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# Financing the construction and purchase of sea ships

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**Abstract**
The aim of the article is a synthetic presentation of the complex process of financing investments related to shipbuilding and purchase. The first part presents the concept of shipbuilding cycles and the relationship between the shipbuilding industry and the shipping market. The paper then reviews the concepts and literature related to the shipbuilding industry, shipbuilding financing, and ship purchase. Lastly, the current state of the shipbuilding market is described. The results of the analysis indicates possibilities of financing the purchase of new vessels including mortgage bonds.

## Introduction

Analyzing the current situation of world trade, it seems reasonable to assume that in the future maritime transport will remain the dominant means of transporting goods over long distances. The UK Government's Department of Transport suggests an increase in the weight of goods transported by sea to about 30 million metric tons between 2020 and 2050 (Department for Transport Great Minister House, 2019, p. 49). It is therefore to be expected that shipowners will demand new transport vessels for charter and liner shipping.

Shipping companies therefore need to rebuild their fleets in order to maintain their capacity to work as soon as there is a demand for transport services. The planning and implementation of the ship purchase process involves high financial and risk costs for shipowners. Shipping companies that plan to invest in new vessels can choose between two financing options (Daniel & Yildiran, 2019, p. 13):

- through the use of equity capital raised from the market through the issuing of shares or profits;
- by borrowing from banks or other creditors.

Financing the construction and purchase of ships may involve the use of different methods of financing, including credit, bonds and leasing. The action of a typical bank (or other creditors) will be to secure the transferred funds on the ship's mortgage (Girvin, 2019, p. 5–6). In the case of a time charter or bareboat charter, the mortgage record remains in order to protect the lender. The ship is also insured in the event of loss so that the bank's interests are properly protected (Stopford, 2009, p. 286). In most cases, the construction and purchase of ships is financed by banks or bank consortia due to the very high cost of individual ships.

The authors formulated a hypothesis that classical methods of financing shipbuilding and purchasing are insufficient, and the solution to this problem may be ship's mortgage bonds. Ship's mortgage bonds are an alternative to bank loan financing. Until recently, the method of financing shipbuilding and ship purchase by means of mortgage bonds and shipbuilding funds was popular in Germany. It cannot be ruled out that in the future it may also play a role in financing investments in the shipbuilding industry.

The method of financing tonnage investments described above is not very widespread and is mainly used in the German market where it is derived from limited partnerships (shipbuilding partnerships). Most publications deal with issues related to mortgage collateral for bank loans as a system of financing shipbuilding and ship purchase by means of bank loans. This issue is little known and, as mentioned above, occurs mainly in one country.

## Characteristics of shipbuilding and ship financing issues – literature review

There are close links between shipbuilding and shipping markets. The trend towards the transport of various types of cargo by sea is a factor that increases or decreases demand for new vessels. The increase in demand for transport services makes it necessary to introduce new vessels to ensure increased production of services. A decrease in demand for services entails a decrease in freight rates and, in the long run, a slowdown in the tendency of shipowners to offer services. Taking this mechanism into account, the shipbuilding cycle can be identified, reflecting the described specificities of the shipping markets (Stopford, 2009, p. 628–629; Solesvik, 2016, p. 46–47). A typical cycle consists of four successive stages: trough, recovery, peak and collapse (Figure 1).

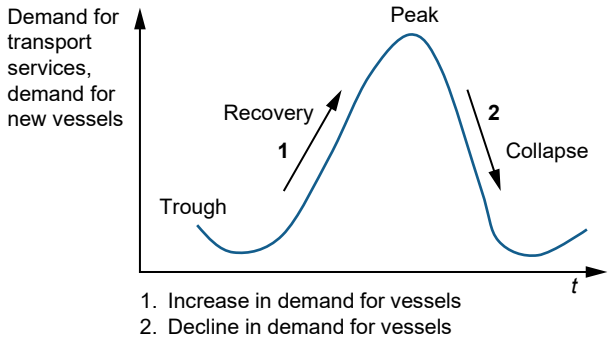


**Figure 1. Shipbuilding cycle (Solesvik, 2016)**

At the lowest point in the cycle, there is an oversupply of transport services and a drop in freight rates. This situation has led to a decline in the interest of shipowners in investing in new ships on ship markets due to low freight rates. Decisions are also taken on ships in operation with high maintenance costs.

