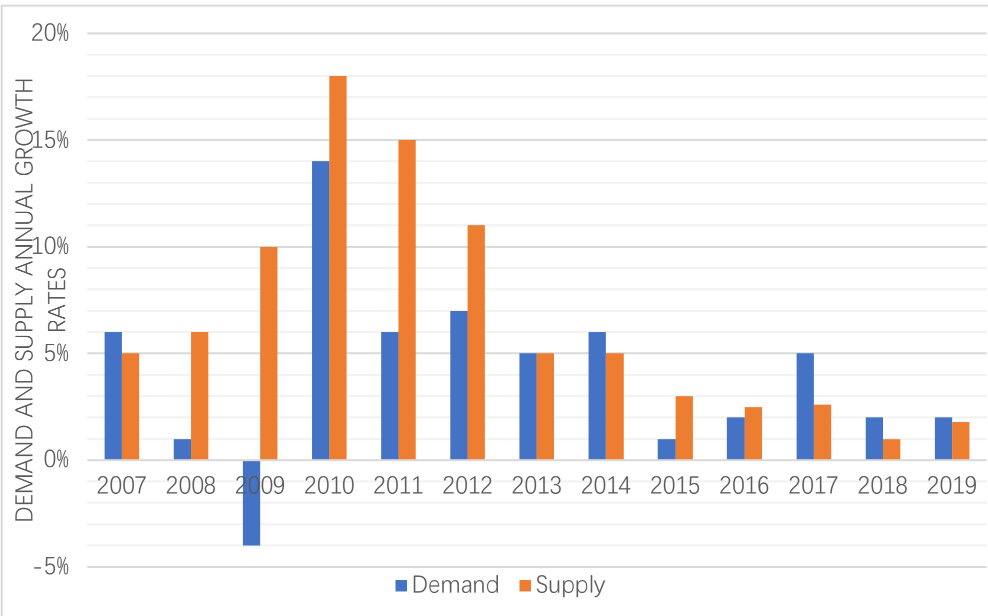


Figure 11: Estimation of changes to the fundamental market balance 2007-2019

Source: BIMCO & Clarksons, 2017

2.3.3 Economic Shock of COVID-19

In Mar 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic. Countries imposed various degree of lockdown measures to minimize coronavirus spread, affecting the shipping industry on transportation volume and crew shift, Etc. The COVID-19 represents a black swan, which is rarely seen in the realm of normal prediction with high impact on a large scale (Van Klink, 2020).

As COVID-19 widely spreads, the dry bulk market has predicted a poor outlook on all sectors at loss-making levels (BIMCO, 2020). The negative demand shock and oversupply jointly affect the freight rate to multi-year lows, and rates for all ship types maintain below break-even levels. Capsize earnings have dropped dramatically from the beginning of 2020, far below the break-even point; the first quarter witnessed the severe struggle in the Capesize market until some relief came in April. Smaller dry bulk market segments have relatively better freight rates; the freight rates did not reach a point as low as the Capesize market but remain at a loss most of the year (BIMCO, 2020).

By 19 May, the dry bulk shipping fleet has grown by 1.6%, and it is expected to continuously increase by 3% by the end of 2020, reaching 930.8 million DWT (BIMCO, 2020). The planner deliveries and demolition are disrupted by the pandemic, as major shipping economies restrict people's free movements and close the borders.

2.4 The situation of the second-hand ship market

There are four markets in the shipping industry - the freight market, the sale and purchase market, the newbuilding market, and the demolition markets. Each market works and correlates closely. Unlike other shipping markets, the secondhand market has subtle characteristics. The S&P activities do not change the transport capacities or the fleet size provided by the market. Besides, “money changes hands but the transaction does not affect the amount of cash held by the industry when the investor is another shipowner,” as Stopford pointed out; four factors affecting secondhand ships’ price are freight rate, age, inflation, and market sentiment (Stopford, 2009). The S&P deals are connected to the price of secondhand ships (Park et al., 2018).

With the industry gradually recovering, sales of second-hand ships reached a ten-year high annual level in 2017, but the ship prices remain low, which seems to be a “window of opportunity” for investment (CNBC, 2017). The market value of ships has gradually risen to a relatively high level in the next two years, while the S&P deals decrease compared to the same time in 2017. The total number of S&P deals in Jan – Feb 2019 has declined to half of that at the same time of 2017; a significant reduction is found in Handysize and Capesize sales. The economic shock of COVID-19 brings changes to the ship financing market. In the post-pandemic era, the buying appetite seems to re-emerge at a fast pace on the bulk side; shipowners start to stop ordering the first-hand vessels and turn towards the second-hand tonnages (hellenicshippingnews, 2020).

Table 3: number of SnP deals

	Jan 2016 – Feb 16	Jan 2017 – Feb 17	Jan 2018 – Feb 18	Jan 2019 – Feb 19
Handysize sales	21	40	34	15
BHSI average	221	433	561	404
Supramax sales	19	26	27	18
BSI average	335	733	882	663
Panama sales	13	23	19	19
BPI average	353	943	1369	848
Capsize sales	28	16	9	2
BCI average	245	1179	1891	1311
Total no. of SnP deals	81	105	89	54

Source: Intermodal Research, 2019

It is widely agreed that buying second-hand vessels can provide a better return on capital than ordering new eco-ships. The more fuel-efficient vessels are estimated to save $360,000 per year; however, they would cost an extra $10 million to order, which means that their cost advantages could only become apparent after 28 years (shipandbunker, 2013). Therefore, midsize operators would prefer purchasing a second-hand ship instead of ordering a new building. They are regular buyers of second-hand tonnages, especially those from Greece, Norway, Denmark, and the Far East, who are good at implementing "counter-cyclical" purchase decisions (Petropoulos, 2019a). The purchase decision may also be affected by the required capital and/or financing options, which will determine the number of ships to be purchased and the timing when the decision is made.

Eagle Bulk Carrier, a US dry bulk carrier operator and an undisclosed buyer, recently reached a ship sale and purchase transaction, as reported on Aug 2020. An aging supramax Goldeneye, which was built in 2002, brought a total revenue of $5 million to the company; due to the negative impact of market difficulties during the pandemic, Eagle Bulk had a net loss of US$20.5 million in the second quarter, compared with a loss of US$6 million in the same period last year (Rowles, 2020). The company is engaged in a continuous battle to implement fleet renewal and growth plans on the basis of opportunity. Another recent deal was the purchase of two 13,000 TEU container ships built in 2010 and 2011 by Seaspan, the world's largest container ship tonnage supplier. Seaspan stated that its long-term leasing model would protect its business from coronavirus damage. The two box-ships, secured by long-term charters, cost approximately US$146 million in cash and are expected to be financed through additional borrowings and cash on hand; these new ships are expected to receive approximately US$4.5 billion in total contract revenue for the company (Lloyd's List, 2020).

Secondhand tonnage financing is the core of the sale and purchase business. The current situation is that European banks continue their withdraw but still count for the vast majority of the total loans. Private equity is drawn to the sector as the asset value for secondhand ships opens a window of opportunism. However, the high returns sought by private equity funds may inhibit their contribution to secondhand ships' financing. Corporate equity is an essential source of financing second-hand tonnages, especially in the medium to small-size shipping companies. Taking account of the weak performance of shipping IPOs in the recent global shipping industry, the main sources of funding second-hand tonnages lie in banks, corporate equity, informal equity, which will also be tested in our survey.

As we have mentioned previously, the strong developing source of funding lies in Far East leasing. Japanese leasing companies have built up a mature market to fund a selective group of clients who have a long record in cooperation with Japanese shipyards or banks. Another active player comes from Chinese leasing. Chinese leasing companies have developed tremendously in the past years, their financing focus is the newbuilding market, and their preference is the top tier clients who can provide transparent information to conduct full due diligence. The following Figure 12 presents the assets value of Chinese financial leasing companies. Most of the leading leasing houses have a bank background. Starting from 2007, the assets value of Chinese shipping leasing has rapidly increased; for example, the assets value of ICBC Leasing has grown to $12 bn in the last 12 years, and the BOCOMM leasing has increased its exposure to $9.2 bn in asset value in 2018. To continue such growth of financial leasing in shipping, Chinese lessors have addressed the market expansion to medium- and smaller-sized shipowners, which means that more funding opportunities may be available for second-hand tonnages.

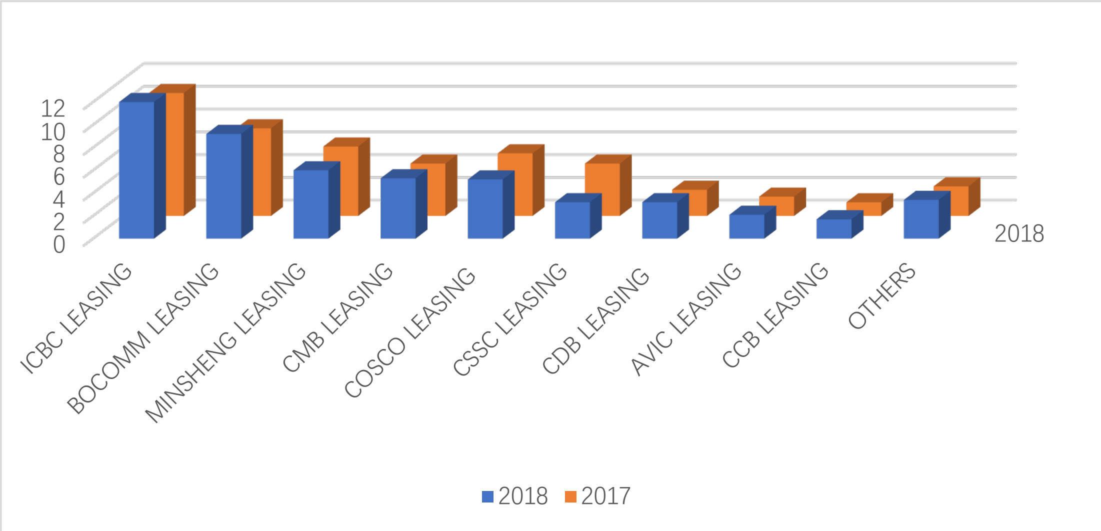


Figure 12: Ship Leasing Assets Value of Chinese Leading Financial Leasing Companies

Source: SMARINE, 2019

2.5 Concluding Remarks

Shipping finance is expanding with caution; the prime mover comes from the shipping industry slowly recovering. The below points are summarized from the subsections 2.1 -2.5, which are taken into account when formulating the hypotheses of our research in the next chapter.

1. In terms of the economic cycles, the shipping industry has been gradually recovering since 2017. However, the recovery is slow and fragile under the impact of rapid fleet growth and the COVID-19 shock. Correspondingly, shipping finance resumes active funding activities with caution.

2. The financial crisis of 2007-2008 and the Basel III precipitate banks to continue reducing their exposure to shipping or exit the industry entirely. Various alternative sources emerge to fill the gap. Notably, leasing is a robust developing tool in shipping finance.

3. Second-hand tonnage financing relies on banks in the current situation. Chinese leasing capital may be the next funding potential as Chinese leasing companies seek expansion in the finance market.

Chapter III. Methodology

Chapter III illustrates the methodology of our research. We start with a brief explanation of the selected method and then propose the research hypotheses based on the findings of the previous chapters. Next, we will detail the two parts of the selected method; one is a qualitative method including online surveys and interviews; the other is a quantitative method. Last but not least, we will summarize the points of this chapter.

3.1 Selected research method

The primary method of conducting our research is surveying. Our research topic is complex, and it is not well documented in public resources, which is the fact we found when reviewing the literature in the last chapter. Therefore, we have to rely on experts. Taking into account the intricate background and existing situation, a mixed-method is adopted. The method includes an online questionnaire distributed to the involved parties and in-depth interviews. We aim to extract specialists' knowledge and opinions through surveys and semi-structured interviews. The survey will help us test the viewpoints of all selected experts and inspect if there are some common ideas. On the other hand, the interviews with a small number of experts will look into more details of the survey questions in order to verify the outcomes of the survey; moreover, issues that have not been included in the survey will also be taken into account.

This mixed research methodology is supported by qualitative and quantitative research questions to verify the openness of Chinese lessors towards second-hand tonnages. Hypotheses are tested and proven through quantitative research with close-ended questions, because quantitative research usually has more respondents than qualitative research since it is easier to conduct multiple-choice surveys. Considering the purposeful sampling technique adopted, we need at least 15 respondents to ensure the outcomes reliable and validated. As we mentioned in the last chapter, there have been 69 leasing companies active in China by the end of 2018, among which about fifteen ones are actively involved in shipping and considered to be more representative to show their industry orientation. Regarding the second-hand tonnages, we invite both Chinese and international second-hand shipowners to our survey, this is expected to make up the different attitudes (if any) towards local or international financial leasing deals and give a comprehensive picture. In addition, we need input from bankers as well as other professionals involved in ship finance. Suppose we receive 33.33% responses of representative leasing companies and expect the same and balanced responses from shipping companies, banks and other professionals; therefore, we need at least 15 respondents. If no common ideas can be achieved in the outcome, the sample size needs to enlarge further. On the other hand, a few open-ended, qualitative research questions are set in the survey to collect the respondents' viewpoints. Meanwhile, issues that are excluded in the survey questions but addressed in the interviews will also be taken into consideration, which helps to supplement what we may have overlooked.

3.2 Hypotheses of the research

In order to structure the survey and address our research questions, following hypotheses are formulated based on the findings of Chapter II:

1. **Second-hand vessels presently rely on bank debt, corporate equity and informal equity.**
2. **Chinese lessors are expanding their business to the second-hand market.**
3. **Shipowners of secondhand tonnages are seeking Chinese leasing opportunities.**
4. **Mature financing processes and lenient requirements on shipping companies will benefit the openness of Chinese leasing towards the second-hand market.**

The first hypothesis aims to determine the answer to the first sub-research question (the current financing sources of second-hand vessels) and provide a basis for the third hypothesis. As elaborated in the previous chapters, buyers of second-hand tonnages are mainly mid-sized shipowners from Greece, Norway, Denmark, and the Far East. With the banks' continuous withdrawing from the sector, many financing alternatives have emerged in the financial market. Whether sufficient funding is available through the current financing options will impact the performance of lease expansion.

