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A qualitative study of the competitiveness of the port of Thessaloniki

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Abstract

Nowadays ports are facing a fast-changing environment which imposes many alterations to their functions. As ports are trying to adopt to these circumstances, they search for ways that can enhance their competitiveness so as to get ahead of competition. The current paper puts the second biggest port of Greece, namely the port of Thessaloniki, under scope and efforts to find out how its competitiveness can increase. With the help of a qualitative study which is twofold, having an interview questions part and a competitiveness matrix one, explores the case of the port of Thessaloniki. The participants of the study were 30 maritime experts who operate in various sectors of Thessaloniki's port cluster. The results of the analysis indicate that currently the port of Thessaloniki does not have any competitive advantage in hand. Furthermore, the lack of superstructure in transshipments, in maritime accessibility and in general the container docks has been reported together with the advanced human capital, internal cooperation and the positive relationship between the port authority and the activities for maritime accessibility of the port. The port of Thessaloniki is proposed to follow a customer centric approach and focus on providing better quality opposed to its competitors while the already high pricing will be reassessed. The port should also invest vast amounts in upgrading its infrastructure and superstructure as well as scheduling talent acquisition and training programs that will gradually develop new human capital. Last but not least, the port is proposed to function as a logistic center that will transport containerized cargo to the Balkans via road and rail connections.

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1 Introduction

The current thesis is concerned with the competitiveness of the second biggest port in Greece. This port is the port of Thessaloniki. Thessaloniki's port has been privatized in 2018 and there is an air of change which aims at making it more competitive. The study mainly focuses on exploring the port of Thessaloniki with the help of literature review, specific analysis tools and most importantly the conduct of in-depth interviews with experts from different segments of the maritime industry who operate within the port cluster of Thessaloniki. As the case of Thessaloniki is examined from various different aspects, ways that will make it more competitive in the market are unfolded.

In this chapter, first a brief research background will introduce the case study leading to the problem definition. Afterwards, the aim of the study will be clarified, the research questions will be outlined and the relevant data collection will be presented. Last but not least, the thesis structure will be indicated functioning as a guide of all the different chapters and sub-parts of the thesis.

1.1 Research Background

Nowadays, ports worldwide are facing a fast-changing environment that puts pressure on them to reinvent themselves so as to retain, opposed to their competitors, their market share. In the past years the maritime industry has come across various new regulations regarding its operations and their social and environmental impact. Apart from this, the rise of containerization compelled adverse changes in the infrastructure and functions of each and every port around the globe (Fan et al., 2011). For instance, mega ships, the considerably increased scale of carriers and the consolidation of the shipping lines has even led to complete reforms of ports.

In their effort to adjust to these drastic changes, ports create strategic partnerships-synergies, commonly by either signing concession programs or other contracts with major companies. Their intension is to develop themselves, attain advanced performance and ultimately create competitive advantages that will make them more competitive in the market. In the literature there is abundance of factors that can potentially be utilized in order to define the competitiveness of a port (Tongzon, 2009), (Slack,1985). It is vital for all the firms, including ports as well to form competitive advantages that are comprised of unique resources so as to obtain a competitive advantage that can be retained (Barney, 1991), (Wernerfelt, 1984).

Literature has to offer many case studies that explore the competition or the competitiveness of various ports. The difference between port competition and port competitiveness has to do with the fact that port competition is the dynamic gain among various ports whereas port competitiveness is an expression of port competition and is about benchmarking one port in regards to another (Notteboom and Yap, 2012). Haezendonck and Langenus (2018) for instance, have developed a competitive matrix which captures a large variety of competitive factors that utilized for the case of the port of Antwerp. Similarly, other researchers looked up to other ports by running a competitive analysis and by using various types of benchmarks (Herrera, 1999), (Nicolae, Bucur and Cotorcea, 2018), (Dang and Yeo, 2017).

1.2 Problem Definition

The port of Thessaloniki has always been a port of great interest not only to the Greek maritime entrepreneurs but also to a wide range of international clients, mainly due to its beneficial geographic position. As the port's goal, now that it has been privatized, is to develop its functions and be established as a considerable competitor mostly in the Balkan area but also worldwide, it would have been expected to have a number of researchers making efforts to explore and potentially underpin this difficult task.

Opposed to this expectation, not many surveys have been conducted that are related to the competitiveness of the port of Thessaloniki in the post-privatization era and there is none which is focusing solely on it. Some past researches have been concerned with the logistics of the terminals and the financial state of the port (Christofakis et al., 2013) (Gogas, Papoutsis and Nathanail, 2014). In addition researches have been carried out about the development and restructure of the port from an environmental point of view without explicitly taking into consideration its competitiveness (Vayona, 2011), (Pitilakis et al., 2019).

Consequently less academical interest has been attributed to the study of the competitiveness of Thessaloniki's port. The current study is analyzing the case of Thessaloniki from many perspectives with an extensive qualitative survey in order to obtain insights for its competitiveness.

1.2 Aim of the study

By exploring the case of the port of Thessaloniki, mainly by conducting 30 interviews with key-managers and other employees who operate within the port cluster of Thessaloniki and secondly with the help of the literature and various analysis tools, the study aims at analyzing the current situation and searches for ways that can enhance the competitiveness of the port and ultimately tries to come up with concrete concepts and realistic proposals that can have a great impact on the competitiveness of the port.

1.3 Research Questions

In order to succeed in fulfilling the aim of the current thesis, it is imperative to break down the case study into different sub-parts which will facilitate the attainment of answers to some specific sub-questions.

The research question of the whole study is: **How can the port of Thessaloniki be more competitive?** As it is explained, there is a need of setting sub-questions which will assist in answering the main research question. The following sub-questions have been identified.

1) What is the background of the port of Thessaloniki?

2) How is the current situation of the port of Thessaloniki? What is the financial state of it? Which tools can facilitate the analysis of its external and internal environment?

3) How is port competitiveness defined from a literature review perspective?

4) Who are the main competitors of the port of Thessaloniki?

5) Which methodological approach should the thesis adopt? Are there any already used models that can be utilized and at the same time perfectly fit in this content?

6) Who is more capable of providing insights regarding the competitiveness of the port of Thessaloniki? What is the opinion of the selected port executives regarding Thessaloniki's port competitiveness?

1.4 Data Collection

The present thesis has a combination of both quantitative and qualitative data. Undoubtedly, the primary data obtained by carrying out 30 interviews with maritime experts, coming from different segments of the port of Thessaloniki, form the basis of the data collection. Each and every of the informants interviewed was not only asked questions but also was instructed to fill out a "competitiveness matrix". This matrix exactly functions as the main indicator of the competitiveness position of the port of Thessaloniki. The "competitiveness matrix" has been adopted by the study of Haezendonck and Langenus (2018) as it has been considered that this form of data collection perfectly fits with the objectives of the study. It has been acknowledged that different seasoned experts would fulfill the purpose of the study and thus, the case study of Thessaloniki's port has been chosen to be examined mainly by obtaining qualitative data from maritime experts who operate in the port of Thessaloniki.