Prices of new vessels are falling and shipyards are in competition with each other to buy vessels. The increase in demand for transport services causes an increase in the level of freight rates. Such a mechanism triggers the interest of shipowners in increasing the supply of services, but it is linked to the launching of more vessel crossings. This situation is conducive to investment in new vessels. At peak times, the market for shipping services is in balance, i.e., demand for services is balanced by the supply of services. The situation of balance and profitability encourages shipowners to increase their service offer and invest in new vessels. If the trend towards increased supply continues, freight prices will fall and interest in buying new vessels will decrease again.

The average ship building cycle lasts from 9 to 15 years with some fluctuations (ECORYS, 2009, p. 39). It is possible to distinguish historical shipbuilding cycles, which run from 1886 to the present day (Stopford, 2009, p. 625–628). The increase in demand for vessels is linked to technical progress and global economic development. According to Stopford, between 1886 and 2010 there were 12 peaks in demand for ships due to technological and economic developments (Stopford, 2015, p. 3). In the future, it can also be expected that there will be a periodical demand for ships.

The combination of the maritime shipping market and shipbuilding means that there may periodically be a demand for specific types of vessels, depending on the current economic situation. Modern ships are also a reflection of the available technology where the latest technical and organizational solutions are introduced. At present, future value creation, digital technology, and ecology are important factors influencing the development of shipbuilding (Danish Ship Finance, 2018, p. 8–9). Maintaining global supply chains requires modern vessels that can provide added value and are prone to digitization of information flows. The introduction of information technology will increase access to transport services and improve cooperation between actors in supply chains. Maintaining global supply chains requires modern vessels that can provide added value and are prone to digitization of information flows. The introduction of information technology will increase access to transport services and improve cooperation between actors in supply chains. New ships will have to comply with increasingly stringent emission standards covering air, oil and petroleum substances and impacts on fauna and flora. The model tests carried out confirm the increase in ship traffic and $NO_2$ emissions so new environmental regulations are expected (ICS, 2019, p. 8–9).

The costs of building a vessel are related to market prices, type, and the size of the vessel. Depending on the shipping activity, each shipowner needs a sufficient number of ships to ensure efficient cargo

handling. This is why the key concern for ship owners is to purchase and maintain a sufficient number of ships able to cater for the existing and forecast demand for transport services.

Ship specialization allows for better efficiency of transport and cargo-handling processes resulting in shorter turn-around times at the port. In that sense, it is possible to distinguish multiple types of ships designed for specific cargo as well as vessels capable of carrying various types of cargo (oil–bulk-ore). Ships specialized for a specific type of cargo include: tankers, i.e., ships designed to carry liquid cargo; dry bulk cargo ships, and gas ships equipped with LPG (liquefied petroleum gas) or LNG (liquefied natural gas) tanks. General cargo is transported by container ships, either full-container ships or ConRo ships. ConRO ships have the additional benefit of being able to accommodate wheeled cargo.

The end of the 20$^{th}$ century witnessed heavy exploitation of marine deposits of kerosene oil and gas, requiring the use of drilling rigs and specialized ships, known as off-shore support ships and service vessels, designed to provide supporting services. Project cargo and special purpose cargo now form a large share of sea transports, both requiring special ships equipped with heavy-lifting cranes and robust cargo decks. The passenger is a special recipient of transport services in that he/she requires sufficient space on the ship. The International Convention for the Safety of Life at Sea defines a passenger ship as having sufficient deck space for more than twelve passengers; on the other hand, a cargo ship is defined as having enough cabin space to house up to twelve passengers, not counting the crew (SOLAS, 2004, Reg. 2, f). Passenger ships in service nowadays are mainly cruisers sailing from port to port along a set course, as well as ferries for passengers/passengers and cars, shuttling regularly between two specifically named ports according to a schedule. The specialization of ships also makes it necessary to systematize them for contractual and documentary purposes. The ship classification system was proposed by UNCTAD in 1989 (IMSF, 1994).