The second aims to analyze whether Chinese lessors have the intention to expand into the second-hand market and whether there is excess Chinese capital to provide more financial services to second-hand ship owners. As mentioned in the second chapter, Chinese leasing has enormously developed in the past decade, and Chinese lessors have begun to address the requirements of small owners. So far, the second-hand market is a field where Chinese capital rarely has trading. Through investigations, we will try to understand the expansion progress or the obstacles to such transactions under the current market conditions, so as to gain an understanding of the future development of Chinese leasing companies.

The third hypothesis aims to analyze the potential demand for Chinese leasing in the second-hand ship financing market. Are second-hand shipowners seeking more lease opportunities in addition to current financing options, or are they satisfied with existing resources?

The fourth aims to analyze the answers to the second sub-research question: the strategy of Chinese leasing companies.

Table 4 summarizes all our hypotheses and their related research questions.

Table 4: Hypotheses and Corresponding research questions

No.	**Hypotheses Statement**	**Correspondence to research question**
1	**Second-hand vessels presently rely on bank debt, corporate equity and informal equity**	1st sub-research question
2	**Chinese lessors are expanding their business to the second-hand market**	Main research question
3	**Shipowners of secondhand tonnages are seeking Chinese leasing opportunities**	Main research question
4	**Mature financing processes and lenient requirements on shipping companies will benefit the openness of Chinese leasing towards the second-hand market.**	2nd sub-research question

Source: Author

3.3 Qualitative method part I - Online Questionnaire Method

By definition, a survey is a research method used to collect data on insights into the research topic from a predefined group of participants, which then helps draw inferences about general opinions (questionpro, 2020). In order to reconcile the different opinions of the problem statements issued in the previous chapters, the data is obtained through online and offline questionnaires. Questionnaires are distributed online to the relevant parties via emails, URLs, or QR codes, and offline questionnaires are processed through semi-structured interviews that are scheduled when face to face communication or online meetings with respondents are possible in the pandemic situation.

3.3.1 Structure of the questionnaire

The questionnaire, which can be found in Appendix 1, consists of 21 questions, out of which five are open-ended questions and the left are closed-ended. The questionnaire is structured based on the four hypotheses we have formulated. It includes three parts:

The first part (Participant details) collects the information of the respondent's expertise in the ship finance.

The second part (Part 1 of the questionnaire: market sentiment on shipping, second-hand market, and leasing) relates to general insights on the research objectives. It focuses on the first hypothesis and partially the second one. The answers of this part will firstly provide general market sentiment on the shipping sector. In addition, we will obtain the information on the financing situation of second-hand tonnages and if leasing has the possibility to play a role. Lastly, an open-ended question is placed on Chinese leasing companies' current strategy to investigate the reason for Chinese leasing inactive performance in the second-hand market. Therefore, this part aims to address the first sub-research question regarding the current financing sources of second-hand vessels, the availability of financing capital, and part of our main research question regarding Chinese leasing development.

The third part (Part 2 of the questionnaire: Chinese lessors and second-hand market) deals with the information on the openness of Chinese lessors towards the second-hand ship market. Its focal point is the remaining hypotheses except for the first one. We expect to thoroughly investigate the Chinese lessors' attitudes to the second-hand tonnages through this part of the questions. A series of open-ended questions are placed for second-hand shipowners to understand their requirements and expectations on the leasing finance. Last but not least, we ended with a question allowing the respondents to speak their minds freely to make up if anything we have overlooked. Therefore, this part aims to address the second sub-research question regarding Chinese leasing strategy, and the main research question of Chinese leasing openness towards the second-hand tonnages.

The following table integrates the correspondence between the parts of the questionnaire and the hypotheses/research questions.

Table 5: Correspondence between the parts of the questionnaire and the hypotheses/research questions

Part of the questionnaire	Relevant hypotheses & Research questions
1st part	-
2nd part	Hypothesis 1/2 & 1st sub-research question/main research question
3rd part	Hypothesis 3/4 & 2nd sub-research question/main research question

Source: Author

3.3.2 Mode of distribution and targeted participants

The online questionnaire function provided by Qualtrics (in English) and WJX (in Chinese) is used, and offline questionnaires are personally collected where face to face interviews or online meetings are possible.

Recognizing the low response rate usually associated with questionnaire survey methods, the target audience is selected in purposeful convenience sampling. Recipients often ignore online questionnaires and treat them as electronic spam emails. In order to ensure a reasonable response rate to achieve the purpose of the research, the target audience should recognize the value of the research. Therefore, senior practitioners in financial institutions and shipping companies are more likely to identify the value-added of our research, thus are willing to contribute to the research work.

In this vein, the distribution of online questionnaires includes leasing companies, local and international shipowners, brokers as well as bankers. We collect the contact addresses mainly from the public information on their websites as well as LinkedIn connections. Overall, we have gained 33 public email addresses of leasing companies, 12 Chinese local and 19 international shipping companies. Besides, 6 limited addresses from banks and 5 from brokers and other specialists involved in ship finance. The online surveys took place for approximately three weeks, from 31st July to 21st August. We sent three reminders (at most) to each potential participant during the aforementioned period.

3.3.3 Response rate

Although selective sampling is used, the response rate is not expected to reach 100%. Since the contact information of most targeted participants is public mailboxes, it can be expected that some recipients of online questionnaire links may not directly participate in the survey. For some private contact, the possibility that they may not be in the office while the survey is available online is also considered.

In total, 75 emails with links and access codes are sent. After sending the email, part of the emails (obtained from the public information on the Internet) is no longer valid, so we receive an unsuccessful return receipt email. Similarly, timely notifications from participants who are out of the office are also recorded. Therefore, in the dozens of emails sent initially, the actual sample size was reduced. Finally, we manage to collect 17 responses, among which 5 respondents are from leasing companies, 6 from shipping companies, 2 from banks, and 4 from brokers, shipping consultants and other professionals in the sector. The response rate is 23.6%.

3.4 Qualitative method part II – Interview Method

In order to supplement the information obtained from the distribution of online questionnaires, face-to-face interviews and online meetings are arranged to fill in the offline questionnaires duly. A personal interview is a survey method used when a specific targeted audience is involved (Sincero, 2020), which is predefined to the practitioners in shipping in our case.

Unlike the online questionnaire, which is a unilateral communication and allows a large amount of data to be collected, the interview can be used to analyze further or explain to avoid losing important information. Therefore, face-to-face communication through semi-structured interviews is conducive to collecting in-depth information and obtaining a complete view. More information obtained by using this method can supplement the initial response to the questions addressed by the online questionnaire, including the professional's views on the prospects of the shipping industry, the second-hand ship market and financial leasing, the experience and willingness of investment and financing decisions, and the problem of asset risk management.

3.4.1 Semi-structured interview method

The semi-structure interview (abbreviate to SSI), which is conducted with one respondent at a time, combines closed- and open-ended questions, often followed by further why and how questions (Adams, 2015). As our questionnaire is designed including both closed- and open-ended questions, it is convenient to follow the questionnaire structure to conduct semi-structured interviews in face-to-face communications or online meetings. More detailed and more in-depth information is expected to supplement the initial results from the online questionnaire. The interview is structured to last around 30 mins, loosely following the questionnaire structure and leaving more time for the respondent to express their knowledge and opinions. The interviews conducted are recorded with the consent of the interviewees in order to facilitate further analysis. At the same time, the notebook and pen are used to record key issues.

3.4.2 Snowball sampling method

Snowball sampling is a non-probabilistic sampling technique in which existing respondents provide recommendations to recruit samples for research studies (questionpro, 2020). This sampling method involves a primary data source that will nominate other potential data sources that may participate in the research. Snowball sampling is a popular business research method. This sampling technique can be carried on continuously, like a snowball (in this case, the interview size) will continue to increase until the researcher has enough data for analysis to draw conclusive results. The snowball sampling method is wholly based on referrals, so this method is also called chain referral sampling (questionpro, 2020).

In our research, we select participants for interviews based on purposeful sampling. The selected participants are from shipping companies and shipping financial institutions. The first set of respondents are developed from our personal connections either in the past years' working experience or in the LinkedIn social network. By using snowballing techniques, the number of interviews with targeted participants can be extended. This is particularly convenient when there are only a few populations as the initial participants. We start interviews with three professionals who work in the shipping companies, at the end of those earlier interviews, the names and contact information of other people who may also meet the sampling requirements are asked; as a result, the size of this snowball continues to increase, which leads to interviews with a specialist in the Chinese leasing company, a broker specialized in the second-hand vessels and an expert in the newbuilding sector in the second round. Repeating the process, the snowball keeps leading to the next participant. We ended interviews with 8 participants, 4 from shipping companies, 2 from leasing firms, one is broker and one shipping consultant specialized in the new building ships. This method also changes the choices of participants, making the responses as representative of the industry as possible.

3.5 Principles of research ethics

In the case of the online survey, there are a few personal emails besides those public mailboxes we retrieved online. They are password-protected in the strictest confidentiality. Moreover, neither respondent's name, addresses, nor the company's name information is recorded in the answers of online questionnaires as well as the entire analysis process.

In the case of the interview method, the identity of the participant is known; hence more personal information needs to be protected carefully and kept confidential. In order to comply with the principles of ethics, their anonymity is fully preserved, but only the occupation is recorded. On the other hand, interviews are recorded with the interviewee's approval and are confidentially kept for further analysis. The data generated is stored securely and appropriately according to relevant laws and institutional policies.

All the recorded information can only be accessed by the supervisor of the study; no copy version is reserved.

3.6 Quantitative method

In order to eliminate the inherent limitations of the qualitative method as much as possible in this research, as mentioned earlier, a mixed-method integrating quantitative and qualitative data collection and analysis is adopted while studying the openness of Chinese lessors towards the second-hand tonnages. Some basic statistical analyses will be performed to supplement and verify the results obtained from close-ended questions. The outcomes of the statistical analysis aim to test the hypotheses that we have formulated, as quantitative research usually has more respondents than qualitative research, we are able to gain a better-comprehensive picture of the research questions in this way.

The specific design of this mixed-method provides feasible, informative data. By collecting quantitative (close-ended) and qualitative (open-ended) data and providing an appropriate sample size for quantitative and qualitative analysis, the subjective results of the qualitative analysis can be supplemented as much as possible. In addition, given the complexity of the topic and the limited number of respondents, quantitative research can add some common insights to the qualitative part, improving the reliability and validity of the research.

3.7 Concluding remarks

A mixed-method of integrating qualitative and quantitative data is adopted in our research. The following points summarize the subsections 3.1 -3.5, which explains how the survey is designed and conducted.

1. The research adopts a mixed-method combining both qualitative and quantitative approaches. The qualitative method is used to provide inputs of respondents' insights and supplement any points that may be overlooked; the quantitative method is used to test the hypotheses and compare data to find if any gap in practice.

2. Four hypotheses are formulated in accord with the main research question and sub-research questions; three questionnaire parts are designed accordingly.

3. The qualitative approach consists of two parts, which are online questionnaires and in-depth semi-structured interviews. The distribution of online questionnaires includes financial leasing companies in China, shipowners, brokers as well as banks. Semi-structured interviews are conducted by using snowballing techniques.

4. The quantitative approach contributes to collect insights into our hypotheses and increase the response rate by close-ended questions.

Chapter IV. Results and Analysis

This chapter presents the results and analysis of the online survey and in-depth interviews. Considering the reduced sample size of 72 questionnaires (that is, reducing the sample size by three invalid addresses that cannot be delivered), the survey produced a total of 18 responses. Among these responses, 94.44% of questionnaires have been filled in correctly; therefore, we have got 17 valid responses, and the response rate of our research is 23.6%. Using the methods described in the previous chapter, the feedbacks obtained from qualitative research methods are combined with quantitative research methods to arrive at reasonable conclusions.

4.1 Participants

In an industry with many financial leasing companies, banks, shipping companies, and other companies related to shipping finance, we should point out that due to limited responses, our results may be too optimistic or pessimistic, making it difficult to cover every side in the industry. In addition, the complicated market conditions will cause participants from different shipping fields to hold different opinions on the future trends of the shipping market as well as ship finance market because each of them may have different levels of information or are in different economic interests. Figure 13 divides our sample of participants into 5 groups by occupation. Six respondents are from shipping companies, five from leasing companies, two from banks, three are brokers, and one from a shipping consultancy. It can be seen that the portfolio of participants in our research is very diverse but balanced, covering financial leasing companies, shipping companies, banks, and consultancies. This allows us to capture potential changes in response according to each occupation. Last but not least, we have to clarify that information about the participant's name, position, and the company is not recorded, and all the data acquired is kept strictly confidential.