At the same time the significance of gathering and presenting quantitative data has not been underestimated. As a consequence, the literature has been reviewed in order to first realize the concept of port competitiveness. Analysis tools such as the Boston consulting group's product portfolio matrix, the 5 forces of Porter, the SWOT analysis and the PESTEL analysis were also employed, so as to get a deeper understanding of the case of the port of Thessaloniki. For the completion of the analysis with the use of these tools, both quantitative data which are publicly available as well as empirical data have been utilized. Furthermore, statistical and financial data for the ports of interest of the current study were utilized as well in order to present the current state of these ports.

The assemblage of these different tools and of course the conduct of the 30 interviews brought the case study into life as all the information gathered from the abovementioned sources contributed to the in-depth analysis of Thessaloniki's port.

1.6 Thesis Structure

The case study is comprised of ten chapters, the content of which is presented separately below.

Chapter 1 – Introduction of the case study: This very first chapter functions as the preface of the thesis. In this way the problem is being addressed after the research background is being presented. In addition, the objective of the study as well as the research questions are being clarified. Following to this, the data collection is being highlighted.

Chapter 2 – Literature review: In this chapter the available literature regarding port competition port competitiveness is being reviewed. Subsequent to this, the various factors of port competitiveness are being acknowledged. The chapter ends with the exploration of the resource-based view which plays an important role in the thesis.

Chapter 3 – Research methodology: The methodology that has been followed is being explained in this chapter as follows: initially potential methods and models that can be used when it comes to examining port competitiveness are being presented, afterwards the roots of the selected method are reviewed and finally the approach of the current thesis is being analyzed.

Chapter 4 – Background of Thessaloniki's port: In this chapter the reader obtains basic information that have to do with the history of the port, its connections that play a vital role to the port's competitiveness and the assets of the port of Thessaloniki are being indicated. Last but not least, the Boston consulting group's product portfolio matrix (BCG) is being utilized so as to indicate the different cargo operations' shares in the port of Thessaloniki.

Chapter 5 – Financial and statistical data of the port of Thessaloniki: The most important and indicative financial and statistical data are being reported. This is being done by the presentation of specific tables which are followed by important remarks that facilitate the analysis of the case study.

Chapter 6 – Presentation of the main competitors: After a small introduction, 3 of the main competitors of the port of Thessaloniki are being reviewed. These competitors are the port of Durres, the port of Burgas and the port of Piraeus. At the end of the chapter other competitors are being briefly mentioned as well.

Chapter 7 – Analysis tools: The outcomes of the market tool of the 5 forces of Porter and the tools of SWOT and Pestel which explore the internal and the external environment of the port of Thessaloniki are being utilized and function complementary next to the main model which is presented in the following chapter.

Chapter 8 – Results: The results from the analysis of the findings of the 30 in-depth interviews are being reported. This is being done in the form of both text and figures that clarify the views of the respondents.

Chapter 9 – Discussion: In this chapter, the interpretation of the results together with all the findings of the current paper are being discussed. In this way the answers of the informants are being analyzed and useful information regarding the case of the port of Thessaloniki are being obtained.

Chapter 10 – Conclusion, limitations and further research: The last chapter of the thesis is dedicated to the summary of the key findings and the announcement of the key strategies that are proposed to the port of Thessaloniki. Last but not least, limitations and suggestions for further research are presented.

2 Literature Review

2.1 Introduction

The present chapter provides the basic pillars of the notion that lies underneath the competitive matrix that has been used for the qualitative study of this thesis, Port competition is the first segment, as the port competitiveness factors follow. At the end of the chapter the Resource based view, which functions as the key to the concept of the paper, is being explained.

2.2 Port Competition

It has been reported that port competition can be facilitated by the port policies' international harmonization and the limitation of government intervention (Goss, 1990), (Heaver, 1995). Researchers have noticed that port competition is not usually linked to a port as an entity (Coeck et al., 1997). In the past the fact that a port is essentially made up from a variety of functions and stakeholders that affect directly its competition was often overseen. Other researchers in the maritime field suggested that a port's competition is mainly determined by its position in a certain traffic class such as containers, liquid bulk or dry bulk (Slack, 1994), (Fleming, 1989). A large portion of authors explored the role of the location of one port and its relation with its competitive position. Hayuth and Fleming (1994) inferred that the location of a port is the biggest point of interest when someone explores its competition.

Even many years ago containerization has been seen as one of the biggest drivers of competition among ports (Miyajmi and Kwak, 1989). The rapid changes that the containerization entails, compels ports to continuously alter their tactics in order to adapt to the contemporary needs. More specifically, the rising size of vessels and the port reforms that are mandatory for the accommodation of such vessels, together with the fast-going technological needs set the competition standards of all ports really high in the container sector. Some ports which could not easily keep up with these changes in scales end up having a huge disadvantage towards more advanced ones (Baird, 1996). Even after more than a decade the views on containerization and its impact on ports has not changed as studies have noted (Fan et al., 2011). The same amount of drastic changes in ports' standards which in turn compels the use of new technologies and in general the introduction of new concepts exists in nearly all the other markets such as the chemicals or liquid cargo.

2.3 Port Competitiveness Factors

Authors such as Notteboom et al., (1997) argued that key factors in port competition are hinterland network, infrastructure standards and levels of productivity. Tongzon and Heng (2005) highlighted "the port (terminal) operation efficiency level, the port cargo handling charges, reliability, port selection preferences of carriers and shippers, the depth of the navigation channel, the adaptability to the changing market environment, landside accessibility and product differentiation" as the most important elements of port competitiveness. Contributing to the research of port competitiveness the view of Fleming and Baird (2010) mentioned among others the importance of the overall port productivity and the "comparative locational advantage". In a more detailed way Bichou (2007), proposed 3 distinct sets of variables, namely input measures, output measures and composite measures, which showcase the performance of a port. Last but not least, Cullinane and Wang (2009), emphasized the significance of the route factors, including accessibility, transit time, frequency, cost factors containing freight rate and various other shipping costs and service costs comprising of reliability and quick reflection towards problems etc.