Maintenance of the capacity of shipping companies to provide transport services is linked to the need to replenish their fleet. Shipowners have to make decisions on financing the construction and purchase of new vessels. In most cases, the purchase of a new vessel requires internal financing. A typical solution is for banks or banks to lend money for the construction and purchase of ships on the basis of maritime mortgages. The purchase of a vessel requires prior negotiation of price and technical conditions with the shipyard and the acquisition of creditworthiness by the shipping company. New ships are purchased under the terms of a supply contract that requires prior ordering of the vessel with its subsequent transfer. The purchase of a vessel requires prior negotiation of price and technical conditions with the shipyard and the acquisition of creditworthiness by the shipping company. New ships are purchased under the terms of a supply contract that requires prior ordering of the vessel with its subsequent transfer. Sometimes a shipowner who orders a particular type of ship must queue because of the yard's large order books.

The calculation of the cost of a newly built vessel should be calculated taking into account several issues (Global Shipping & Ports Group. Deloitte, 2011, p. 9):

- cash paid to the yard for the construction of the vessel;
- external financing costs and other financial charges incurred as a result of ordering a vessel (treated as an eligible item of property, plant and equipment DPI);
- vessel registration and certification;
- legal costs and other charges directly related to the purchase of the vessel;
- all costs associated with bringing the vessel to its destination;
- costs will be incurred in different currencies at the rates fixed on the date of payment.

The market for newly built ships experienced a crisis in 2017 related to a drop in orders. It is estimated that shipyards now operate at only approximately 70% of their full output capacity, leading to poor financial performance and problems with earning the expected profits (Danish Ship Finance, 2018, p. 15). There continues to be an oversupply of services on shipping markets, making shipping companies reluctant to invest in new technologies, in addition to difficulties arising from restrictive requirements being introduced with respect to low-emission fuels. Also, clients wishing to purchase new ships expect new technical solutions in navigation and servicing systems known as 'digital ships'.

Shipyards look to the state to improve their situation through providing aid in the form of development programs launched to support the shipbuilding industry. Such solutions are used by the governments of China and South Korea where shipbuilding activities form an essential part of the national economy and any crisis in the shipbuilding sector may lead to a country-wide collapse. In 2017, the Korean government transferred to Daewoo Shipbuilding and Marine Engineering Shipyard USD 2.6 billion

worth of funds to improve its economic situation and keep its shipbuilding projects running (Wolf Street, 2019). Unfortunately, the shipyard went bankrupt in 2019 and is awaiting take-over by Hyundai Heavy Industries. In 2018, the Korean authorities put in place a strategic industry-boosting program that will continue to support shipyards until 2020 with plans underway to build 200 ships. Chinese shipyards see their opportunity for growth in the take-over of cruise ship production which is a new market segment dominated up till now by European companies. Chinese authorities are also making efforts to strengthen the shipbuilding industry as a major driving force behind Chinese exports and gross domestic product.

The current situation on the global shipbuilding market looks grim. This is why some shipbuilders opt for consolidation while others seek state aid. Now, there are 590 shipyards worldwide with combined output of 45 million compensated gross tonnage (CGT) of which only 150 signed contracts to build new ships in 2018 (Danish Ship Finance, 2018, p. 27). CGT is an Organisation for Economic Co-operation and Development (OECD) – adopted unit of macro-economic workload based on gross tonnage (GT).

In the period from 2013 to 2017, the largest shipbuilding output of the year was located in the region of East Asia, and the first three places were taken by shipyards from China, South Korea and Japan (Table 1).

**Table 1. Percentage share of national shipbuilding in the market for new build vessels measured in CGT (2013–2017) (Steidl, Daniel & Yildiran, 2018, p. 17)**

| Year | China | Korea | Japan | EU 28 | Philippines | Indonesia | Other |
|---|---|---|---|---|---|---|---|
| 2013 | 36 | 32 | 18 | 4 | 2 | 2 | 9 |
| 2014 | 33 | 33 | 18 | 4 | 3 | 3 | 9 |
| 2015 | 35 | 33 | 17 | 4 | 2 | 2 | 9 |
| 2016 | 32 | 34 | 19 | 6 | 2 | 2 | 7 |
| 2017 | 35 | 35 | 20 | 6 | 3 | 3 | 6 |

In 2017 the share of China, South Korea and Japan reached 86 per cent of the world shipbuilding market, while the smaller producers were EU shipyards, as well as shipyards in the Philippines, Indonesia and other countries.