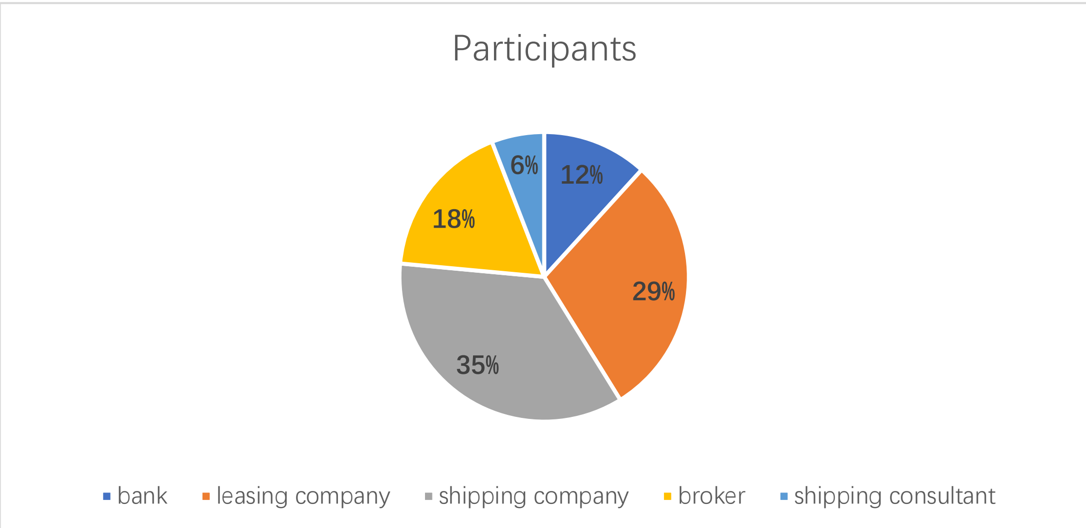


Figure 13: Participants Portfolio

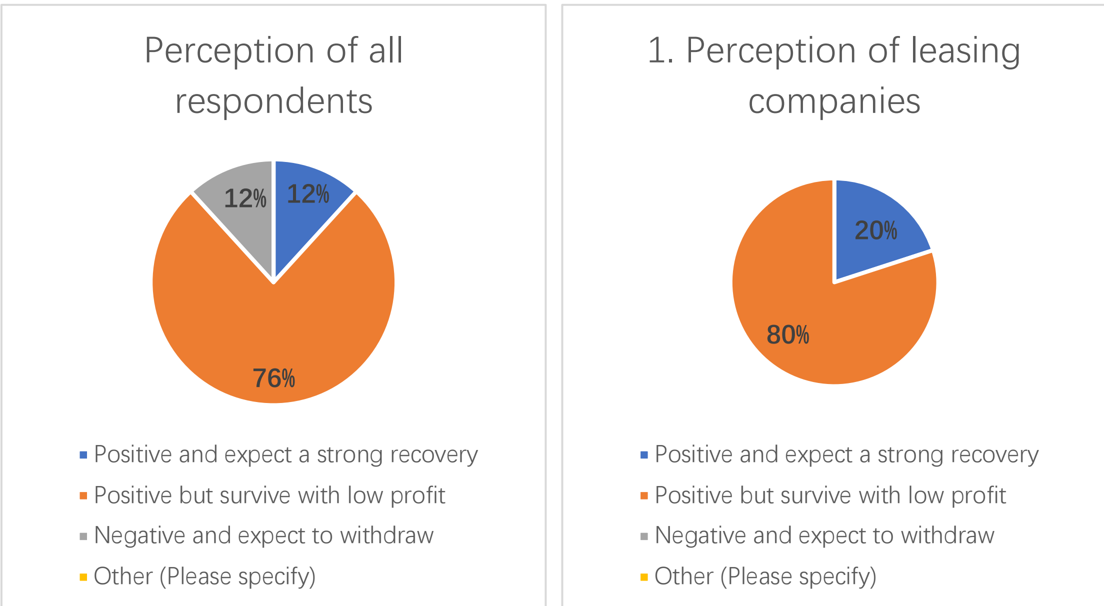
Source: Author

4.2 Part 1 of the questionnaire: Market sentiment on shipping, second-hand ship market and leasing

4.2.1 How do you think of the prospect of the general shipping market in the next 3 - 5 years?

The question aims to clarify the participant's prospect on the shipping industry in the short term, which is considered fundamental to all the shipping market segments.

Figure 14 illustrates that most participants believe that the shipping market will survive with low profits in the short term. Although they are optimistic about the market prospects, the boom of shipping will not appear in the short term. The survival of the strongest companies in the industry will continue to develop. Notably, as one of the interviewees from shipping companies pointed out that, although uncertainties such as world trade and commodity price volatility are gradually increasing, which have complicated the prospects of the shipping market, looking for opportunities in crisis, striving to make up for shortcomings, and building a "new chain" are opportunities and "right ways" for enterprise development.



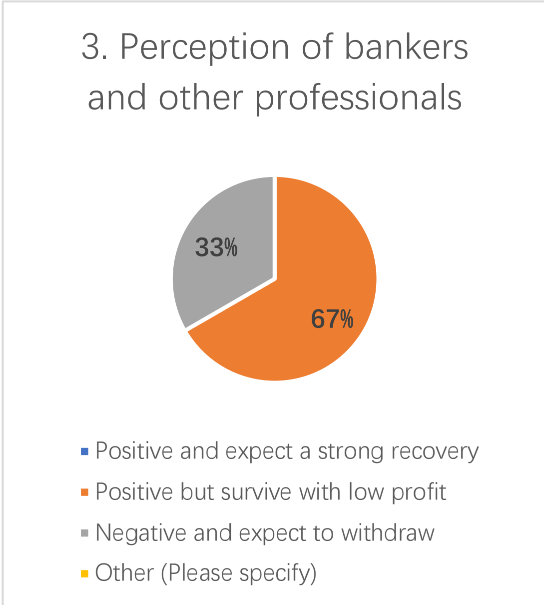


Figure 14: Market sentiment on the general shipping market

Source: Author

Figure 14 also depicts professionals' different views in different shipping fields on the general shipping market prospect. It is an interesting finding that participants from banks and consultancies are more pessimistic about the industry prospects than those from leasing and shipping companies. Furthermore, looking at the detailed answers, we find that all the negative responses are from bankers. Therefore, we suppose that if more participants with bank background participate in the survey, the proportion of pessimism market sentiment may slightly increase, exceeding the proportion of complete optimism.

Only two of the participants are completely optimistic about the industry's prospects, believing that the shipping industry will recover strongly in the next few years, one is from a shipping company, and the other is from a leasing company. Their responses may be insignificant or less agreed on by the industry, but they put new insights on this issue. They believe that since the financial and shipping crises, the industry has been adjusting itself and digesting the excess capacity, and the current supply and demand in the market tends to be balanced. Moreover, a respondent from the shipping company said, “the impact of the COVID-19 pandemic on some fragile shipping companies may make the post-pandemic an opportunity to usher in the peak of the shipping industry's recovery in the next years”.

4.2.2 How do you think of the prospect of the second-hand market in the next 3 – 5 years?

This question tries to further study the market sentiment towards the second-hand ship market and its relationship with the general shipping market.

Figure 15 depicts that unlike our concern of reverse market sentiment between the general and the second-hand shipping markets, 89% of the professionals participating in our survey treat these two markets in the same sentiment. Therefore, we can get the finding that the prospect of second-hand ship market is closely related to the general shipping market trend, which means that the counter-cyclical purchase or opportunistic investments do not have as much impact as we concerned on pricing second-hand ships, but may slow down the speed of market adjustment between supply and demand.

Participants believe that the market for second-hand ship acquisition is promising. In one of the interviews, we are told that recent second-hand ship transactions have indicated the demand for dry bulk ships remains strong. In the context of improved shipping market conditions, shipowners are eager to increase ship tonnages of their fleet. “The revenue of dry bulk carriers has remained stable, and the positive sentiment brought about by the growth of the shipping market played a key role here.” said an interviewee who focuses on ship brokering, “Most of the recent traded second-hand ships are Panamax and Super Handy ships. Given the slight decline in the price of second-hand ships recently, buyers may choose to wait for the transaction's timing. The long-term optimism of the market outlook and the slight price decline will help offset the reduction in trading activity due to the freight market's recent weakness."

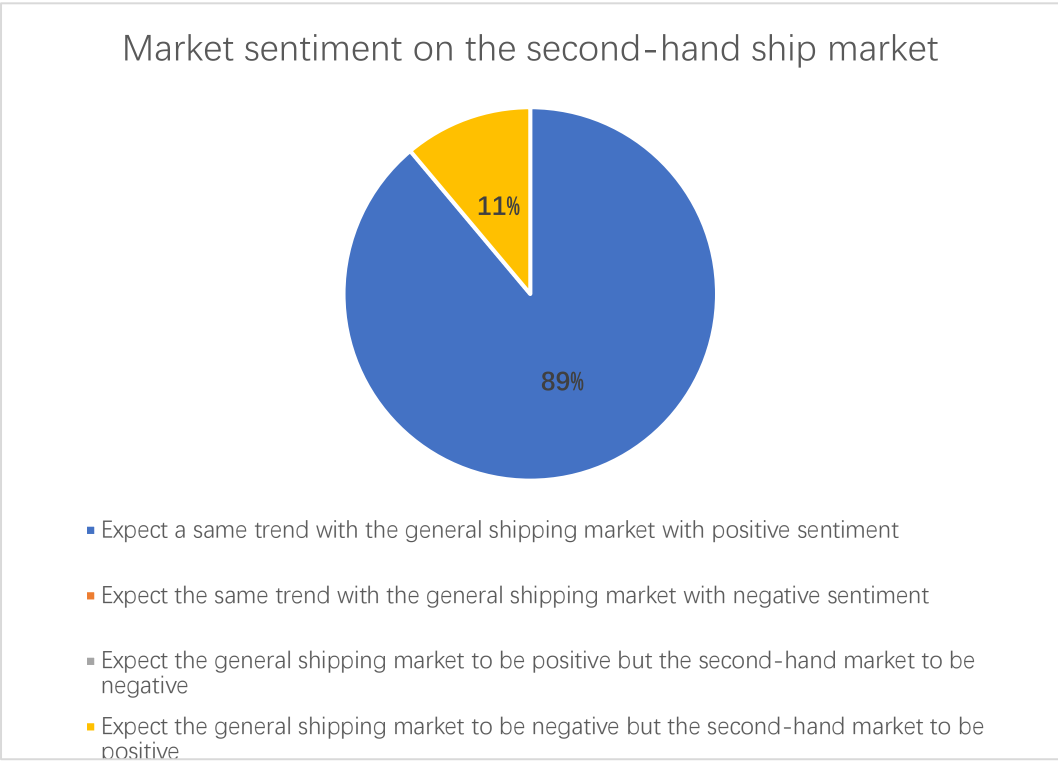


Figure 15: Market sentiment on the second-hand ship market

Source: Author

4.2.3 Which financing sources of secondhand ships rely on currently?

This question aims to test our research's first hypothesis, which is second-hand ship financing presently relies on bank debt, corporate equity, and informal equity. Each participant is asked to choose three options. Therefore, the total number we counted in this question is 51.

The survey results show that all the participants have reached a consensus that bank debt is currently the main financing channel for second-hand ships. This is roughly the same as the information of the literature we reviewed in Chapter 2; although banks continue to reduce their exposure in the shipping sector, they still occupy a large proportion of industry capital. Among other financing channels, we see that the answers are very diverse and evenly distributed. KG funds and leasing are considered secondary financing channels besides bank debt, accounting for 17% and 16% respectively. Private equity funds get the least number of votes, accounting for only 6%. Corporate equity and public offerings/IPOs get the same votes, accounting for 14% each.

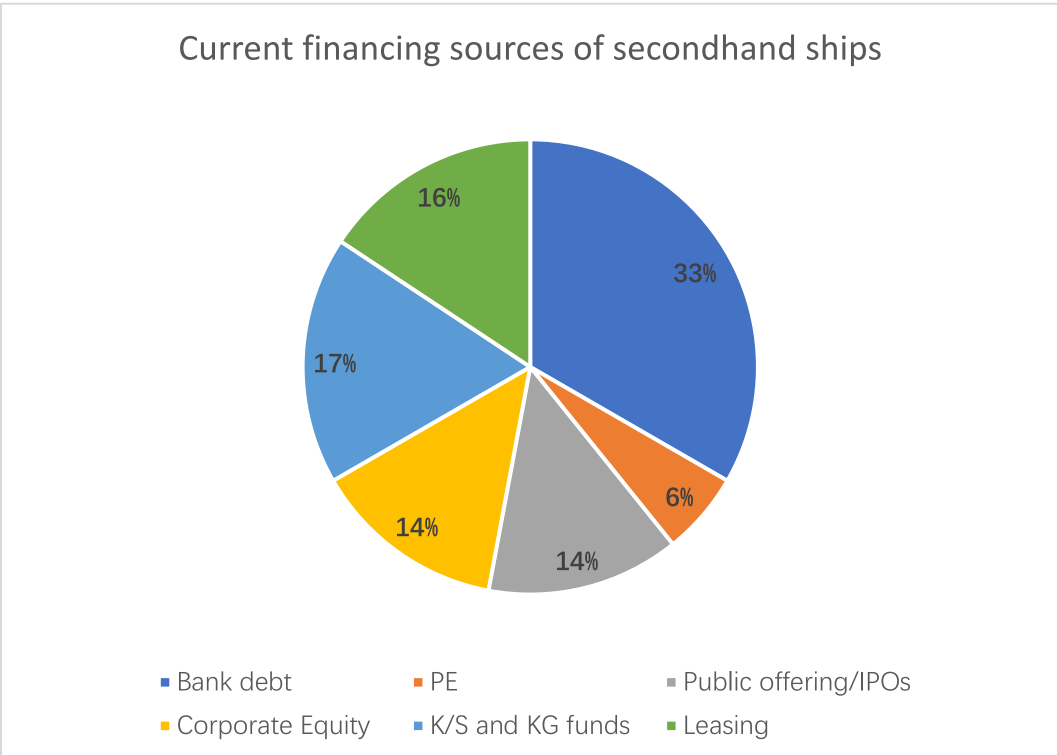


Figure 16: Current financing sources of second-hand ships

Source: Author

Therefore, we can come to the conclusion that in the financing sources of second-hand ships, the industry generally agrees that bank debt is the main financing channel; however, they have different opinions on the importance and dependence of other financing sources and cannot reach a broad consensus. This illustrates that the financing channels for second-hand ships are currently very diverse, compared to the new buildings where bank debt plays a primary role in general. Under the constraints of complex subjective and objective conditions and a variety of feasible financing options, selecting the optimal financing portfolio is a system optimization problem with multiple decision variables and multiple decision goals. Shipping companies should independently select funding sources and financing methods based on their own ship's production and operation characteristics, independently determine the financing scale and financing structure by strengthening the cost-benefit analysis of ship financing and striving to reduce capital costs and increase capital returns.

Our first hypothesis may only be accepted in some financing cases, so we will reject the first hypothesis as it is not commonly agreed upon. Based on our survey outcomes, in the current market, the most primary sources of financing for second-hand ships are bank debt, KG funds, and leasing, instead of corporate equity and informal equity we presumed in the first hypothesis.

4.2.4 Is sufficient capital available to funding secondhand ships?

This question is set to understand further the current funding situation of the secondhand ship market, which is the basis for understanding the potential demand for Chinese ship leasing services in the second-hand ship market.