When it comes to determining the criteria upon which a researcher will examine the port competitiveness of a port, many studies indicate different determinants as the most significant. The vast majority of past studies indicate the importance of the shippers and forwarders inside a port cluster (Slack,1985), (Branch,1986), (Bird and Bland, 1988),(Kumar and Vijay, 2002), (Nir et al., 2003), (Tongzon, 2009), (Tiwari et al., 2003), (Malchow and Kanafani, 2004), (De Langen, 2007). Other studies indicate more roles as criteria of great importance that have a great impact on the competitiveness and in general function of a port. For instance, Frankel (1992) underline the importance of the government inside a port cluster, while Acosta (et al. ,2007) highlight the significance of terminal operators. In the most recent years, more and more determinants related to technology and logistics start to play a more important role in port competitiveness. It is believed that technological development is an integral part of port competitiveness (Meersman et al., 2010). Port community systems and other systems that are technology based are considered to facilitate substantially a port in forming a competitive advantage (Cuadrado et al., 2004), (Córdova and Durán, 2014). There also studies in the port competitive literature showing the positive effects of horizontal cooperation between logistics firms that can enhance the competitiveness of a port (Cruijssen et al., 2007), (Leitner et al., 2011). Researchers have also pointed out that the inland connections and hinterland infrastructure are yet to be regarded as really important factors when exploring a port's competitiveness (Wan and Zhang, 2011), (Zhang, 2008), (Notteboom and Winkelmans, 2001a), (Notteboom and Winkelmans, 2001b) as well as the maritime accessibility (Peters, 2001).

At this point, it is very important to clarify that no matter what determinants are taken under consideration, port competitiveness is what is underline a position and can be viewed as an expression of port competition. Port competition is the dynamic gain between competitors whereas port competitiveness is linked to the individual situation of a port benchmarked in relation to its competitors. In this train of thought, port competitiveness is giving information about what is underline, what capabilities, strengths, advantages are linked to a port.

By taking into account all the various factors that are perceived to play a vital role in the competitive position of a port we conceive that maybe a combination of various factors might be the key in forming and identifying its competitive advantage.

2.3 Resource Based View

According to the Resource Based View theory a company can successfully develop a competitive advantage if it forms a strategy that is based on resources which are not easily duplicated by its competitors (Barney, 1991), (Wernerfelt, 1984). In general, the resources of a company can either be categorized as tangible or intangible. Tangible resources refer to physical assets such as land, buildings, machines, equipment whereas intangible resources can be for instance the brand name-reputation of a company or its human capital (Barney, 1991). Barney (1991) categorized these resources in 3 separate groups: physical capital resources (Williamson, 1975), human capital resources (Becker, 1964) and organizational capital resources (Tomer, 1987). Furthermore, the resources of one firm should be valuable, rare, inimitable and non-substitutable so as to ensure that they will form a strengthful competitive advantage. Only by employing a unique combination of resources that form a strategy which is aligned with the firm's instilled values and the needs of its customers can the advantage be characterized as a competitive one. Wishful thinking should be in place since even if a company manages to develop such a competitive advantage, it does not automatically mean that this will last forever or at least in the long-term (Barney, 1991:103). This remark in-turn implies that firms should continue reinventing themselves, keep adapting to the non-stop changing environment that they operate and revisit their strategies if its needed. In addition, other studies among other determinants stressed out the importance of customer responsiveness (Song and Panayides, 2008).

3 Research methodology

3.1 Introduction

Research methodology is the chapter of this thesis that is dedicated to explaining the approach of the methodology that has been used. The present chapter is basically divided into five sections. The first two sections, namely potential methods and selected methodological approach, are about the introduction of previous researches that suggest approaches which match with the profile of the current study and finally the one research that has been picked, because it is considered to be the perfect fit, is reviewed. Afterwards, in the third section the methodology of the paper is discussed more in detail. The last two sections have to do with the two major parts of the qualitative study which are the competitive matrix and its analysis and the interview framework.

3.2 Potential methods

In literature there is a variety of ways when it comes to exploring port competitiveness. Different studies consider different determinants as the decisive variables which define port competitiveness as it has been presented in detail in the literature review part. By taking into account different factors, various models come out. There is a plethora of relevant ready-to-use models that can be utilized for the analysis of port competitiveness and port competition in general. For instance, the game-theoretical approach (Anderson et al., 2008), port co-opetition (Heaver et al., 2001), (Song, 2003), multicriteria studies (Teng et al., 2004) and various modeling approaches resulting by empirical studies (Wan et al., 2018) have been used in order to examine port competitiveness. Gordon et al. (2005) utilized the Resource based view in their effort to find the competitive advantage of the port of Singapore. Acosta et al. (2007) explored the competitiveness of Algeciras port by using the extended diamond model of Porter. Interestingly enough, Gordon et al. (2005) underlined that it is more beneficial to not only include internal resources but also external when it comes to ports' competitive advantage studies. The present study has adopted the theoretical framework which has been first developed by the study of Haezendonck et al. (2000) and was referring to the competitiveness of the port of Antwerp.

3.3 Selected methodological approach

Haezendonck et al. (2000) formed a matrix which was based on the Resource Based View (Barney, 1991), the functional activities of a port viewed from the logistics chain side (Cooper, 1994) and the extended "diamond" framework (Porter, 1990). These

three components build up the concept that lies underneath the research. More specifically, Porter's diamond model contains the following factors: factor conditions, demand conditions, relating and supporting industries, firm strategy-structure-rivalry and the extended version has government as the fifth factor (Porter, 1990). Porter (1990) argues that certain conditions that underlie a firm or a nation which come from the abovementioned categories enable a firm or a nation to be more competitive. The Resource based view, as it has been explained in the literature view part has to do with the types of resources, that can form a competitive advantage. The bundle of resources should be comprised of resources that are hard to imitate, valuable, rare and non-substitutable.

It is believed that this model is the perfect fit for answering the research question of this paper because of the following reasoning. Ports and their surroundings are able of complementing one another in a way that synergies are formed. By combining this train of thought together with the concept of Resource Based View of Barney and Porter's diamond model, it is believed that ports can develop a competitive advantage by focusing on this kind of synergies. Consequently, by employing these concepts, it is attempted to explicitly explore the case of Thessaloniki and ultimately find out what lies under its current competitiveness, what has a negative and what has a positive impact on its competitiveness.

3.4 Outline of the methodology

After applying the abovementioned concepts in a similar way like (Haezendonck et al., 2000), so as to be adjusted to the case of the port of Thessaloniki, the competitive matrix was created. With the use of the competitive matrix the significance of all the resources of the port of Thessaloniki viewed from the scope of the logistics chain activities of the port and the conditions that Porter developed in the diamond framework, that may potentially prove to be a bundle that will lead to the creation of a competitive advantage, are assessed by the maritime experts.

The case study is basically based on a qualitative methodology which is twofold. Firstly, the informants of the study are being interviewed and secondly asked to give ratings according to their personal opinion on the competitive matrix that has been explained briefly above. By interviewing, obtaining and statistically analyzing the competitive matrixes which have been developed by (Haezendonck et al., 2000), it has been tried to spot the most significant perspectives of the port of Thessaloniki that have either a negative or a positive influence to the port's competitiveness.

Using this methodology which involves the views of 30 port executives into consideration, who mainly come from the 5 most important components of the port cluster of Thessaloniki, namely shipping companies, shipping agents, the port

authority, operational managers and the port management team, will let us infer how the competitiveness of the port of Thessaloniki can be enhanced by pointing out the estimated main ways that the port can strengthen its position in the market. The sample of the study is constituted mostly of top-level managers and a minority of middle level ones.