Shipowners make orders for new vessels dependent on the situation of the freight markets which are highly dynamic and linked to global freight markets. The global economic growth is driving demand for maritime cargo services and, as a result, encouraging investors to buy new vessels. Shipowners always analyze the factors influencing the decision to buy a new fleet. Factors unfavorable to new investment include the large number of vessels of this type already operating on the markets, oversupply of services on the markets and rising prices of marine fuel. Knowledge of individual freight markets, which are identified by the cargoes transported, is also an important condition for undertaking investment processes.

It is expected that willingness of ship owners to order new container ships will be heavily limited due to the oversupply of services as well as the large number of ships already in operation. Some large liner operators are awaiting the delivery of twenty ultra-large container vessels with over 15 thousand TEU – twenty-foot equivalent unit (it is a commonly used unit of capacity of a standard ISO container).

A delaying factor for new ship purchases is the lengthened service life of container ships (to 24 years) in 2018 (Danish Ship Finance, 2018, p. 38). No large orders are expected for container ships with dead weight tonnage (DWT) ranging from 80 to 150 thousand, as there is an oversupply of transport services in that market segment. DWT is the sum of weights of cargo, passengers, crew, water supplies, ballast water and fuel carried on board. DWT specifies the maximum allowable unloaded weight of a ship according to the Plimsoll waterline. DWT is usually expressed in metric tons. The development of dry bulk cargo carrier fleets is related to the Chinese economy switching to eco-friendly management calling for reduced native production in favor of foreign imports. Orders for new bulk carriers will proceed due to the withdrawal from service of vessels that have reached 20 years in operation. Forecasts on the volume of orders for new tanker ships are optimistic only for very large crude oil carriers (VLCC) thanks to demand for kerosene oil in the East Asia region. Also, there is expected a fuel price increase, which is the main factor influencing the maintenance costs of vessels. United Nations Conference on Trade and Development (UNCTAD) expects the maritime transport markets to grow steadily at 3.8% of the annual growth rate between 2019 and 2023 (BRS Group, 2019, p. 8).

## Research method

The research method applied in the paper included the analysis of relevant publications and the observation of cases of financing the construction and purchase of ships. Theoretical assumptions were based on the Stopford ship purchase model (Stopford, 2009) and recommendations for financing the

construction and purchase of ships proposed by Global Shipping & Ports Group (IFSR for Shipping, 2011). The case study covered the German ship bond market. As a result of the analyses, noncredit forms of ship financing and forms supporting external financing were identified. Trends related to the development of mortgage bonds based on the example of Germany were identified.

## Results

The market for shipping investment funds purchasing ships has become stagnant since 2012 after an initial period of dynamic growth in the late 20th and early 21st century. This is caused by a downturn in cargo transports by sea due to a slowing down of economic growth in the world.

Closed-end investment funds investing in sea-going vessels, otherwise known simply as shipping funds, are collective investment institutions incorporated as limited liability companies. They raise capital for purchasing ships by selling – through banks or brokerage deals – investment certificates to private or corporate investors on the private or public market. Investment certificates are securities entitling the buyers to participate in the general assembly of investors. The investors share in the profits generated by the fund but are not liable for its obligations. After the expiry of the period for which the fund was established, its assets are sold and the funds thus raised are distributed among the shareholders.

Today, shipping funds do not generate much interest from investors. This means that they are limited in their ability to raise funds on the market and thereby to purchase ships. This has been caused, among others, by the huge losses recorded by such funds in recent years. The losses were so great as to bring some of the funds to bankruptcy. Inevitably, this resulted in investor distrust for this method of allocating capital (Stiftung Warentest, 2015).

Ship-owning businesses do not own enough capital to purchase ships single-handedly. Very often they find it difficult to raise enough money to pay even the required advances to the shipbuilder. At the same time, they cannot rely on shipyards granting them a long-term merchant loan. What remains as a viable source of financing for ship owners is buyer's credit. The most generous funders worldwide include Citibank, SocieteGenerale, DNB, ABN Amro, Amsterdam Trade Bank, Credit Agricole CIB, Danish Ship Finance, Danske Bank, DVB, ING and Nordea, jointly holding a 20% slice of the shipping loans market (CISION PR Newswire, 2019).

The purchase of large ships is usually financed by a consortium of 3–4 or more banks to reduce the risk of each individual bank in the consortium. The procedure to secure a long-term (repayment period of 10–15 years) or revolving loan is complicated and time-consuming. One of the banks involved – the leading bank – serves as the organizing and offering entity. The loan may be granted on centralized or decentralized terms.