76% of the respondents agreed that second-hand ship financing is sufficiently capitalized, with 6% think that no new sources are needed; in comparison, the other 70% of the respondents think that shipowners are still seeking new sources of financing to optimize their financing plans with more possibilities in the low-profit market. Combined with the findings of the parallel development of multiple financing sources for second-hand ships in the previous question, the financing process may be more time-consuming in today's market conditions. Since each source of financing has its advantages and disadvantages, shipowners will more carefully consider various channels' financing conditions when making decisions. According to their financing purposes and needs, they will make financing decisions to maximize the best combination of costs, risks and benefits. Because many uncertain factors will affect these aspects, it brings certain difficulties to ship financing decisions.

In the interview, a shipowner told us that financing for second-hand ships should follow the best combination principle. Shipowners should carefully determine the financing scale, choose the financing methods, measure the financing risks, and cautiously use the economic leverage. The interviewee said that from the perception of shipowners, it is required to adopt a strategy of combining internal and external financing, choosing the lowest-cost plan, and decentralizing the repayment period to avoid the pressure on cash flow. Besides, second-hand shipowners usually do not prefer long-term contracts with less flexibility, which is known as the principle of financing capital convertibility. When raising funds, shipping companies should fully consider the flexibility of financing methods, that is, the ability to transform various financing sources into each other and adopt diversified and decentralized financing methods to avoid or reduce financing risks. This can enable shipping companies to quickly adjust themselves with the market changes because the shipping market is extremely volatile. The extent to which ship leasing can meet the aforementioned financing needs of shipping companies determines its competitiveness in the future ship financing market.

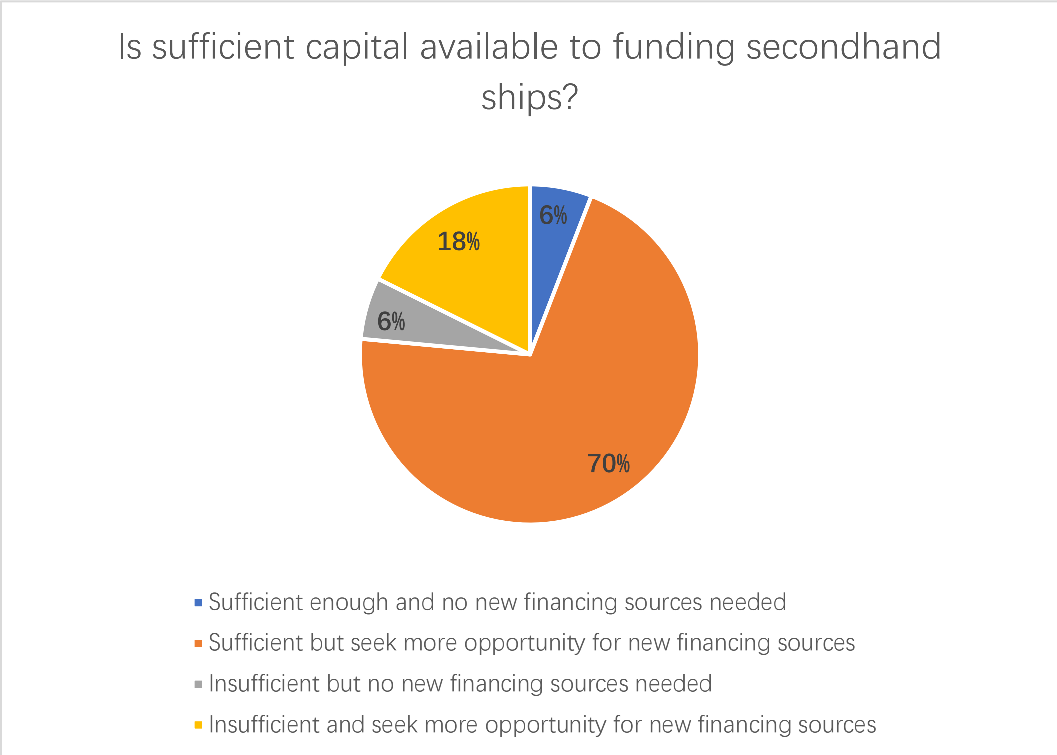


Figure 17: Is sufficient capital available to funding secondhand ships?

Source: Author

4.2.5 What will be three primary financing sources for secondhand tonnages in the coming 3 years?

This question aims to gain an understanding of the participants' perception of popular financing sources for second-hand ship financing in the short term.

Comparing the results of this question with Question 3, we can find that the proportion of bank debt has not changed, and it will continue its vital position in the shipping financial market in the next three years. In the interview, a shipowner told us that besides the industry generally expects a certain stabilization of the capital mix, many shipowners have shifted their financial backers from European banks to Asian ones. This finding is consistent with the information shown in Figure 3 & 4, that is, European banks withdraw from the shipping sector, and Asian banks take over and quickly grow.

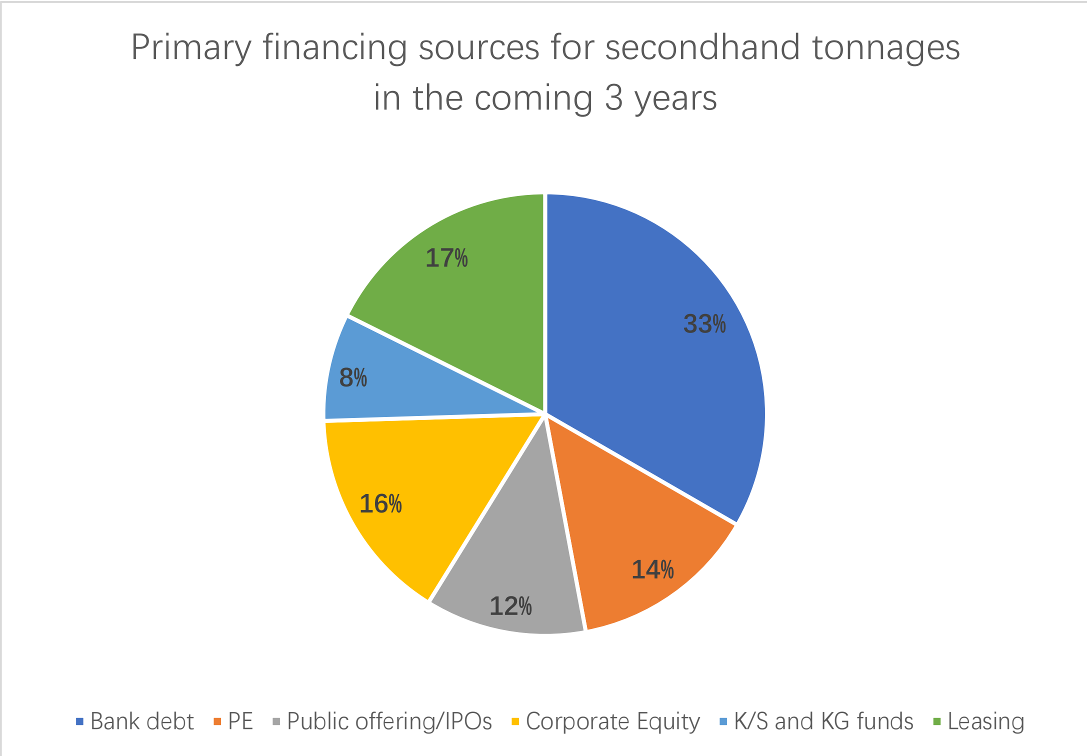


Figure 18: Primary financing sources for secondhand tonnages in the coming 3 years

Source: Author

Comparing Figure 18 with Figure 16, we can find that the proportion of ship leasing and private equity funds has increased by 1% and 8%, respectively, ranking them as the third and fourth of the primary financing sources in the short term. “Private equity funds and lease capital often become financial shipowners,” one interviewee pointed out. “In the foreseeable future, financial shipowners are likely to aggravate the internal integration of the shipping market supported by their strong capital. The number of medium and small-sized shipowners may decrease, and become operators serving financial shipowners.” According to our previous literature review, private equity funds may be limited by their higher return requirements; however, it can be seen from our results that this shortcoming does not prevent shipping professionals from being optimistic about its future development.

KG funds and public offerings have declined to a certain extent. The decline in public offerings is only 2%, which is relatively small, while the share of KG funds has dropped significantly, reaching 9%. This may be related to the cautious optimism of the industry in general, as well as the continuous withdrawal of European KG capital. The shipping industry is considered to be challenging to find prosperity in the short term. Low-profit survival will make shipping companies less attractive in the capital market; thus shipping companies will have to seek other accessible capital, making the corporate equity the second important source of funds, accounting for 20%.

One thing to note is that this question can only show participants' preference for various financing sources. In reality, shipowners will make the financial decision based on their own financing needs and goals.

4.2.6 What is the main reason for the rise of ship leasing?

The question aims to find out why the rapid rise of ship leasing in the last decade to find if such a strong growth could remain in the future. This is a multiple-choice question.

Figure 19 illustrates that the main reason for the rise of financial leasing business owes to the continuous withdrawal of traditional banks. Banks mainly provide services for existing reliable customers, and hardly consider any new customers; shipowners usually have no choice but to rely on leasing to purchase new ships or second-hand ships (Petropoulos, 2019b). Compared with the implementation of the "Basel III" for banks, relatively loose financial measures imposed for leasing companies also play an important role here; and higher profit margins are seen as a less powerful driving force for the growth of the ship leasing business.

The interviewee specialized in consulting added that, in addition to the reasons listed in the question, the Chinese ship financing business has seized the following two opportunities in the last decade, thus driving the rapid growth in the financial market.

First, China has become the world's largest shipbuilding country. This factor is the foundation of Chinese ship financing development. Because the majority of domestic ship financing institutions are financing ships built by domestic shipyards, especially export ships. The structure of ship loans that we are familiar with today, especially ship leasing, has developed with the continuous expansion of the country's shipbuilding capacity and financing needs.

The second is the construction of domestic shipping centers and the development of shipping companies. In recent years, domestic policies regarding the construction of shipping centers encourage the establishment of SPV companies in free trade zones, providing a suitable environment for ship financial leasing development.

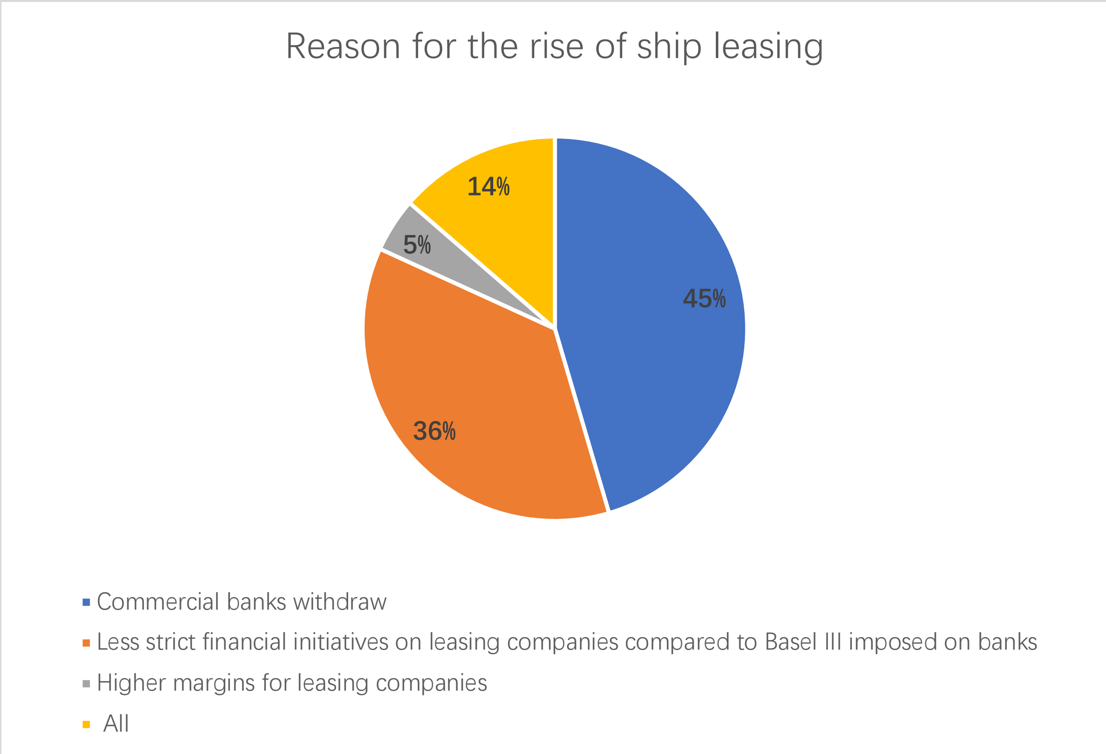


Figure 19: Reason for the rise of ship leasing

Source: Author

4.2.7 How do you expect the volume of leasing in the ship finance market?

This question is designed to capture participants' expectations of ship leasing volume in the future.

There is a consensus that ship leasing will maintain and focus on the newbuilding sector, accounting for 76%. Detailing each occupation, leasing companies have contributed more positive responses to expanding to more sectors than those in shipping companies, banks and consultancies. The outcomes illustrate that although there are some voices in leasing companies expressing their hope to expand into more areas, the industry currently does not have a good outlook on the development of ship leasing in other segments outside the new shipbuilding market.