3.5 Competitive matrix

The matrix is constituted of the combination of the Michael Porter's diamond determinants (basic factor conditions, firm strategy, structure and rivalry, demand conditions, government, related and supported industries) and the basic logistics chain activities of a port categorized in three major categories, namely maritime access, activities port sector and hinterland transport. The maritime access segment contains the activities of maritime accessibility, the loading and unloading of conventional cargo and the loading and unloading of containers. Activities of the port sector entails transshipment, value added, activities by shipping agents, forwarders etc., distribution activities within the cluster and finally hinterland transport is about road and rail. In the following tables (Table 2 and Table 3) further explanation regarding the variables is presented. Table 2 and Table 3 explain what is meant with the different diamond determinants and the different logistics chain activities.

In practice each and every cell is made up of the combination of one of the diamond determinants and one of the logistics chain activity. In total there are 10 columns for the logistics chain activities and 13 lines which represent the diamond determinants. As a consequence, 130 different variables were taken into consideration. The 30 informants of the study were asked to fill out the matrix by attributing values in a Likert scale which means that the available values were -2, -1, 0, +1, +2. Table 1 showcase what is meant by these 5 values.

Following the collection of the matrixes, the data were imported in Microsoft Office Excel for pre-analysis processing. To prevent the system from crashing due to the sheer amount of data processed, the original table was split in to 3 sheets (Marine Access, Activities Port Sector, Hinterland Transport). After cleaning and checking for missing values the average value of each variable was estimated. Only 3 out of 3900 answers were missing which were filled with the variable's average. The use of z-scores was deemed necessary for the analysis. The matrix of z-scores was imported in IBM's SPSS 27 version. Since the program expresses each variable as a column the rows in the matrix were expressed as binary dummy variables.

The data were analyzed using linear regression and the standardized residuals were then computed. The results from the created model however cannot be used with confidence since the variance inflation number (VIF) was significantly high for the

majority of the variables. High VIF values for such complex matrixes express multicollinearity. As a result, the significance of each variable was undermined leading to higher errors in the model results.

The z-scores method has been used in order to lower the standard deviation of the data points from the mean. In this way, the validity of the results was secured as there were respondents who gave extreme values whereas others were moderate in rating.

$$Z = \frac{x-\mu}{\sigma}$$, z= z-score, x=value of a data point, μ= mean of all the data points,

σ= standard deviation of the sample

A regression analysis has also been applied with the intension to view which variables were in total more or less negative or positive. To do so, the categorical variables were encoded by binary dummy variables and a multicollinearity test was applied. Moreover, the standardized residuals which were calculated by the linear regression model were normally distributed. The residuals represent the difference of the real value of the z-score for each of the variables and the fitted values of the z-score which were computed by the linear regression model.

Furthermore, a factor analysis was employed in order to explore whether there are any relationships among the scoring variables. The likely relationships among the logistics chain activities are presented below in Figure 1 and the likely relationships among the diamond determinants are presented below in Figure 2.

Table 1, Matrix scoring explained

+2	High level, contributing substantially to Thessaloniki's port competitiveness
+1	Good-satisfying level
0	Something that is absent but does not have a huge impact on its competitiveness or something that is at a mediocre level in comparison with the competitors
-1	Low level
-2	Very low level or in a very early stage which means that the port of Thessaloniki is lagging behind its competitors

Author's creation

Table 2, Diamond Determinants explained

Infrastructure	On what level is the infrastructure of the port of Thessaloniki contributing to its competitiveness. Examples of its infrastructure are the quay, the terminals, cranes etc.
Superstructure	Refers to the level which the superstructure of the port, meaning the establishment of extra infrastructure other than the basics such as equipment for the energy feed of reefer containers or advanced cranes or straddle carriers etc.
Human Capital	How does the human capital in this segment contributes to the operations of the port
Logistical technology and communication systems	On what level are the logistics and communication systems and how much do they contribute to the competitiveness of the port
Intra-cluster competition	how fierce is competition within the port, if it contributes positively or negatively to the competitiveness of the port
Inter-cluster competition	how fierce is competition between ports, if it contributes positively or negatively to the competitiveness of the port
Internal cooperation	how well do all the different bodies which are involved in this activity cooperate within the port
External cooperation	how well do all the different parties who are involved in this activity, cooperate with either other ports or firms who do not belong to the port of Thessaloniki. Synergies can be attained in exchanging information, technology, building up relationships etc.
Clients relationships in cluster and outside the cluster	Are the relationships between the clients and the port on a high level, meaning that the values of trust, quick and efficient service exist? Do other clients who have not co-operated with the port think that the port has a client-centric approach?
Government intervention (port authority)	how does the port authority of Thessaloniki influence an activity
Government intervention (regional)	how does the municipality of Thessaloniki or other regional bodies influence a specific activity
Government intervention (national, supranational)	how does the legislation regime or political directives influence a specific activity of the port of Thessaloniki
Port supporting services (bank, insurance, etc.)	What is the role of banks, insurance companies, associations and other parties that support directly or indirectly the operations of the port facilitating the competitiveness of the port

Author's creation

Table 3, Logistics Chain activities

Activities Maritime Accessibility	Has to do with the activities of towage, mooring etc. as well as the depth and in general circumstances that the vessels face when they access the port
Loading/unloading conventional	Contains the loading and unloading that takes place both in the the container segment
Loading/unloading containers	Is concerned all the activities that are about the loading and unloading of containers
Transshipment of containers	Transshipment of containers within the port cluster
Warehousing	The activities of the warehouses managed in the port of Thessaloniki
Value added	refers to the extent that for instance all the infrastructure or the human capital as a whole of the port of Thessaloniki adds value upon its services.
Activities by Shipping agents, Forwarders etc.	Has to do with the role of the shipping agents and the forwarders who
Distribution Activities Within cluster	How fast and efficient is the transportation of cargo within the port cluster. Is it something that is on an advanced level that contribute to the competitiveness of the port?
Road	Concerns the road connections from the berth areas until the gates and the connections between the gates of the port and the rest of the city
Rail	Concerns the rail connections from the berth areas until the gates and the connections between the gates of the port and the rest of the city

Author's creation

Diamond Determinants	Logistics Chain	Maritime Access				Activities port sector				Hinterland transport	
		Activities Maritime Accessibility (towage, depth etc.)	Loading-Unloading conventional	Loading-Unloading containers	Transshipment of containers	Warehousing	Value added	Activities by Shipping agents, Forwarders etc.	Distribution Activities Within cluster	Road	Rail
Factor Conditions	Infrastructure										
	Superstructure										
	Human capital										
	Logistical technology and communication systems										
Firm strategy, structure and rivalry	Intra-cluster competition										
	Inter-cluster competition										
	Internal co-operation										
	External co-operation										
Demand conditions	Client relationships in Cluster and outside the cluster										
Government	Intervention of the port authority										
	Regional intervention of the municipality of Thessaloniki or other regional bodies										
	Intervention of Government National, supranational (European law)										
Related and supporting industries	Port supporting services (associations, bank, insurance, etc.)										

