

# Assessing the Competitiveness of Shipbuilding Industries in China and South Korea: A Comparative Analysis based on Porter's Diamond Model

## Topic and Research Question

Global shipbuilding is a multi-billion dollar market which is mainly dominated by East Asian countries. South Korean shipbuilders became market leaders in global shipbuilding in the mid-1990s and have since then maintained their strong position. In 2005 the Chinese government announced a plan to establish the country as the world's leading nation in shipbuilding by 2015. Since then Chinese shipbuilders have gained significant market shares and are now challenging the South Korean supremacy. However, the industry has also been severely affected by the recent global economic and financial crisis. Due to a slump in new orders resulting in huge excess capacity, global shipbuilding is in a restructuring process and only the most competitive shipyards will emerge victorious from this crisis. For these reasons the author, through conducting this research, tries to shed light on the competitiveness of shipbuilding industries in China and South Korea by answering the following research questions:

- How competitive are the national shipbuilding industries of China and South Korea and what constitutes their key success factors?
- In which aspects are the national environments relevant to Chinese and South Korean shipbuilders similar or different to each other?
- Which role do the national governments of China and South Korea play for the success of their domestic shipbuilding industries?

In this thesis the key success factors of both nations' shipbuilders are revealed which allows their international competitors to direct their strategies accordingly. Also potential market entrants and foreign investors into Chinese or South Korean shipbuilding might benefit from this research as it enables them to gain a certain knowledge of special characteristics of the local environment and competitive context.

## State of the Art

While there exists a large body of scholarly work on shipbuilding, most of this literature focuses on particular areas such as port competitiveness, shipbuilding business or short sea shipping. Several scholars focus with their research on shipbuilding competitiveness, but comparative studies are less frequent. Major contributions to the field of shipbuilding competitiveness were made

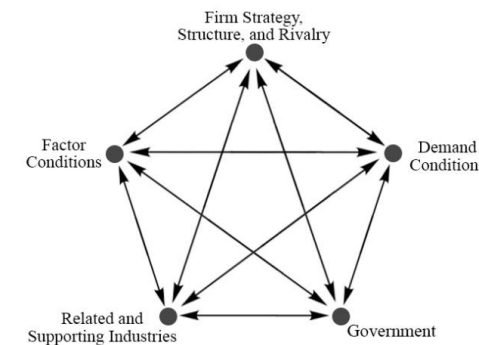
amongst others by Chou and Porter (1986), Storch and Lamb (1995), Bertram and Weiss (1997), Gebhardt and Jarvis (2003), Chou and Chang (2004), Rashwan and Naguib (2006) and Pires, Lamb, and Souza (2009).

Studies focusing on the shipbuilding industries of South Korea and China came to the fore in the 1990s when Korea became market leader and China started to expand its shipbuilding capabilities. Some of these studies which were of utmost importance to this research are amongst others the ones by Pai (2006), Collins and Grubb (2008), Krishnan (2011), Tsai (2011), as well as Jiang and Strandenes (2012).

From the literature discussed it seems that scholars basically agree on South Korea as the current leading nation in shipbuilding due to advantages in technology and human resources that lead to very high productivity. However, scholars also agree on China as the main challenger that is rapidly catching up. While scholars have identified a multiplicity of critical success factors in shipbuilding and applied very different methods to analyze the Chinese and Korean shipbuilding industry, most of them can be categorized into one of the dimensions of Porter's diamond model of national advantage which serves as the analytical framework for this research.

## Methodology and Approach

In this thesis the author makes use of Porter's diamond theory of national advantage to answer the research questions. Since the original diamond model requires some adjustments to be made in order to be applicable for the analysis of shipbuilding industries, the major points of critique of various scholars that have been working with diamond theory are incorporated in an extended and modified version of Porters diamond model which serves as analytical framework in this thesis. This model consists of five dimensions which together constitute the national environment in which a nation's companies operate. The five determinants of national competitive advantage are factor conditions, demand conditions, related and supporting industries, firm strategy, structure and rivalry, and government. For each dimension specific analytical criteria are applied for the analysis of shipbuilding competitiveness of China and South Korea. Data for the actual analysis is obtained from various types of documents such as academic papers and books, shipbuilding papers and journals as well as reports and websites of national and international shipbuilding organizations.



## Main Facts

China has the highest number of active shipyard and the largest shipbuilding capacity worldwide. Shipbuilders in China benefit from an abundant supply of cheap labor and shipbuilding steel. South Korea ranks second in terms of building capacity and Korean shipbuilders base their success on the very high labor productivity and the high quality of domestically produced ship subcomponents. Domestic demand for ships is higher in China than in South Korea, but demand for high complexity ships is much higher in Korea than in China.

Regarding related and supporting industries, Chinese shipbuilders benefit from the domestic steel industry which is the by far largest producer of steel products globally. However, while the Chinese marine equipment industry is still in a developmental phase, the South Korean ship subcomponent industry is highly competitive and supplies domestic firms with high quality products.

China's shipbuilding industry is still dominated by state-owned enterprises, but also private companies are competing for building orders and have gained significant market shares. In South Korea there is fierce competition between the three chaebol companies Samsung, Hyundai and Daewoo which dominate the domestic market.

Both the Chinese as well as the South Korean government regard shipbuilding as a strategic industry. While both governments try to support their domestic shipbuilding industry, government support and protection for the industry is stronger in China than in South Korea.

## Results

Chinese as well as South Korean shipbuilders are highly competitive by international standards. However,

they base their success on different factors, pursue different strategies and serve different market segments.

Chinese shipbuilders have competitive advantage in terms of labor cost and also benefit from a strong home demand for new ships as well as from the well-established domestic steel industry which supplies domestic shipyards with large quantities of shipbuilding steel at exceptionally low prices. The major competitive disadvantage of Chinese shipbuilders is the low level of the domestic ship equipment industry which forces them to rely on imports of major ship components. Overall most Chinese shipbuilders focus on the production of standardized low to medium complexity ships and follow a cost leadership strategy.

One of the key success factors of South Korean shipbuilders is the very high productivity which at least partly offsets their disadvantage regarding labor costs. In South Korea shipbuilding is integrated into a sophisticated maritime cluster and shipyards benefit from a highly competitive domestic ship equipment industry. Korean shipbuilders source almost all major components domestically which gives them competitive advantage in the construction of higher complexity ships. Due to advantages in shipyard infrastructure, technical know-how and the quality of ship equipment the major South Korean shipbuilders focus on the construction of highly complex LNG/LPG carriers for which they dominate the global market. In addition they hold a leading position in the construction of drill ships and offshore platforms.

## References

All references can be found in the full version of the MA thesis available at <http://othes.univie.ac.at/>

## About the Author

Michael Aistleitner holds a BA degree in Media Management from the University of Applied Sciences St. Pölten, Austria. This thesis is part of the Master's program East Asian Economy and Society at the University of Vienna.

Contact information:

[michael.aistleitner@gmail.com](mailto:michael.aistleitner@gmail.com)