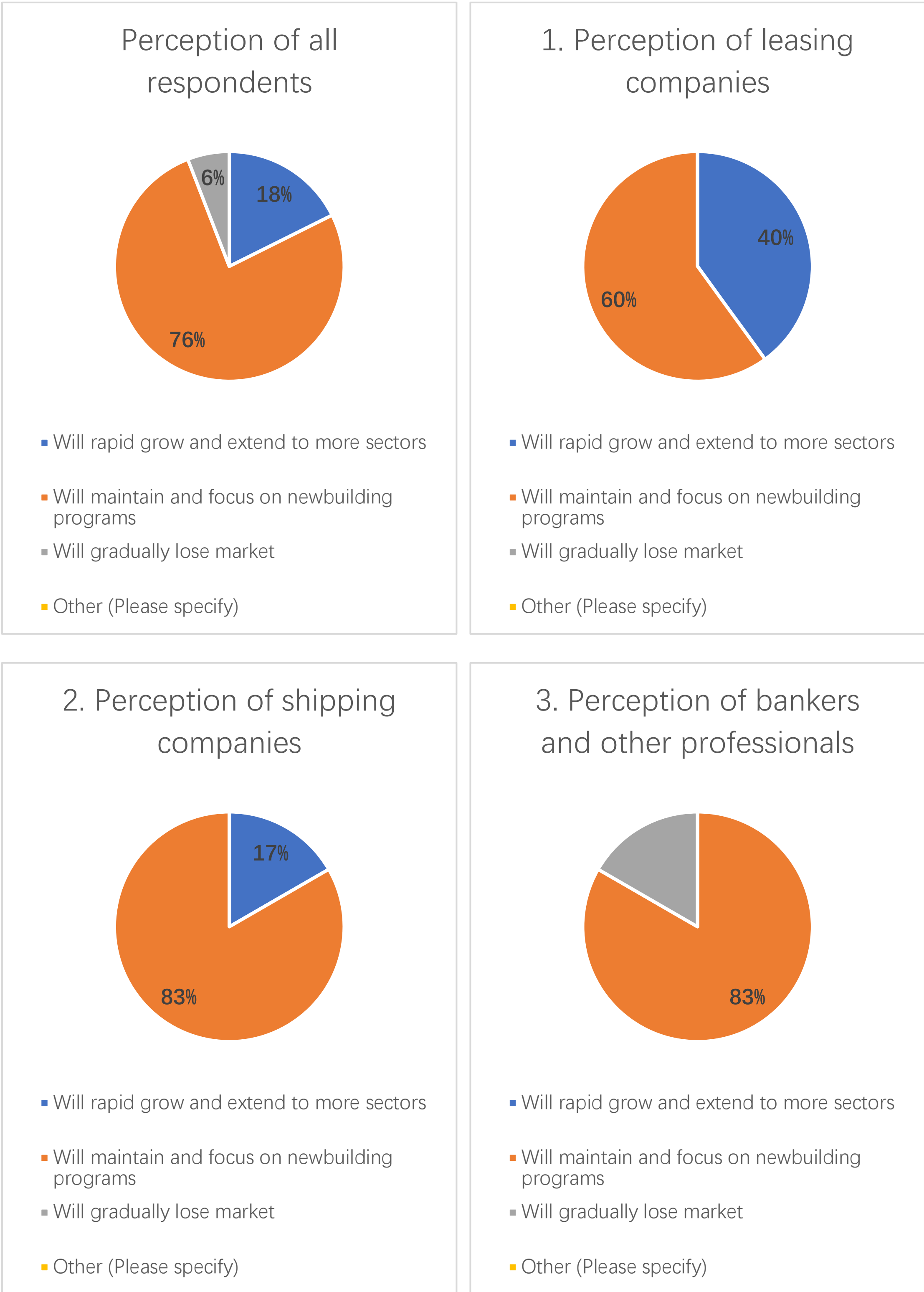


Figure 20: Expected volume of leasing in the ship finance market

Source: Author

4.2.8 Will Chinese leasing expand the services into the second-hand market?

This question makes us understand that Chinese leasing companies have already prepared or acted to finance second-hand tonnages, which the industry generally sees. Based on the results in Figure 21, 70% of the respondents agree that Chinese leasing companies are on the way of expansion into the second-hand ship market.

Therefore, our second hypothesis can be accepted as most of the industry practitioners have agreed that Chinese leasing companies are expanding into the second-hand ship market, and they have taken actions.

However, in combination with the previous question that the industry is not optimistic about their expansion, we tried to discover the reasons behind the conflict in the interview. A shipbroker told us that the leasing company's more cautious performance in investment projects for second-hand ships has hindered its business expansion and lacked momentum for development in the second-hand ship market.

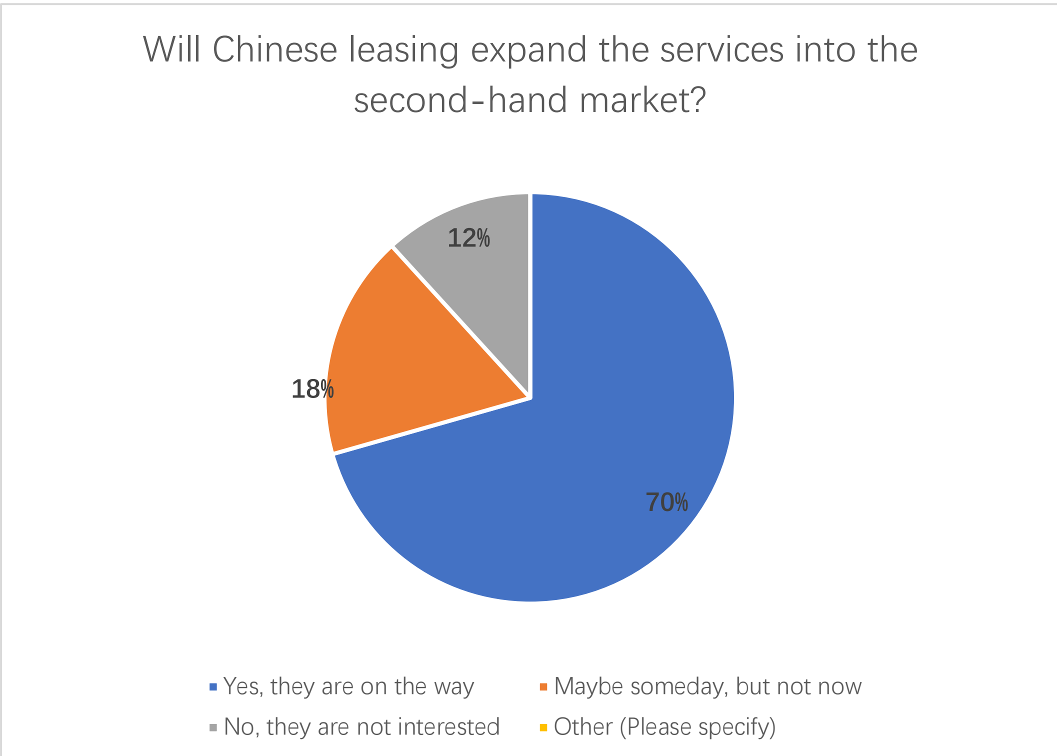


Figure 21: Will Chinese leasing expand the services into the second-hand market?

Source: Author

4.2.9 What are the drawbacks of leasing that make shipowners not to take it into account?

This question collects possible factors that hindering the development of Chinese financial leasing.

Generally speaking, the high requirements for shipping companies and the difficulty of accessing Chinese lessors are the main reasons, accounting for 59% and 29%. The long-term contract does not have much negative impact on the decision making from the perception of shipping companies.

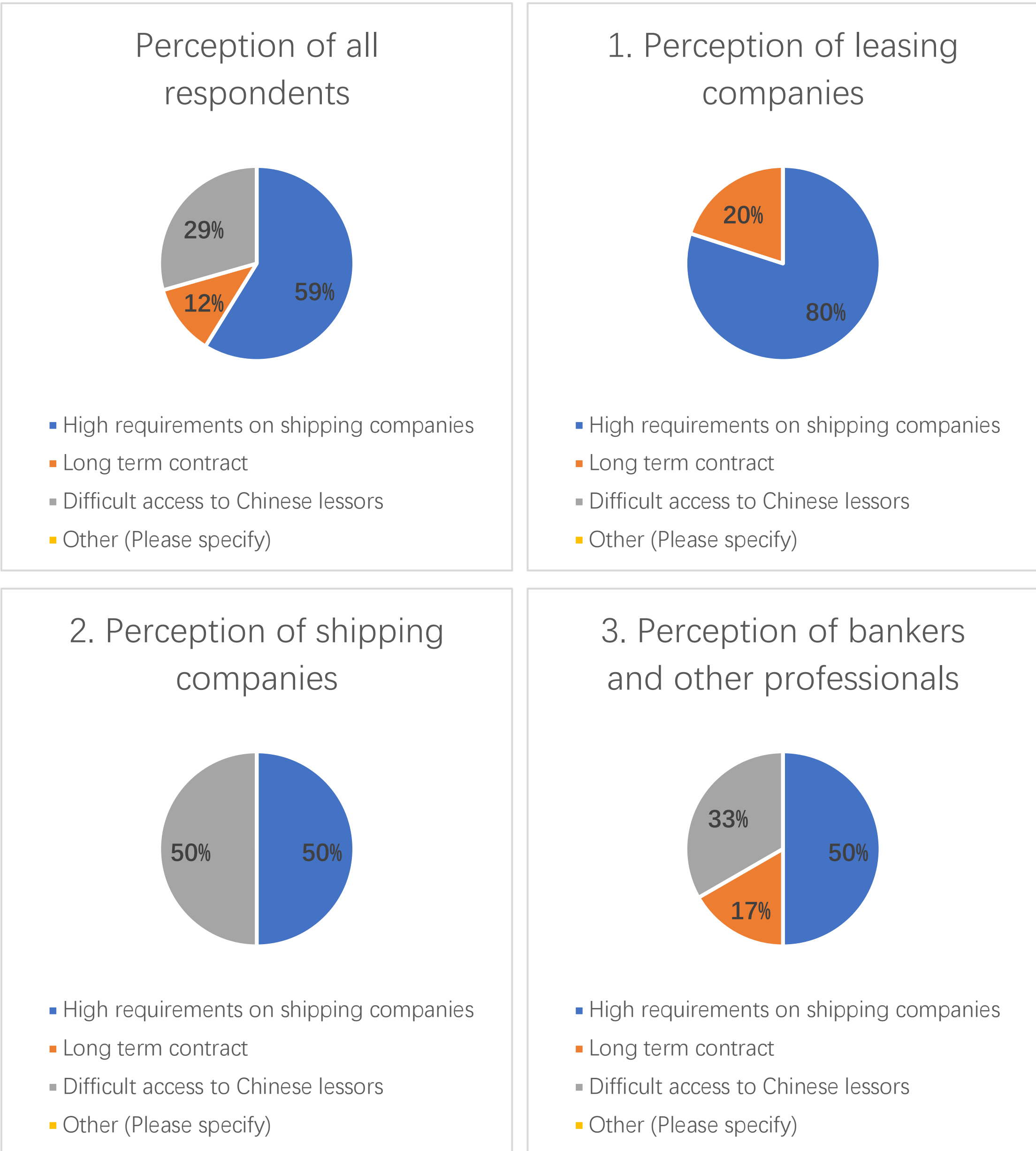


Figure 22: Drawbacks of leasing

Source: Author

In the interview, a shipowner of a local medium-sized shipping company told us that most of the Chinese financial leasing companies have a banking background. Under the same conditions, their investment balances are inclined to large and medium-sized state-owned enterprises rather than small and medium-sized shipping companies. Even if small and medium shipping companies get financed, the covenants are also stricter than state-owned enterprises. Things go different for large-scale shipping companies. "Financial leasing is an area we are considering, but its price is higher, we need to pay close attention." An employee of a large shipping company said that the company has not yet entered the financial leasing model because they can still get sufficient capital from banks. The two opposite reactions reveal the awkward situation of Chinese leasing companies in the current market. Second-hand shipowners expect capital from Chinese leasing while leasing companies prefer big shipping companies. On the other hand, the big shipping companies will not turn to ship leasing as long as they can still get financed by banks.

4.2.10 What is the strategy of the current Chinese leasing companies?

This question aims to learn from the participants or interviewees their understanding and views on Chinese leasing companies' current strategy.

There is a louder voice saying that Chinese leasing companies are currently focusing on new constructions and preferring larger orders. This is basically in line with the information we got in the literature review. Taking ICBC Leasing as an example, its main ship assets are LNG carriers. Through the cooperation with many global leading companies such as Vale, Taiping Shipping, and Haimao Group, ICBC Leasing clients have covered 11 countries and regions.

A participant from the leasing company told us that they would adhere to the balanced development of financial leasing and operating leasing, continue to target on technologically advanced, energy-saving, environmentally friendly, and highly versatile ships as leased items; they will continue the promotion of large customer strategy, opening up new customers such as COFCO International, and cooperating with leading high-quality international customers to expand cooperation further.

Another professional from a leasing company told us that the ship leasing business faces challenges such as highly specialized, segmented, and market-oriented ship types, cyclical market fluctuations, and large differences in subdivided ship rules types. Therefore, Chinese leasing companies are actively exploring new models by combining the capital and financing advantages of leasing companies with the technology and management advantages of shipping companies. More operational integration is suggested between lease and shipping companies, and Chinese leasing companies are expected to develop as “financial shipowners”. During the industry's downturn, the shipping companies must share the risks and make up for some losses; during the peak period, they will share the dividends to enhance the balance of project benefit distribution and the anti-cyclical risk. "This model places higher requirements on leasing companies, shipping companies, and partners to make full use of routes and ships, realize three-party, four-party or even more cooperation, fully mitigate risks, and integrate professional strength in each link. It can be foreseen that this model will gradually become the mainstream of shipping finance leasing in the future." We believe that this may partly illustrate why leasing companies have high requirements on shipping companies if this model is on the trend.

4.2.11 Concluding remarks of the 1st part of the questionnaire

This part of the questionnaire describes a market picture that the industry will survive with low profits in the general shipping market in the short term, and the second-hand ship market will a promising prospect. Second-hand ships have sufficient funds, but shipowners are seeking more opportunities. The current second-hand ships are mainly financed by bank debt, and its dominant position in the future ship financing market will remain unchanged, with ship leasing and corporate equity expected to predominate. The rise of Chinese leasing companies has filled the gaps in European banks' continuous withdrawal, and they are expanding to the second-hand ship market. However, the high-requirements and difficult-to-access make the majority not optimistic about their expansion. Chinese lessors are currently focusing on new shipbuilding and large orders and are believed to maintain in the newbuilding market in the future.

1st conclusion: based on the results and analysis of this part, we can reject our first hypothesis as second-hand ship financing relies on bank debt and several sources of alternatives, which depends on the companies’ financial needs and goals, rather than corporate equity and informal equity dominate.

2nd conclusion: we accept the second hypothesis that Chinese lessors are expanding their business to the second-hand market. Chinese lessors have already taken actions to enter the second-hand ship market. However, the current strategy of Chinese leasing companies focuses on large-scale newbuilding orders. Although there are some voices from leasing companies that they hope to expand into more fields, the industry does not have a positive outlook on its development at this stage. We will continue to discuss the development of Chinese ship leasing and the second-hand ship market in the next section.