Figure 1, Competitive Matrix

Source: Author's creation based on (Haezendonck and Langenus, 2018)

3.6 Interviews framework

All participants in the interviews were informed in advance about the research either by an e-mail or by a phone call. During this initial contact the place and the time of the interview meeting were booked. In all the 30 interviews the place was the office of each informant. The interview questions function complementary to the matrix explained above and aim at obtaining even more insights from the maritime experts. The first questions were more introductory whereas the ones that follow refer to the key matters of the case study. The questions are being presented below.

1.) Could you tell me a bit about your role within the port cluster of Thessaloniki? In total what is your number of years of experience in the port?

2.) What do you think about the vision of the port of Thessaloniki? Are the values of the port related to its competitiveness?

3.) Is the port's strategic direction clear to you? how does it want to differentiate or perform as opposed to its competitors?

4.) Could you describe to me how your specific segment contributes to adding value to the whole port cluster?

5.) Which ports do you think that are the greatest competitors of Thessaloniki's port?

6.) Could you name the biggest strengths and weaknesses of the port? (ask follow-up questions regarding the strengths and weaknesses)

7.) Do you think that the port of Thessaloniki has developed a competitive advantage against its competitors? (ask to elaborate)

8.) In view of the future, do you think that the port of Thessaloniki is capable of growing its market share (or is there any fear for the opposite)? How could this be achieved?

9.) On what should the port of Thessaloniki invest and why?

10.)   How could the port of Thessaloniki facilitate your sector so as to help you be more competitive?

4 Background of Thessaloniki's port

4.1 Introduction

In this chapter basic information regarding the port of Thessaloniki is being presented. More specifically, a brief historical review and information related to its infrastructure and connections are indicated so as to introduce the background and main capabilities of the port. Last but not least, the BCG matrix is being used in order to view the shares and significance of each and every of the most important cargo operations in the port of Thessaloniki.

4.2 Review of the port

The port of Thessaloniki is the second biggest port in Greece and the largest transit-trade port in the country (Thessaloniki Port Authority, 2020a). It is situated in the northern part of Greece and has been linking various entrepreneurs and cultures via providing trade and transit services for more than 2300 years (Hellenicshippingnews.com, 2018). Its beneficial geographical position at the Thermaikos Gulf which enables it to have direct connections with many not only Balkan but also European countries form its competitive advantage (Espo.be, 2020).

Thessaloniki's port authority (ThPA) became a government owned port corporation in 1999, with the intention to reduce its fiscal expenses and in 2003 it was listed on the Athens Stock Exchange while the state still owned 75% of the shares (Pallis and Vaggelas, 2016). The port at that time starts investing on new equipment and gets ISPS (International Ship and Port Facility Security Code) certification, reinforcing its security standards. The human capital of the port is trained in accordance to the Port Development Program of the ILO (International Labour Organization). The container terminal, the conventional terminal and the passenger terminal get the certification of ISO 9001:2008. A black spot in the history of the port of Thessaloniki was the strikes that happened. In 2008 the strikes lasted for 18 months and in 2016 they lasted for about a month. The strikes influenced the reliability of the port adversely since more and more clients even nowadays want to make sure that there is not any possibility of a strike. Moreover, during the strikes of 2008, there was a flow of clients that turned to other ports for their services such as the port of Durres, enforcing their presence in the Balkan market.

The port of Thessaloniki got privatized after almost 13 years since the discussions about the privatization started and SEGT consortium acquired 67% of the port (Barnard, 2017). Guaranteed investments and other activities that should be done in

the upcoming years have been signed from the consortium in order to ensure that the port will be developed (Vaggelas and Pallis, 2020). Indeed important figures that have to do with performance such as total revenue and volumes got higher by 9% and 5,6% respectively (PortSEurope, 2019), (Thpa.gr, 2020). Even though performance has been seen to take a rise, there is still ample room for improvement and thus this is the main concern of all the managerial human resources of the port.

The concession aims at a complete reform of the port as the container pier is about to get extended and services such as RO-RO will be further developed. Apart from this, the mechanical equipment is expected to get upgraded so as to have a fully functional and effective port that can accommodate bigger vessels. In total, 180 million euros will be invested in the port of Thessaloniki. 130 million euros of this amount will be dedicated to the pier 6, which is the container terminal. More particularly, the pier will get extended, developed while its depth will increase. New equipment will also be obtained so as to not only have the needed infrastructure but also have sufficient equipment to carry out all the needed activities for a bigger vessel. The remaining 50 million euros will be mainly devoted to the development of the conventional terminal and in general the purchase of more advanced equipment. In regards to the road and train links there is a twofold upgrade plan. The Municipality of Thessaloniki has undertaken the project of enhancing the links that lead to the port and the port authority has undertaken the improvement of the road and train links from the gates to the berth areas. This plan is about to be implemented in the next 4 years.

4.3 Infrastructure and connections of the port

The infrastructure of the port includes 6 piers which have a length of 6200 meters long quay and the depth is 12 meters (Thessaloniki Port Authority, 2020a). To its advantage, the port has a 1000m long wave breaker which in combination with the temperate climate of the country, achieves no more than 0.7m waves inside the port making the it suitable for accommodating all types of cargo and passenger vessels (Thessaloniki Port Authority, 2020a). Another beneficial trait of the port is the fact that it has numerous railway and inland links which are presented on Table 4.

Table 4, Inland and rail connections

Egnatia Motorway	East-West pathway
PATHE Motorway (Patras-Athens-Thessaloniki-Evzoni	East-North pathway,
OEM Corridor	Linking 12 marine ports and 10 inland ports
PAN-European Corridor X	
TEN-T Core Network Corridor Orient-East Med	Eastern Mediterranean link

The port is also only 16km away from the city's international airport which has undergone enhancement by being renewed and the development of a brand-new terminal. With reference to other Balkan capital cities and ports there is Table 5 and Table 6.