- Centralized terms – a potential borrower negotiates all essential issues relating to the loan with the leading bank representing the consortium, plays an active role at every step of the loan-granting process, and shares a direct relationship with the lender. Once the loan is secured, it is distributed proportionally among all the members of the consortium. The loan is repaid to the leading bank.
- Decentralized mode – a separate agreement is made with each member of the banking consortium extending the loan. The loan is then repaid to each individual bank with the leading bank acting as coordinator (Czech, 2006).

Ship owner's bank loans are usually secured against a maritime mortgage on the purchased ship established by recording an entry in the shipping register certified by the admiralty court. This means that the mortgage expires the moment the mortgaged ship is stricken off from the register. Pursuant to Article 83 § 1 of the Polish Maritime Code, "a receivable secured by maritime mortgage shall be satisfied from that mortgage prior to other receivables, with the exception of privileged receivables" (Polish Maritime Code, 2001, Article 83 § 1). Another important type of security for loans granted by a foreign bank to a ship owner wishing to purchase a ship from a Polish manufacturer is insurance offered by the Export Loan Insurance Corporation.

Bank loans for the purchase of second-hand ships are less complicated. The reason for this is smaller credit amounts and shorter repayment periods.

Ever since the beginning of the global financial and economic crisis in 2008–2009, the world industry has been experiencing a steady downturn. Prior to the crisis, ship owners acted on the optimistic forecasts for the transport business ordering far too many ships than can now be kept working in a less dynamic economy. This means that some of the vessels are standing idle and freight rates have reached a record low in the last 30 years. Many shipping companies are struggling with serious financial problems or outright bankrupt. This means that interest in granting loans for the purchase of ships is slim.

A large chunk of finances for ship purchases has for many years been supplied by special banks raising funds by issuing shipping bonds (in German: *Schiffspfandbriefe*) covered by receivables on ship owner loans collateralized against maritime mortgage. The first such banks (in German: *Schiffspfandbriefbanken*) were set up in the late 19th century in the Netherlands and in 1918 also in Germany – among them, Deutsche Beleihungs-Bank AG in Hamburg, Deutsche Schiffspfandbriefbank in Berlin and Deutsche Schiffskreditbank in Duisburg. More shipping mortgage banks were established in Germany after the Second World War, including: Schiffshypothekenbank AG in Lubeck and Deutsche Schiffsfahrtsbank AG in Bremen. Today, there are no longer independent shipping mortgage banks in Germany. The last of these – Deutsche Schiffsbank AG headquartered in Bremen and Hamburg – was taken over by Commerzbank AG in 2012 (Winter, Hennig & Gerhard, 2013, p. 1091–1092).

Under the new German law on covered bonds, virtually any bank may issue covered bonds, including shipping covered bonds, subject to compliance with specific rules and approval from the supervisory authorities. A shipping covered bond represents the issuer's obligation towards the buyer, to pay out interest and buy out the security within a time-limit specified in the prospectus. In sum, shipping covered bonds are special promissory notes issued by mortgage banks and other banks authorized to issue them in order to raise funds to finance the construction or purchase of a ship. These loans are usually paid off in the course of depreciation of the ships in service. The asset underlying issued shipping covered bonds are receivables on bank loans secured by a maritime mortgage. Shipping covered bonds are very reliable bearer's or sometimes registered fixed-rate securities. In the 100-year period, in which the system has been operating, not a single default has been recorded.

The great reliability of shipping covered bonds follows from heavy safeguards applied to the loans underlying these securities. Namely, they are legally secured against maritime mortgages and value-capped, meaning that the value of a loan secured against a mortgaged ship may not exceed any of the three amounts listed below:

- current market value of the ship;
- average market value in the last 10 calendar years;
- price of the construction or purchase of a new ship (VDP Die Deutschen Pfandbriefbanken, 2019).

An entity holding a shipping covered bond has recourse to the issuer. The bonds are kept on the issuer's balance sheet and included in a specially supervised register of securities. In the event of the mortgage/issuing bank's bankruptcy, the funds raised from the collection of receivables on the register may only be used to satisfy covered bond holder claims.

Table 2 illustrates the history of the market for shipping covered bonds in Germany in the years 2008–2018.