4.3 Part 2 of the questionnaire: Chinese lessors and second-hand market

4.3.1 What is the current situation of Chinese lessors towards the second-hand tonnages?

This question aims to find the current role of Chinese leasing companies in the second-hand ship financing market.

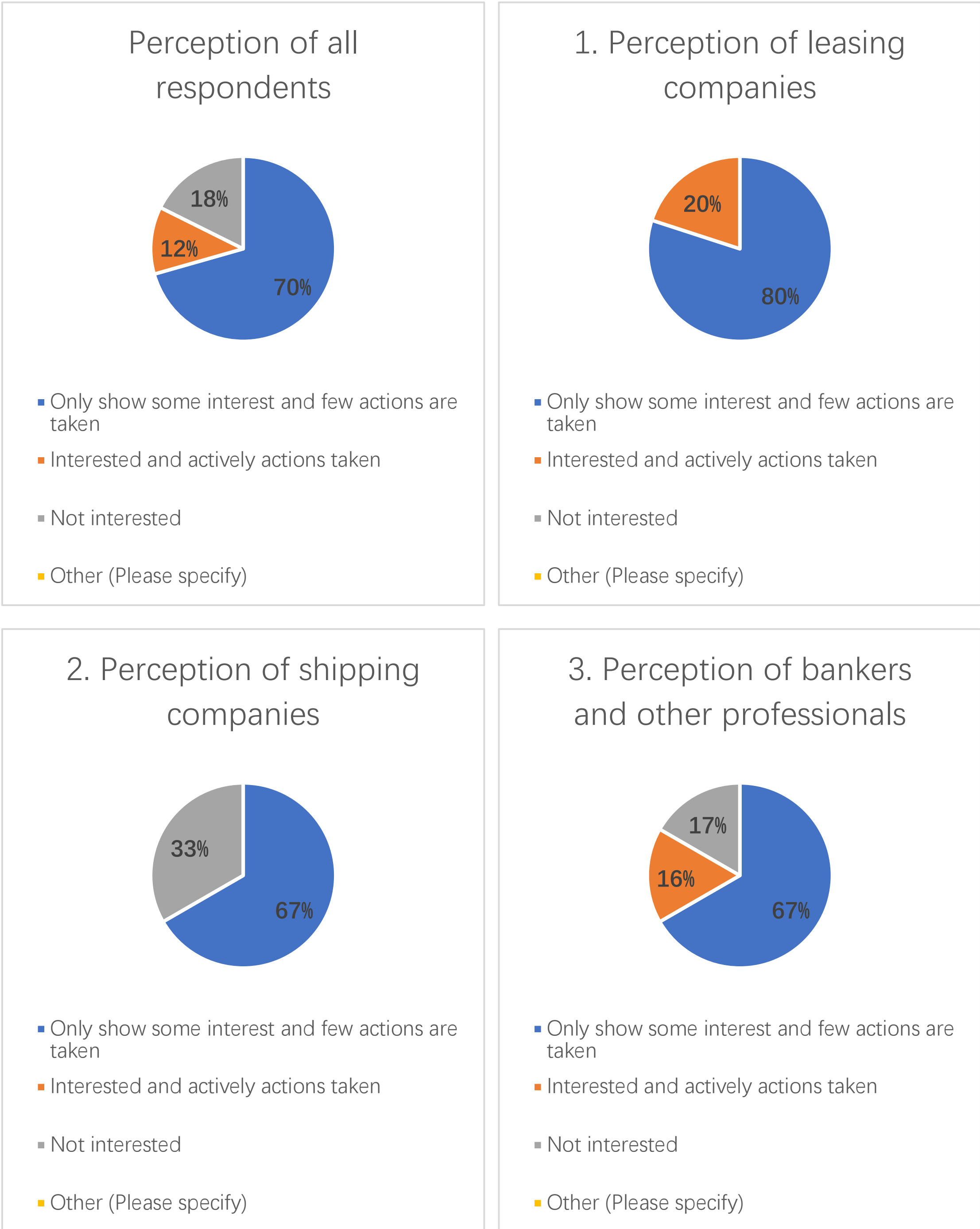


Figure 23: Current situation of Chinese lessors towards the second-hand tonnages

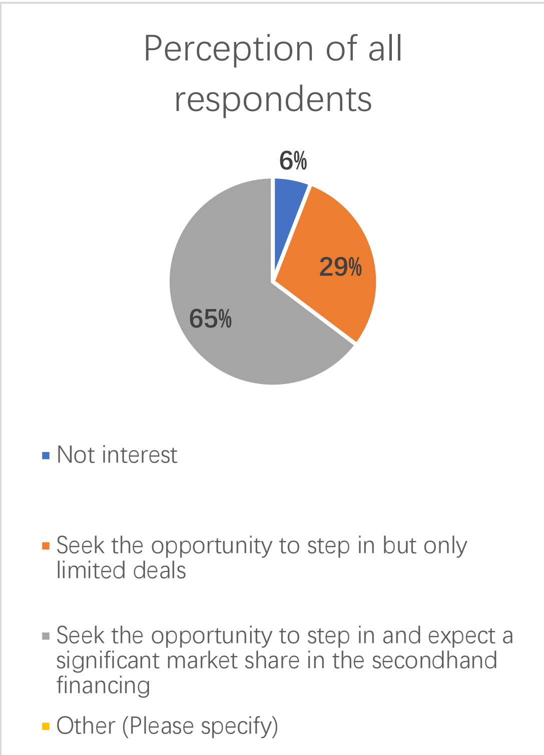
Source: Author

We have learned from the last section that Chinese leasing companies have already prepared or acted to enter the second-hand ship market, while the results of this question show that they have taken few actions or concluded limited deals at present. Figure 23 presents that 70% of the respondents think that lessors from Chinese ship leasing companies have not made corresponding efforts in accordance with their expressed interest, and 18% say that they are not interested based on current market behaviors. This may partly explain why the industry does not have a positive outlook on the development of ship leasing in the second-hand ship market, as shown in question 7 of the first part of the questionnaire. Notably, the shipping companies are extremely unsatisfied based on our results subdivided into occupations. This may correlate with the types of shipping companies participated and the limited response rate in our survey.

4.3.2 What is the attitude and expectations of Chinese lessors towards the second-hand market?

This question aims to explore the future expectations of Chinese lessors on second-hand ship financing.

The consensus is that Chinese leasing companies seek opportunities to step in and expect to occupy an vital market share in second-hand financing, which is consistent with their expressed interest we have found in Chapter 2 and the 1st part of the questionnaire. Compared with leasing professionals and other players in the industry, shipping companies have responded more neutrally. Half of the responses believe that Chinese lessors will occupy an important share in the future second-hand ship financing market. In contrast, the other half believe that Chinese leasing companies will continue to maintain the current cautious degree of openness and maintain a limited number of second-hand ship financing transactions.



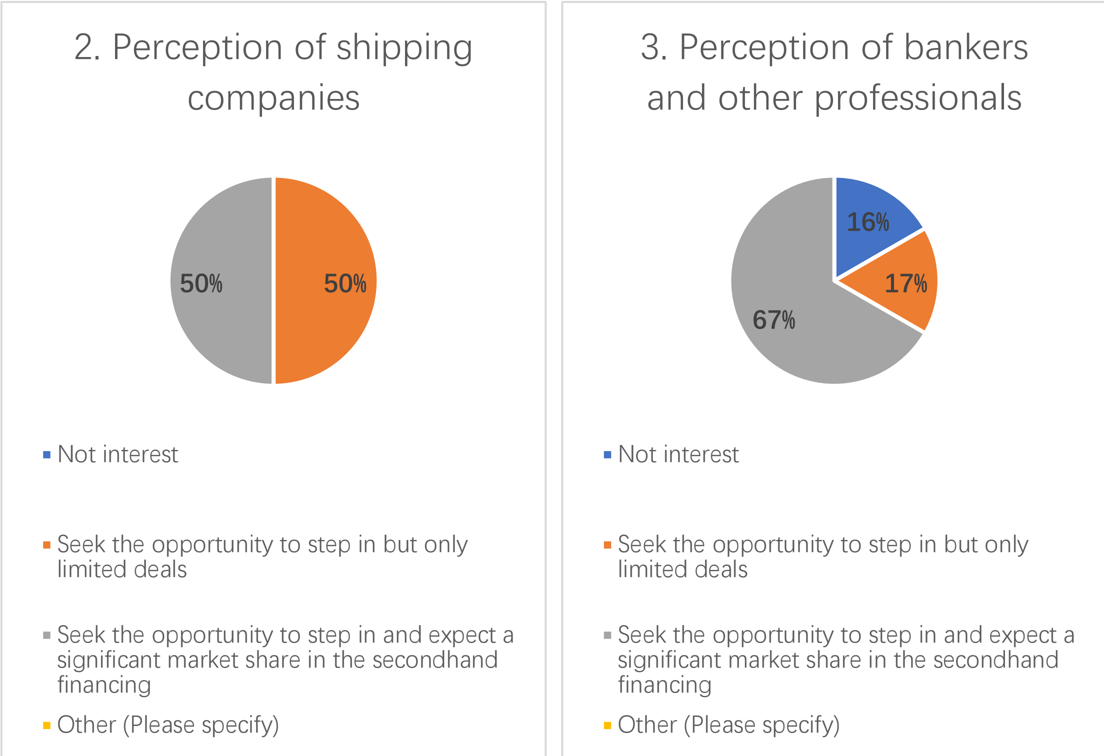


Figure 24: Attitude and expectations of Chinese lessors towards the second-hand market

Source: Author

In the semi-structured interview, an interviewee told us that the shipping market is gradually recovering, and some European banks have begun to pay attention to the shipping industry again. This puts more competitive pressure on leasing companies because shipowners prefer traditional bank debt financing, which gives more flexibility. Chinese lessors have expressed their interest in entering the second-hand ship market. However, at this stage, they need to improve their asset management capabilities and improve their internal financing procedures to prepare for providing services for second-hand ship financing fully.

An employee in the leasing company pointed out that the Chinese ship finance leasing industry has gone through the simple leasing stage and the transition period from the flexible leasing stage to the operating lease stage. At present, whether it is the initiative of industry organizations or the interim regulatory measures (detail information shown in Annex 1), they are guiding the industry in the direction of "real leasing", that is, focusing on the concept of "financing" and returning to the origin of leasing companies. Under the combined effect of regulatory policies and market conditions, major ship leasing companies have shifted the battlefield of competition from financial leasing business to operating leasing business. Chinese leasing companies will gradually become a "financial shipowner". The Chinese ship leasing is expected to shift from an increase in quantity to an increase in quality, which may limit to open up the market for second-hand ship financing. On the other hand, the flexibility that second-hand shipowners value will be further lost under this market model, making the future openness of ship leasing more complicated and unpredictable.

4.3.3 What are the obstacles of Chinese lessors to step in the second-hand market?

This question aims to discover the obstacles Chinese leasing companies need to overcome to enter the second-hand ship market.

Since this is a multiple-choice question, most of the responses we receive involve two options. Small financing volumes and non-scale single transactions are the primary obstacles, accounting for 36% and 32%, respectively. The immature financing process of leasing companies makes it impossible to complete numerous second-hand ship financing transactions at this stage; the answer accounts for 19%. Low market demand from shipowners accounted for only 3%, which is consistent with the second-hand shipowners actively seeking new financing channels as we have obtained in the last section. Dissatisfaction with the shipowners' qualifications only accounts for 10% of the answers. Looking for an explanation of this, a participant of a leasing company told us that Chinese lessors are not currently capable or fully prepared to serve small and medium-sized shipowners rather than they are dissatisfied with shipowner's qualifications.

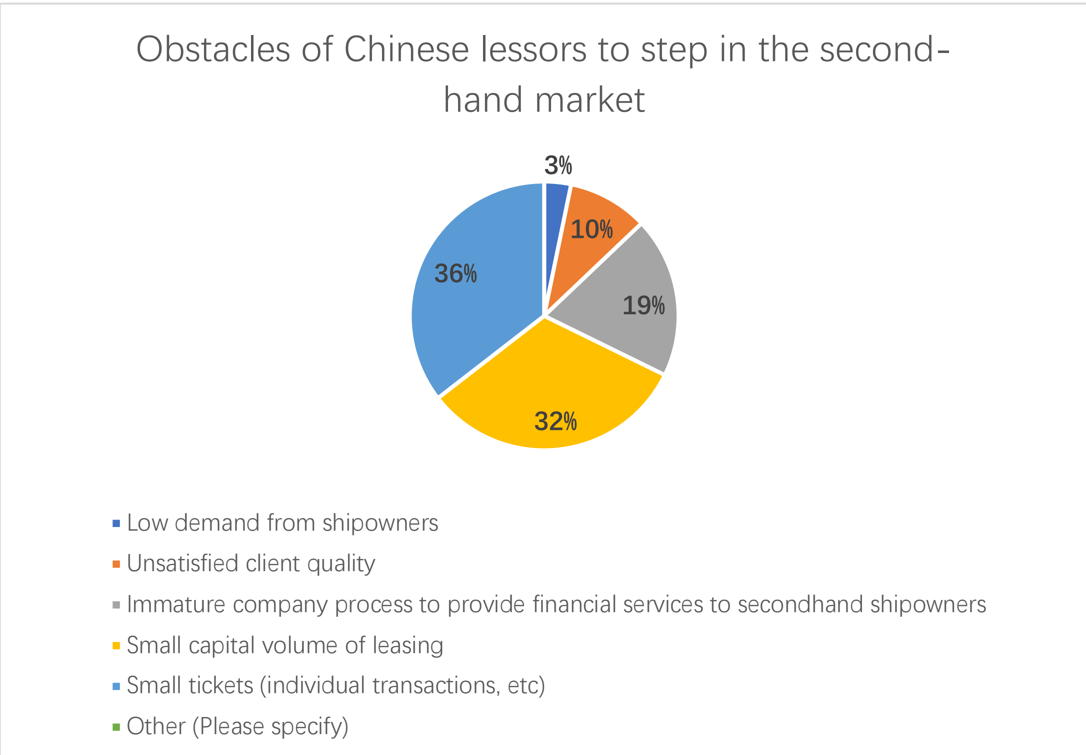


Figure 25: Obstacles of Chinese lessors to step in the second-hand market

Source: Author

4.3.4 What qualifications are Chinese lessors seeking from the second-hand shipowners?

This question aims to clarify the qualifications of second-hand shipowners who can attract Chinese ship leasing companies to provide financing services. Each respondent is asked to choose the first three options in their perception.