Table 5, Road distance in km from Thessaloniki to other Balkan capital cities

Road distance in km	Belgrade (Serbia)	Bucharest (Romania)	Skopje (Republic of North Macedonia)	Sofia (Bulgaria)	Tirana (Albania)
Thessaloniki	630	680	230	290	390

Table 6, Sea distance in nautical miles from the port of Thessaloniki to other ports

Sea distance in nautical miles	Algeciras (Spain)	Alexandria (Egypt)	Burgas (Bulgaria)	Durres (Albania)	Constanta (Romania)	Izmir (Turkey)	Limassol (Cyprus)	Piraeus (Greece)	Venice (Italy)
Port of Thessaloniki	1693	678	443	840	529	254	653	252	1057
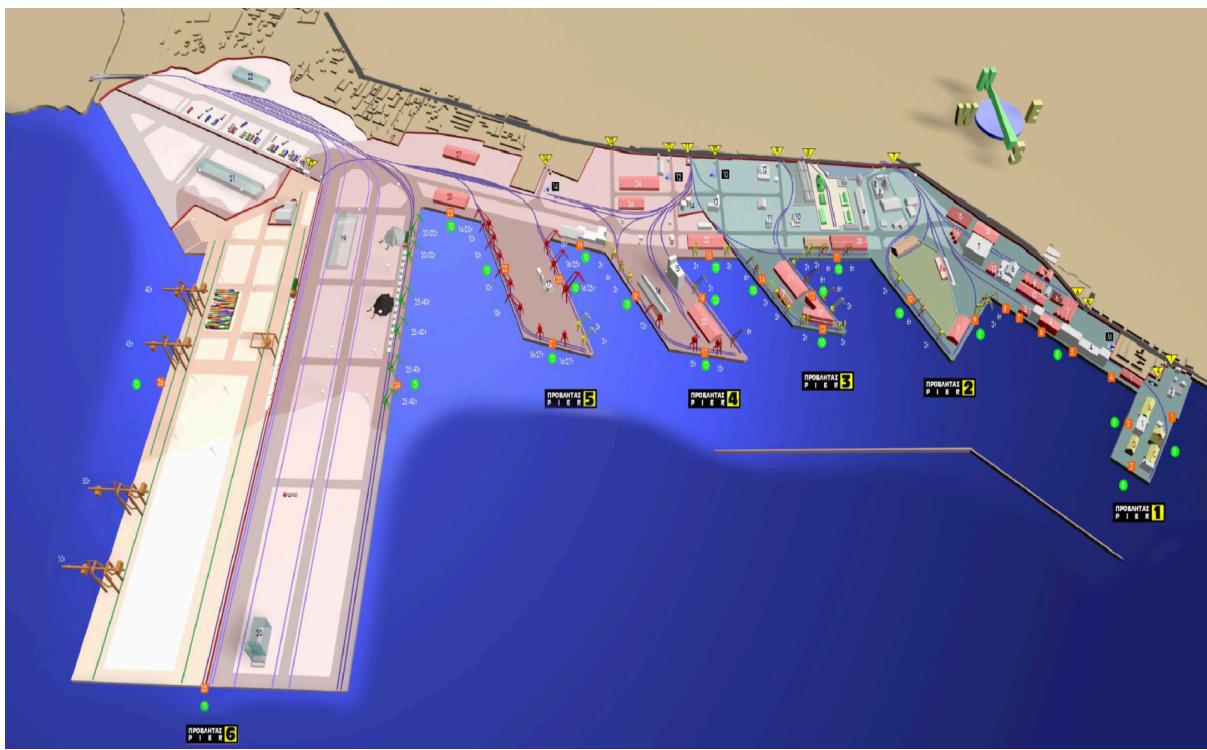
Figure 2, Port map

Source: (Thessaloniki Port Authority, 2020b)
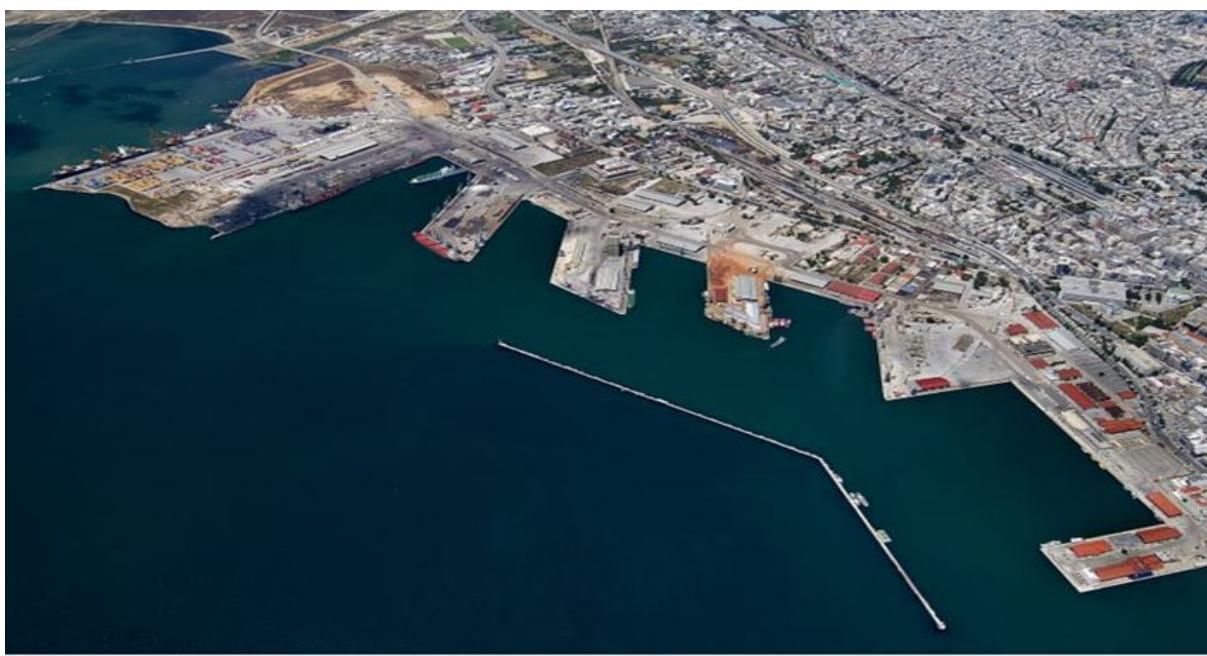
Figure 3, Port aerial plan Picture

Source: (Google, 2020)

Table 7, Infrastructure of the port

Pier	Quay	Length of Quay wall in meters	Sea Depth in meters	Construction Year	Crane Type	Number	Tonnage in tonnes
1st	1	325	8	1904			
	2	90	8	1904			
	3	200	8	1904			
	4,5,6,7,8	400	8	1904			
2nd	9	230	8,6	1904			
	10	320	10,1	1982	Ceretti Tanfani	5	3
					Ceretti Tanfani	4	6
					Ganz	2	10
	11	240	9,7	1939	Cowans Sheldon	8	6
3rd	12	240	9,2	1946	Cowans Sheldon	12	6
	13	135	10,1	1946			
	14	230	9,7	1946	Ceretti Tanfani	19	6
					Ceretti Tanfani	18	6
	15	175	10,4	1950	Ceretti Tanfani	7	3
					Cowans Sheldon	9	6
					Ceretti Tanfani	17	3
					Stothert & Pitt	21	3
4th	16	320	10,1	1962	Ceretti Tanfani	22	3
					Ceretti Tanfani	25	3
	17	190	11,1	2015	Ardelt Kranich	26B	100
					Ardelt Kranich	27B	100
	18	220	9,9	1962	Ceretti Tanfani	29	6
					Ceretti Tanfani	28	6
	19	175	8,9	1962			
5th	20	350	9,7	1963-1966	Ganz	31	25
					Ganz	32	25
					Ganz	34	27
	21	185	12	1963-1966	Ganz	33	27
	22	370	9,5	1963-1966	Ganz	35	10
					Ganz	36	10
					Ganz	37	10
					Ganz	38	25