**Table 2. Market for shipping covered bonds in Germany in the years 2008–2017 (in million EUR) (Statista, 2019)**

| Year | New issues of bonds | Volume of covered bonds in trade |
|---|---|---|
| 2008 | 6054 | 9282 |
| 2009 | 1286 | 7954 |
| 2010 | 3189 | 7805 |
| 2011 | 895 | 6641 |
| 2012 | 3189 | 7246 |
| 2013 | 303 | 5792 |
| 2014 | 920 | 4811 |
| 2015 | 2208 | 5158 |
| 2016 | 0 | 3551 |
| 2017 | 0 | 2420 |
| 2018 | 0 | 1154 |

No new shipping covered bonds were issued in Germany in the years 2016–2018. At the same time, the number of bonds in trade decreased. This happened as a result of the falling demand for the construction and purchase of ships and the lack of bank funds (derived mainly from bank deposits for loans to shipyards and ship owning businesses).

## Discussion

A modern global economy would be hard to imagine without sea-going vessels responsible for almost 90 per cent of all transports in international trade. In 2017, 1604 ships were built (compared with 1669 in the previous year), including 535 dry bulk carriers, 440 container ships, 112 gas carriers (Clarksons Research, 2017). According to UNCTAD data, ship production worldwide was at 65 million tons (gross tons), of which 35.9 per cent fell to China, 34.5 per cent to South Korean, 19.9 per cent to Japan, 6 per cent to EU countries and 3 per cent to the Philippines (UNCTAD, 2018, p. 37). The largest shipyard in the word is Hyundai Heavy Industries, which took over South Korea's largest shipyard – Shipbuilding & Marine Engineering. The concern controls 20 per cent of the global market for commercial ship construction, holding USD 31.4 billion worth of

contracts for new vessels in 2019. In comparison, the combined contract value held by China's two largest shipyards – China State Shipbuilding Corporation (CSSC) and China Shipbuilding Industry, which are planning to merge amounts to USD 15 billion; the corresponding figure for Japan's two largest shipyards is USD 12.6 billion (Nitka, 2019).

The largest shipyards in Poland are Stocznia "Remontowa" S.A. in Gdańsk, Crist S.A. in Gdynia and Stocznia Remontowa "Nauta" S.A. in Gdynia (Instytut Studiów Wschodnich, 2018, p. 21–33). In 2017, Poland built 12 ships, including dry bulk carriers, one container ship, six ferries and two non-freight ships with 70 thousand gross cargo tonnage (CGT) (22$^{nd}$ place in the world). Also, Polish shipyards, acting as subcontractors for foreign shipyards, constructed 37 hulls and partially equipped ships (GUS, 2018, p. 215).

Ship construction requires large capital outlays. The first step is to finance the production cycle or shipbuilding expenses where 70 per cent is swallowed up by material costs. At the same time, shipyards need large investment outlays on capital-intensive shipbuilding infrastructure. In addition, financing needs to be provided for the accounting cycle spanning the time from take-over by the client to the time of payment.

The production process starts with receiving a request for quotations from a shipping company which is then used to make a preliminary draft offer. After the client's acceptance of the cost estimate, there follow negotiations as to technical, legal and pricing terms. The negotiation process is difficult and frequently ends in a fiasco. If the parties do come to an understanding they sign a construction and purchase contract for a ship. In the following step, the shipyard collaborates with a design company to produce the ship's detailed engineering and contracts with a classification association, such as Lloyd's Register of Shipping, Det Norske Veritas or the Polish Shipping Register. With the detailed design finished, work begins with constructing the hull and its accessories. Each stage of construction requires enormous financial outlays, for which the shipyard's own resources are insufficient. The shipyard needs to use third-party capital in the form of advance payments from the ordering party, bank loans, funds raised by issuing bonds, equity loans, fund-raising, merchant loans and other sources of funding.

Standard forms of financing of shipbuilding work include advance payments from ordering parties and bank loans. Advances, or pre-payments, are made by the ordering party to the shipyard, at the rate of 20 per cent of the ship's price. They are paid out in three instalments at the project's key milestones, i.e., after signing the contract, after the starting date of steelwork treatment, after laying the keel, or after starting the assembly process on a slipway or dry dock – either confirmed by an international certification body such as Germanischer Lloyd, Lloyd's Register etc., and after launching the ship. However, advances are paid out by the ordering party on condition of delivery of a guarantee from a bank, insurance company or another specialized institution (e.g., Export Loan Insurance Corporation) that the advance payment will be refunded in the event of failure to deliver the ship under contract. The most affordable guarantees for Polish shipyards come from the Export Loan Insurance Corporation, as they – as opposed to bank guarantees – do no obligate the shipyard to put up any collateral for the advance. Advance payments by ship-owner clients serve a two-fold function: firstly, they allow the shipyard to cover all its expenses of both materials and services and second, they ensure that the contractor will not withdraw from the agreement.