Overall, large-structured companies and good business performance on the balance sheets and cash flow statements rank the top two, earning 25% and 19%, respectively, of the total responses. A good reputation in the industry and a specific ship type in a specific market segment are closely followed, accounting for 18%. Obtained contracts as the backbone of the ability to pay have 16% of the support, while the long cooperation records get the lowest vote with only 4%. Compared with financial institutions in other countries, Chinese leasing companies have entered the shipping sector relatively late. Although they have developed rapidly in the past ten years, the entire industry is still in the infancy of the development, and there is not enough time to establish long-term cooperation records with customers. This may be the reason why long-term partnerships are not considered.

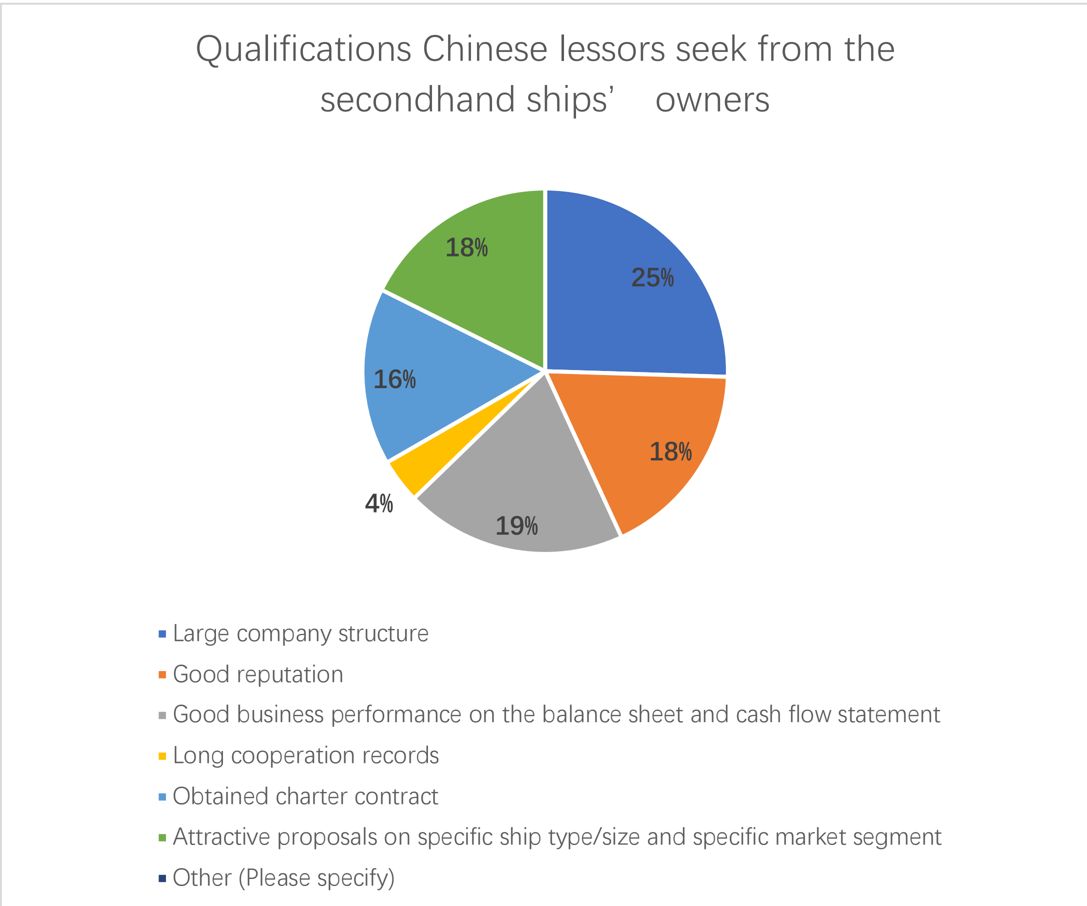


Figure 26: Qualifications Chinese lessors seek from the secondhand ships' owners

Source: Author

4.3.5 Which market segment will Chinese lessors prefer?

Figure 27 presents the market segments that Chinese lessors prefer. As we suppose, the tanker and dry bulk market segments are two primary fields that Chinese capital interests. The tanker market ranks 14% higher than the dry bulk market. Cruise ships are the least favored. This may be due to the fact that the cruise industry consumes a great amount of capital and requires the cooperation of multiple financing companies to provide funds. On the other hand, as more than 90% of the global luxury cruise ship construction market is dominated by shipyards in European countries, Chinese shipping yards have only actively promoted local luxury cruise ships' construction in recent years. Thus the related financial services are also in the initial stage.

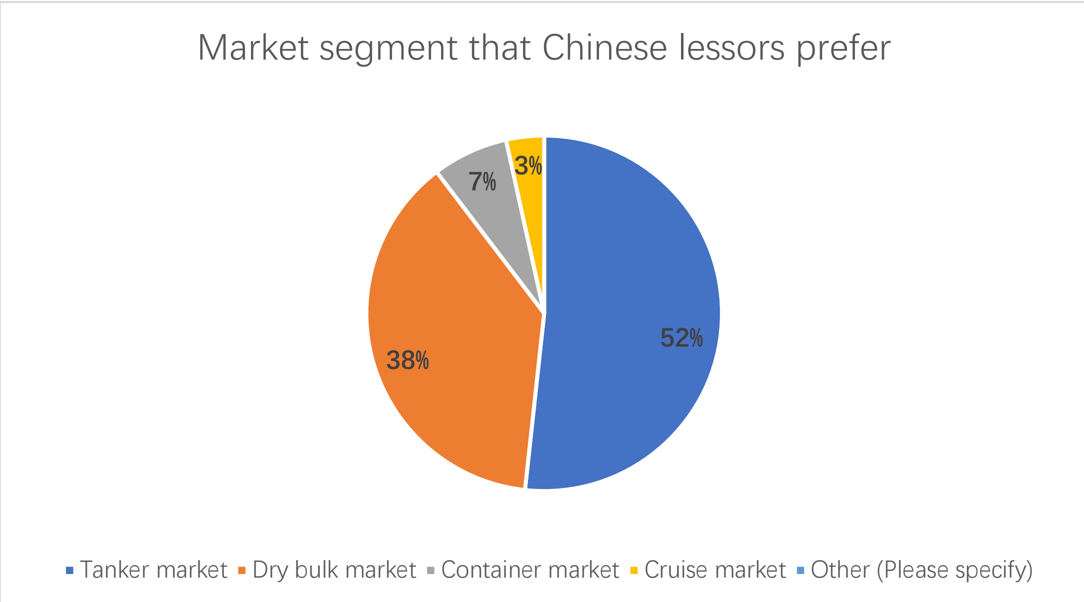


Figure 27: Market segment that Chinese lessors prefer

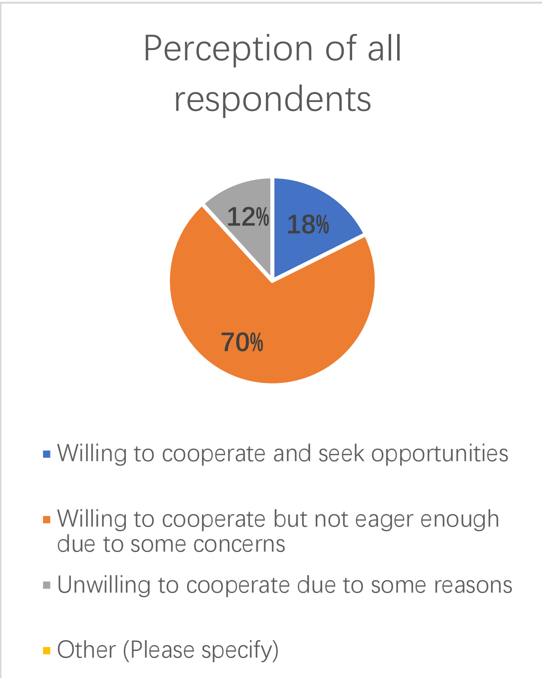
Source: Author

4.3.6 What is the shipowner’s attitude towards Chinese capital?

This question aims to understand the preference of shipowners for Chinese capital with several active sources of financing in the ship finance market.

It can be seen from the results that although the shipowners hope to seek assistance from the Chinese capital, they are hesitant due to some concerns at this stage. This is agreed upon by 70% of the participants. By analyzing the results of different occupations, shipping companies respond that they are willing to cooperate with Chinese lessors, but only 17% of shipowners are looking for opportunities. This shows that although shipowners regard Chinese ship leasing as an important alternative financing source, only a small part of their financing plans is put into practice. Most shipowners are still in a hesitation or approaching stage, and Chinese financing institutions need to be more open to having shipowners understand their strategy and eliminate doubts. Also, Chinese leasing companies, banks, and other professionals have similar answers from the results' distribution. They mainly choose the option that shipowners hesitate to cooperate, and the options for active cooperation and unwillingness to cooperate are evenly matched. The concerns of shipowners are collected and analyzed in the Question 9 of the first part of the questionnaire, which are the high requirements on shipping companies, and the difficulty in accessing to Chinese lessors. The high requirements are analyzed in the Question 4 of the second part of the questionnaire, which include large company structure and good business performance.

Therefore, the third hypothesis that second-hand shipowners are seeking opportunities from Chinese ship leasing is rejected because they may have an interest, but up to now, they find the requirements do not match with their performance; thus they are hesitated to cooperate with concerns.



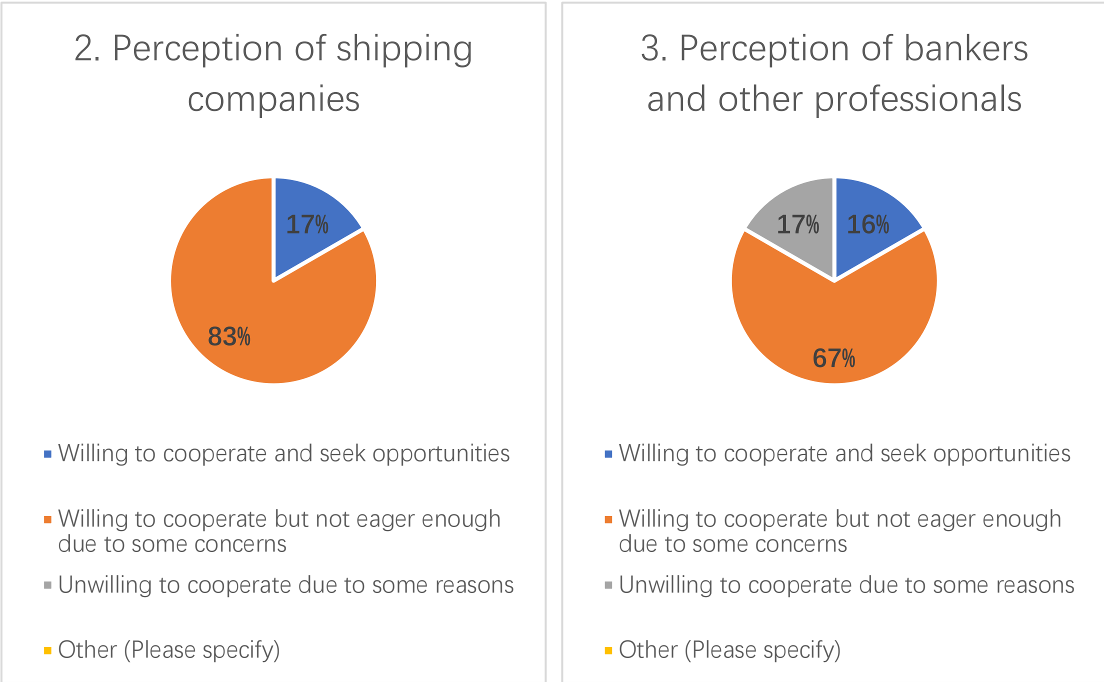


Figure 28: Shipowner's attitude towards Chinese capital

Source: Author

4.3.7 How do you find the competitiveness of Chinese leasing compared with other counties' leasing companies (e.g. Japanese leasing companies)?

As Chinese leasing companies have entered the shipping financing market for just a decade, the purpose of this question is to understand and analyze their competitiveness with more mature leasing companies in other countries.

We got the information mainly from in-depth interviews that British tax leasing, the German KG model, and the Singapore Maritime Trust Funds were once the main models of ship leasing in the world. Under the impact of the shipping market crisis, many leasing companies represented by the German KG Funds went bankrupt, and the Singapore Shipping Trust Fund, which operates through leasing, is also facing a decline in overall performance. However, this does not prevent financial leasing from becoming an attractive financing model in the major shipbuilding countries in Asia. The Japanese leasing industry remains its competitiveness in ship finance with a relatively complete legal environment and a mature market system. Small and medium-sized enterprises whose capital scale is below 100 million yen have become the main types of customers of Japanese financial leasing companies thanks to the joint efforts of Japanese government continuously improving the regulations, and the leasing companies continuously improving their own business level.

Compared with Japanese financial leasing companies, Chinese lessors are more cautious and their business is currently more concentrated in the area of sale and leaseback. Therefore, some participants believe that the Japanese financial leasing market is more competitive in the second-hand ship market in terms of shipowners' demand. They pay more attention to factors such as customer reputation and lease lock-in, rather than just considering the company size and the scale of orders as most of the Chinese institutions do. This part of the answers mainly comes from shipping companies, especially from small and medium-sized shipowners.

Of course, some participants believe that as the Chinese fleet continues to expand, and the shipping market continues to grow, Chinese capital strength will surpass Japan. This part of the answer mainly comes from leasing companies and local Chinese shipowners.

4.3.8 What difficulties or hidden worries have been found in financing cooperation?

This question was previously designed as "What difficulties or problems did the shipowner find when cooperating with Chinese leasing companies?". However, when interviewing for different occupations, we found that this question was set to be unilateral, so we changed it to the current version, aiming to discover the difficulties or worries that both parties found in cooperation.