	23	184	8,9	1963-1966	Ceretti Tanfani	11	6
					Ceretti Tanfani	24	6
					Ceretti Tanfani	3	3
6th	24	635	12	1972-1989	Ganz	39	32
					Ganz	40	32
					Rokas	41	40
					Rokas	42	40
					Rokas	43	40
					Rokas	44	40
	26	550	12	1972-1989		Γ/Φ 4	50
						Γ/Φ 3	50
						Γ/Φ 2	45
						Γ/Φ 1	40
	27	100	10	1972-1989			

Author's creation with data taken from (Thessaloniki Port Authority, 2016)

4.4 BCG-matrix

<u>Theoretical Frame</u>

BCG matrix is a strategic tool that enables the interpretation of a business according to two variables. These variables are market growth rate and market share. When it comes to applying this concept in ports the several different traffic categories of the port such as Ro-Ro, dry bulk, liquid bulk, chemicals, containers etc. can be treated as the "strategic traffic units" (STUs) as Haezendonck et al (2006) suggest. Originally it has been developed on the context of large firms with multiple business units. Its aim was to report how the business units grow in relation to each other and where the company should provide resources.

For the interest of the current paper the port of Thessaloniki's performance will be examined under the BCG matrix so as to clarify which of the port's traffic categories are seen to be more meaningful or lucrative in the future. Having a STU that has high market growth rate and high market share will determine it as a "star", while low market share and low market growth rate makes it a "dog". Furthermore, in cases where there is high market share and low market growth rate the STU is characterized as cash cow and finally every STU that has high market growth rate and low market share falls into the category of the "High Potential". "Minor Performers" do not create great profits nor do they make use of big numbers of money.

Consequently, this category is not considered to be of significant importance to a business as its possibility of growing and contributing more to the overall business is

small and at the same time it binds a relatively small but considerable amount of money, and thus having a big opportunity cost (Haradhan, 2017). On the other hand, "High Potential" have the possibility of entering either the quadrant of "Mature leaders" or the "stars" or even the "Minor performers" depending on the future of the market. Considering the complexity of the "question marks", it is usually instructed to be analyzed carefully in order to conceive the category that they will potentially lean on in an effort to decide whether the business should invest heavily or not on them (Adrian et al., 2009). Moving on to the category of "Star Performers", we realize that there is potential in "Stars" to become "Mature leaders" once their market growth decreases while they can still preserve their market share at high levels. The latter instance of "Star Performers" turning into "Mature leaders" is something that is desirable by all businesses and as consequence businesses plan their strategy accordingly. Last but not least, the category of "Mature leaders" influences the revenues of a firm substantially. By their large contributions to the firm's profits, firms can invest in Research and Development or focus on trying to facilitate the making of "High Potential" into "Mature leaders".
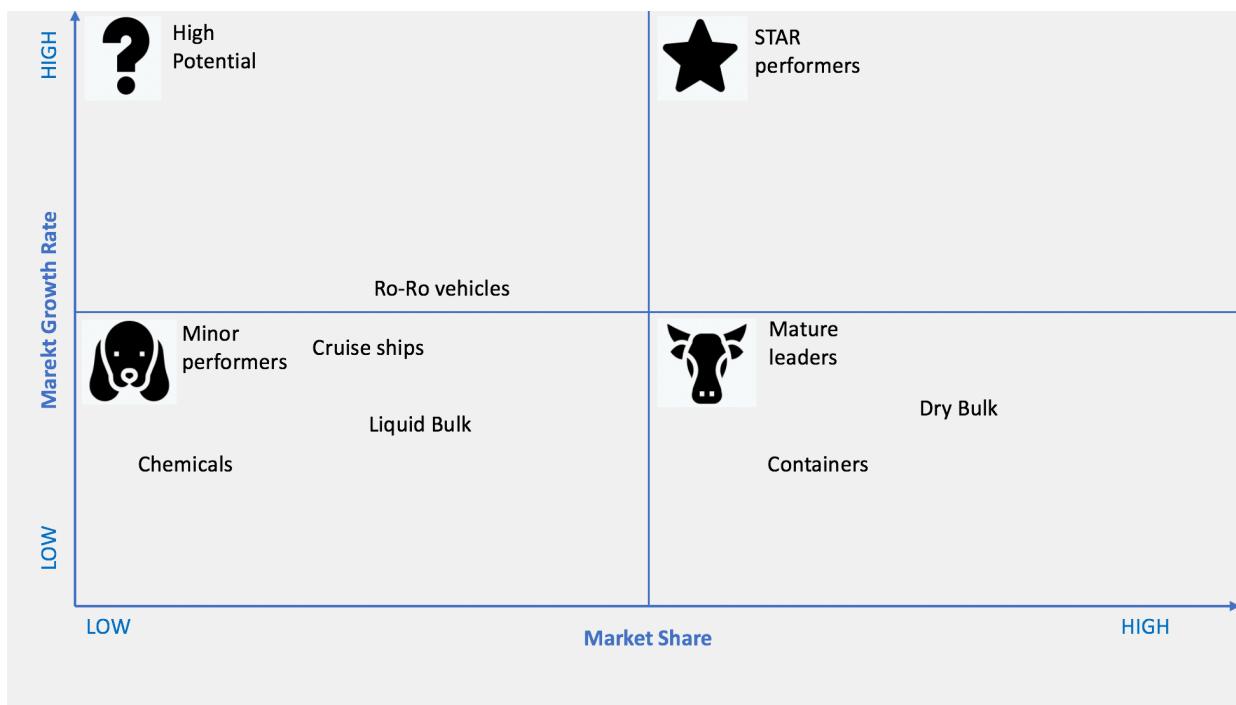
Figure 4, BCG Matrix for the port of Thessaloniki (2018 data)

Source: Author's creation based on (THESSALONIKI PORT AUTHORITY S.A., 2018)
and (THESSALONIKI PORT AUTHORITY, 2020)

Important Remarks

The year of 2018 was selected because it is the most recent year with available data that can be utilized for the completion of the BCG matrix. As the matrix above indicates, bulk cargo and containers are the two dominant activities of the port of Thessaloniki. Both these two activities constitute of the main sources of revenue. It has been concluded that there were no star performers. The Ro-Ro vehicles is an activity that the port of Thessaloniki wants to invest on. Maybe in the imminent future this specific segment will see a rise. It is believed though, that even after the investments that are stated inside the master plan, the Ro-Ro activity will not be able to pass the limits of the "High potential" category. Last but not least, the activity of passengers may be able to gradually pass to the "high potential" quadrant of the matrix as the attractiveness of the port and the whole city will grow. Casinos and hotels are planned to be built in the port, making the port more attractive to passengers. Furthermore, the touristic value of Thessaloniki will rise as the metro of Thessaloniki will be finished until 2023. In general, we should keep in mind that the BCG-matrix declares what is the current position of the various business activities without providing concrete information regarding why these activities are in this position. As a consequence, it is a way of visualizing the activities and should be considered as enriching information when a business entity is being examined.