Performance bonds are very helpful to Polish vessel-exporting shipyards. They guarantee that the importer will receive payment specified in the bond in the event that the exporter fails to perform or performs the contract inappropriately and refuses to reimburse the losses or pay contractual penalties. Guarantees build trust. Their advantage is that they release the exporter from the obligation to apply other collateral. Also, they improve exporter credibility for foreign partners and frequently result in the signing of an export contract.

Another source of funds, supplementary to advance payments, with which to finance the construction of ships, is bank loans offered by domestic and foreign commercial banks as well as by public and international development banks specializing in preferential loans with lower than market-rate interest. A shipyard may also apply for a loan from non-banking institutions with possible options including various forms of credit and loans: short-term, medium-term and long-term, domestic and foreign currency loans, European currency market consortium loans and others. Financing for shipyards is usually supplied by large commercial banks headquartered in Oslo (DNB, Nordea), Rotterdam (ABN Amro, ING) and Hamburg (Deutsche Bank, Commerzbank). The offer of a loan or credit is conditional on the applicant's positive credit rating and ability to put up collateral to ensure repayment. Collaterals

include a mortgage established on the ship under construction, a registered bank pledge, a bank guarantee or a guarantee issued by another reputable institution, a bill of exchange, patron guarantee, etc. Shipbuilding loans are paid off, at least in part, from the ship-owner's final payment. It should be stressed that in an economic downturn on the freight market, on-going for the last ten years, banks are reluctant to grant loans to shipyards regardless of any collaterals offered (Christowa, 1996, p. 251).

A lesser role in the financing of shipbuilding projects is played by equity loans provided to shipyards by their owners. These are usually short-term loans intended to overcome cash flow problems resulting from delayed payments, e.g., delayed hand-over of funds by a bank. Also, equity loans are usually bound up with bank loans taken out to cover the cost of producing a series of ships.

As shipyards usually have little trade capital, they usually fall back on merchant loans provided by suppliers of shipping materials and equipment. In this scenario, the time-limit for payment for the goods provided is deferred until the ship is delivered to the client (Christowa, 1996, p. 251). The fact that a ship-building project has been completed and accepted by the client does not mean that the shipyard will receive payment instantly, or that the received payment will equal the balance of the ship's final price minus the sum of pre-payments. According to the shipping custom, the shipyard grants the client a long-term merchant loan secured against the mortgaged ship.

The time from hand-over of the ship to the client until the payment of the price is known as the accounting period. This also requires financing. To sustain its operations while awaiting payment from the client, the shipyard may re-finance its receivables in a commercial or state bank through what is known as seller's credit. An alternative solution for the shipyard may to be monetize its receivables by selling them to a factoring or forfaiting company.

## Conclusions

The development of the shipbuilding industry and maritime transport has strategic importance for both Poland and other EU member states. To maintain their market position, these two industries need to stay competitive globally. They are now facing heavy competition from Japanese, Korean and other foreign businesses, mainly from the emerging markets. These are not infrequently subsidized by governments, not only through generally acceptable support measures, such as preferential loans and guarantees, but also through other, clandestine means. Chinese and Korean shipyards are also being accused of price dumping which is difficult to prove. In this situation, European shipyards and ship owners need support from the state to ensure that they can compete globally. One form of support to be considered, besides preferential loans and governmental guarantees, is to subsidize innovative projects.

Now that financial markets offer a variety of financial instruments, shipyards and ship owners should have no trouble procuring funds for their operations. Of course, entities applying for funding need to have a good credit rating, that is, prove that the generated profits will be sufficient to make timely repayments. Recent years have witnessed a decreasing involvement of banks in the financing of the maritime economy. This is not because banks refuse credit to shipyards or ship owners, but because demand for cargo transports by sea has fallen, resulting in smaller demand for ships.

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