From the perception of shipping companies, we have learned from previous analysis that they find that Chinese lessors focus on large-scale projects and lack interest in investing in small and medium-sized projects. In addition, unlike Japanese or Singapore financial institutions that have branches in Europe, the distance between the two parties has also increased the difficulty of cooperation to a certain extent, because face-to-face discussions have become impossible as before. Some shipping companies with cooperative experience suggest that Chinese leasing companies need to improve the transaction process and try to complete the transaction in a short period of 3 to 6 months.

From the perspective of the leasing company, it is difficult to track the lessee's technical and commercial performance as it involves a large number of overseas shipowners' leasing business and faces different market segments of different ship types. It is not easy to supervise the charterer's operating accounts closely. As a result, leasing companies cannot adequately deal with future risks.

4.3.9 What should Chinese lessors do to open a position in the second-hand market?

From the perspective of internal factors, the Chinese ship leasing business is facing the need to improve its risk control capabilities, as well as higher requirements for the comprehensive management of ship assets. Therefore, to smoothly open up and enter the second-hand ship financing market, the following suggestions may be helpful.

- ✓ optimizing the asset structure of leasing companies;
- ✓ improving risk assessment and management;
- ✓ adapting to the financing needs of shipowners;
- ✓ strengthening the establishment of financing procedures for small-scale or single transactions;
- ✓ shortening the time from contact to completion of the transaction

In addition, if Chinese leasing companies can use an innovative evaluation model to assess the lessee and carry out ship financing, they will not rely heavily on historical data; instead, they can attach importance to the shipping company's future growth capabilities. Suppose leasing companies do not overemphasize mortgages, pledges, guarantees, and attach importance to shipping companies' reputation and lease lock-in. In that case, this helps to reduce the difficulty of ship financing for small and medium-sized shipping companies and opens up more potential customers in the second-hand ship market.

From the perspective of the external environment, the Chinese financial leasing model has developed rapidly after major European banks withdrew from the international ship financing market to fill the gap in the market. If the shipping market recovers, shipowners may rely on traditional ship financing banks again, making the financial leasing model may not be so attractive because the financial leasing model is more expensive than traditional debt financing solutions. The mature leasing market system in Japan and other countries has also intensified the competition in the second-hand ship financing market. Therefore, improving relevant regulations and accelerating the supportive government policies will also help the openness of Chinese ship leasing.

Therefore, we would partly reject our fourth hypothesis. More lenient requirements are not recommended at this stage because they cannot tackle the obstacles that Chinese leasing companies face at the source. Maturing the financing processes for small tickets, improving ship asset management, risk control capabilities, and evaluation method are the priorities Chinese leasing companies should attach the importance to.

4.3.10 Concluding remarks of the 2nd part questionnaire

This part of the questionnaire provides us a market picture; that is, Chinese lessors have taken few actions to finance second-hand tonnages, but they expect to have a significant market share in the future. They need to remove the obstacles of small financing volume and small tickets to enter the second-hand ship market smoothly. At present, they ask for large company structures and good business performance from the shipping companies, and they prefer tankers and dry bulk markets. Shipowners are willing to cooperate but are hesitant with some concerns. Thus they find leasing businesses provided by other countries (e.g. Japan) more competitive. On the other hand, Chinese leasing companies are facing transformation as industry regulations go into force as well as the internal needs for upgrades.

3rd conclusion: the results of this part reject the hypothesis that shipowners of secondhand tonnages are seeking Chinese leasing opportunities. Instead, shipowners are hesitant due to some concerns such as higher requirements on shipping companies and difficulties in accessing Chinese lessors.

4th conclusion: the fourth hypothesis needs to be rejected as mature financing processes, and lenient requirements on shipping companies will not tackle the problem at its source. Chinese leasing companies need to improve ship asset management, risk control capabilities, and evaluation methods, which will help its openness and competitiveness in the secondhand ship market.

4.4 Concluding remarks

Based on the aforementioned results, we can conclude that Chinese leasing companies have entered the second-hand ship market but are very cautious with few transactions. On the other hand, although second-hand shipowners may be interested in Chinese ship leasing, they see the requirements do not match their performance. Thus they do not expect to cooperate with Chinese lessors at this stage. To summarize, the openness of Chinese lessors to financing second-hand ships is very limited and may not open further in the short term. The following table recaps the results of this chapter.

Table 6: Outcomes of the hypotheses

No.	Hypothesis	Conclusion
1st hypothesis	Second-hand vessels presently rely on bank debt, corporate equity and informal equity	Reject
2nd hypothesis	Chinese lessors are expanding their business to the second-hand market	Accept
3rd hypothesis	Shipowners of secondhand tonnages are seeking Chinese leasing opportunities	Reject
4th hypothesis	Mature financing processes and lenient requirements on shipping companies will benefit the openness of Chinese leasing towards the second-hand market.	Reject

Source: Author

Chapter V. Conclusions

The ship finance market has been reshaping in the past decade; one of the conspicuous changes is the rise of Chinese leasing companies. The main purpose of our research is to study their openness to financing second-hand ships. Therefore, we analyzed why Chinese leasing companies sprang up, studied their role in the market, and then put forward market views on their future development by conducting a survey.

5.1 Answers to research questions

Based on the relationship between hypotheses and research questions (Table 4 in Chapter 3), we summarize the answers to our research questions.

Starting from the first sub-research question, the present source of financing for second-hand ships is bank debt, according to Section 4.2 and Figure 16 & 18. Ship leasing is an essential source of financing in the current situation and the next three years. K/S and KG funds are gradually losing their appeal. The public offerings/IPOs will also reduce their market influence as shipping companies become less attractive in the capital market affected by the industry environment. Corporate equity and private equity funds are believed to be one of the primary sources of future reliance.

In order to answer the second-sub research question, we design a series of questions about the current strategy of Chinese leasing companies as well as the needed actions to open a position in the second-hand ship market. According to the results of Section 4.2.10 and 4.3, Chinese lessors are currently focusing on the newbuilding market and large deals; they value historical data more than the company's future growth capabilities. They will maintain their current market positioning as they need to upgrade on ship asset management, risk control capabilities, and complete the transformation before launching massive transactions on second-hand ship financing.

The main research question is analyzed from two aspects of both supply and demand. Whether a Chinese leasing company will expand into the second-hand ship market determines the supply of lease capital in the ship financing market, and whether the shipowner seeks financing opportunities from Chinese lessors determines the market demand. Based on the results of Section 4.2 & 4.3, we can find that from the supply side, Chinese leasing companies have entered the second-hand ship market, but they have conducted limited transactions so far due to the restricted capabilities of asset and risk management. Therefore, they are open up to the second-hand ship finance market with great caution. From the demand side, shipowners for second-hand tonnages have multiple sources of funds in the current market. Although they have an interest in the new financing opportunities that Chinese ship leasing provides, they find the requirements do not match their performance at this stage. In short, Chinese leasing companies have very limited openness to financing second-hand ships and probably will not open further in the next three to five years.

5.2 Recommendations

In order to open a position in the second-hand ship market, Chinese leasing companies are recommended to 1) optimize the asset structure of leasing companies; 2) improve risk assessment and management; 3) adapt to the financing needs of shipowners; 4) strengthen the establishment of financing procedures for small-scale or single transactions; 5) shorten the time from contact to completion of the transaction; 6) adopt an innovative assessment model on customers.

On the other hand, large shipping companies can currently view Chinese ship leasing as a source of funding, while the medium to small-sized shipowners are recommended to choose leasing companies in Japan and other countries if they want to raise funding through ship leasing, because they can meet the requirements and the covenants will be less strict.

5.3 Limitations and further research

As mentioned earlier in Chapter 3, we have foreseen the low response rate of online questionnaires and the difficulty of accessing to participants during the pandemic; coupled with the limited survey time, the number of participants in our research has merely met the minimum range of responses required. In addition, our research is mainly aimed at participants who are domiciled in the Asia region, especially in China, as most of the interviewees were introduced by other participants.

As the Chinese leasing industry is being promoted by industry initiatives and regulations to transform from financial leasing to operating leasing, further research can be conducted on the impact of these policy changes on the shipping finance market. In addition, as our results prove that Chinese ship leasing is not a viable option for second-hand shipowners, we can further study other sources of financing, such as private equity. Finally, we suggest exploring how ship leasing will develop as some European banks start to re-enter the shipping industry recently.

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Appendix

First Part: New launched industry initiatives and regulations

In the interview, it has been mentioned several times that the Chinese leasing industry is transforming. We conducted an in-depth investigation on this issue and summarized it as follows.

In January 2019, the Financial Leasing Professional Committee of the China Banking Association issued the first self-regulatory convention in the financial leasing industry, the "China Financial Leasing Industry Self-Regulation Convention" (hereinafter referred to as the "Self-Regulation Convention"). The "Self-Discipline Convention" states that in order to continuously improve the ability and quality of financial services to the real economy, and gradually reduce the proportion of sale and leaseback business, when conducting sale and leaseback business, the leased property must be truly owned by the lessee and the lessee have the right to dispose of it. In November, the China Banking and Insurance Regulatory Commission issued the "Interim Measures for the Supervision of Financial Leasing Business Operations (Draft for Solicitation of Comments)" (hereinafter referred to as the "Draft for Solicitation of Comments"). The "Draft for Solicitation of Opinions" added new requirements for the minimum proportion of leased assets of financial leasing companies. The successive promulgation of the above-mentioned regulatory policies reflects the regulatory requirements for leasing companies to return to their original sources.

Second Part: Questionnaire

Target Market Analysis

. Please indicate your work in

- Bank
- Leasing company
- Shipping company
- Other professional involved in ship finance (Please specify)

Q2.

How do you think of the prospect of the general shipping market in the next 3 – 5 years?

- Positive and expect a strong recovery
- Positive but survive with low profit
- Negative and expect to withdraw
- Other (Please specify)

Q3.

How do you think of the prospect of the second–hand market in the next 3 — 5 years?

- Expect a same trend with the general shipping market with positive sentiment
- Expect the same trend with the general shipping market with negative sentiment
- Expect the general shipping market to be positive but the second-hand market to be negative
- Expect the general shipping market to be negative but the second-hand market to be positive
- Other (Please specify)

.

If your answer is C/D in Q2, please specify the reasons of changing sentiments between the general shipping market and the second–hand market? (open–ended question)

Q4.

Which financing sources of secondhand ships rely on currently? Choose the top three

- ☐ Bank debt
- ☐ PE
- ☐ Public offering/IPOs
- ☐ Corporate Equity
- ☐ K/S and KG funds
- ☐ Leasing
- ☐ ________ Other (Please specify)

Q5.

Is sufficient capital available to funding secondhand ships?

- ○ Sufficient enough and no new financing sources needed
- ○ Sufficient but seek more opportunity for new financing sources
- ○ Insufficient but no new financing sources needed
- ○ Insufficient and seek more opportunity for new financing sources

Q6.

In your opinion, what will be three primary financing sources for secondhand tonnages in the coming 3 years?

- ☐ Bank debt
- ☐ PE
- ☐ Corporate Equity
- ☐ Public offering/IPOs
- ☐ ECAS
- ☐ K/S and KG funds
- ☐ Leasing
- ☐ ________ Other (Please specify)

Q7.

What is the main reason for the rise of ship leasing?

- [ ] Commercial banks withdraw
- [ ] Less strict financial initiatives on leasing companies compared to Basel III imposed on banks
- [ ] Higher margins
- [ ] All
- [ ] ______ Other (Please specify)

Q8.

How do you expect the volume of leasing in the ship finance market?

- ○ Will rapid grow and extend to more sectors
- ○ Will maintain and focus on newbuilding programs
- ○ Will gradually lose market
- ○ ______ Other (Please specify)

Q9.

Will Chinese leasing expand the services into the second-hand market?

- ○ Yes, they are on the way
- ○ Maybe someday, but not now
- ○ No, they are not interested
- ○ ______ Other (Please specify)

Q10.

What are the drawbacks of leasing that make shipowners not to take leasing into account?

- [ ] High requirements on shipping companies
- [ ] Long term contract
- [ ] Difficult access to Chinese lessors
- [ ] ______ Other (Please specify)

Q11. What is the strategy of the current Chinese leasing companies?

Q12.
What is the current situation of Chinese lessors towards the second–hand tonnages?

- ○ Only show some interest and few actions are taken
- ○ Interested and actively actions taken
- ○ Not interested
- ○ ______ Other (Please specify)

Q13. What is the attitude and expectations of Chinese lessors towards the second–hand market?

- ○ Not interest
- ○ Seek the opportunity to step in but only limited deals
- ○ Seek the opportunity to step in and expect a significant market share in the secondhand financing
- ○ ______ Other (Please specify)

Q14. What are the obstacles of Chinese lessors to step in the second–hand market?

- ☐ Low demand from shipowners
- ☐ Unsatisfied client quality
- ☐ Immature company process to provide financial services to secondhand shipowners
- ☐ Small capital volume of leasing
- ☐ Small tickets (individual transactions, etc)
- ☐ ______ Other (Please specify)

Q15.
What qualities are Chinese lessors seeking from the secondhand ships' owners? Choose the top three

- ☐ Large company structure

- [ ] Good reputation
- [ ] Good business performance on the balance sheet and cash flow statement
- [ ] Long cooperation records
- [ ] Obtained charter contract
- [ ] Attractive proposals on specific ship type/size and specific market segment
- [ ] ______ Other (Please specify)

Q16.
Which market segment will Chinese lessors prefer?

- [ ] Tanker market
- [ ] Dry bulk market
- [ ] Container market
- [ ] Cruise market
- [ ] ______ Other (Please specify)

Q17.
What is the shipowner's attitude towards Chinese capital?

- ○ Willing to cooperate and seek opportunities
- ○ Willing to cooperate but not eager enough due to some concerns
- ○ Unwilling to cooperate due to some reasons
- ○ ______ Other (Please specify)

Q18. How do you find the competitiveness of Chinese leasing compared with other counties' leasing companies (e.g. Japanese leasing companies)?

______

Q19. What are the difficulties or concerns shipowners have found when cooperating with Chinese leasing companies?

Q20. What should Chinese lessors do to open a position in the second-hand market?

Q21. Any other feedback, comments or views you wish to share on the subject?

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