5 Financial and statistical data

5.1 Introduction

In the following section there is an analysis of data from the port of Thessaloniki that will give a clearer view of the whole port in terms of ship arrivals, cargo traffic, financial data etc. The analysis is concerned mostly with the recent years, from 2014 until 2018. There is also a separate part where the period of interest is exclusively the years of 2017, 2018, 2019. By taking into account the fact that the privatization of the port of Thessaloniki happened in 2018 this part shows the changes between the year before and the year after.

5.2 Ship arrivals

Table 8, Ship Arrivals from all the port segments

Year	International	Domestic	Total	G.R.T	N.R.T
2014	1509	588	2097	21.257.738	10.579.417
2015	1328	656	1984	20.515.912	9.974.852
2016	1252	576	1828	19.492.871	9.458.976
2017	1341	595	1936	19.819.272	9.808.238
2018	1294	635	1929	17.550.708	8.483.852

Author's creation by using data from (THESSALONIKI PORT AUTHORITY S.A., 2015), (THESSALONIKI PORT AUTHORITY S.A., 2016), (THESSALONIKI PORT AUTHORITY S.A., 2017), (THESSALONIKI PORT AUTHORITY S.A., 2018)

Table 9, Ship arrivals by berthing area in container and conventional terminal

Year	Container Terminal			Conventional Terminal		
	International	Domestic	*Total*	International	Domestic	*Total*
2014	619	0	619	496	242	738
2015	500	0	500	429	325	754
2016	440	0	440	455	219	674
2017	521	3	524	483	241	724

2018	492	0	492	534	218	752

Author's creation by using data from (THESSALONIKI PORT AUTHORITY S.A., 2015), (THESSALONIKI PORT AUTHORITY S.A., 2016), (THESSALONIKI PORT AUTHORITY S.A., 2017), (THESSALONIKI PORT AUTHORITY S.A., 2018)

Important Remarks

- As we can see in table X, gross register tonnage has decreased throughout the years even though the table 8 indicates that the revenues in the 2 biggest segments of the port of Thessaloniki, namely the container and the conventional, in this period of time have increased.

- In table Y, we can notice that the domestic ship arrivals for containers has been almost absent in the container segment throughout the examined period, whereas the domestic one of the conventional port is pretty big.

- In total of all the segments and separately in the container and conventional segment of the port of Thessaloniki it is conceived that the international ship arrivals are by far bigger than the domestic ones.

5.3 View of the period of 2014-2019

Table 10, Seaborne cargo traffic (in tonnes)

Years	IN	OUT	TOTAL
2014	9.306.133	4.361.844	13.667.977
2015	9.862.560	4.645.782	14.508.342
2016	8.882.756	4.493.291	13.376.047
2017	9.245.947	5.486.505	14.732.452
2018	9.059.391	5.095.949	14.155.340

Author's creation by using data from (THESSALONIKI PORT AUTHORITY S.A., 2015), (THESSALONIKI PORT AUTHORITY S.A., 2016), (THESSALONIKI PORT AUTHORITY S.A., 2017), (THESSALONIKI PORT AUTHORITY S.A., 2018)

Important Remarks

- By looking at table W, we can see that the port of Thessaloniki is basically handling imports and not exports.

- The total number of cargo traffic in the port of Thessaloniki has risen throughout 2014-2018 but not in to a great extent. To be more specific, the percentage change from the year 2014 to the year 2018 is 3,56%.

- Last but not least, the exports have a percentage change of 16,83%, while the same number for imports is -2,65%.

Table 11, main financial data for the period of 2014-2019

	2014	2015	2016	2017	2018	2019
General liquidity ratio	7,17	7,67	7,97	8,62	7,28	8,39
EBITDA index	29,4 million	26,8 million	23,8 million	18,8 million	27,6 million	29,7 million
Equity	128,7 million	127 million	135,4 million	137,8 million	150,6 million	149,9 million

Author's creation with data from (THESSALONIKI PORT AUTHORITY, 2015), (THESSALONIKI PORT AUTHORITY, 2016), (THESSALONIKI PORT AUTHORITY, 2017), (THESSALONIKI PORT AUTHORITY, 2018), (THESSALONIKI PORT AUTHORITY, 2019), (THESSALONIKI PORT AUTHORITY, 2020)

Important Remarks

- According to the general liquidity ratio of the port of Thessaloniki we can conceive that liquidity has never been a problem for the port. The ratio declares how many times the short-term liabilities of the firm can be paid by the cash of the company. This in turn indicates that it is an economically-wise "healthy" organization which is something that makes the port worth of

investing and in general partnering.

- EBITDA means earnings before interest, taxes, depreciation and amortization is another type of metric that highlights the financial status of a firm. In this case, the port of Thessaloniki is shown to have a steady course throughout the past years

- Equity levels are having a rising course in this 6-year period, reinforcing the fact that Thessaloniki's port is financially "healthy" and is heading towards an even more profitable era.

5.4 View of the years in which the privatization happened (2017-2019)

Table 12, Basic Financial Data for the years 2017, 2018 and 2019

	2017	2018	2019
Container Terminal			
Total assets	32.300.156	34.141.873	34.141.873
Equity and Liabilities	4.661.050	4.912.731	4.912.731
Total Revenue	€ 35.395.033	€ 37.929.658	€ 44.681.172
Conventional port			
Total assets	6.172.633	6.826.433	6.826.433
Equity and Liabilities	5.058.701	4.850.303	4.850.303
Total Revenue	€ 16.936.830	€ 18.896.370	€ 22.286.190
All Segments			
Turnover	€ 54.231.940	€ 58.534.687	€ 68.981.070
Gross Profit	€ 21.809.467	€ 27.131.984	€ 32.204.034

Author's creation with data from (THESSALONIKI PORT AUTHORITY, 2018), (THESSALONIKI PORT AUTHORITY, 2019), (THESSALONIKI PORT AUTHORITY, 2020)

Important Remarks

- There is a considerable increase of the turnover and the gross profits between the year 2017 and 2019, in which years the privatization happened.

- It is also noticed that the revenues of the container terminal are higher and higher in this three-year period (2017, 2018 and 2019).

- Even though the revenues are much higher in the conventional segment the total assets that are utilized have been more than 5 times bigger in this three-year period.

- Equity and liabilities are at around the same size for both the container terminal and the conventional port in these years.

- It is also important to mention that the share of equity in total equity and liabilities is 0 both in the conventional and in the container port. Consequently, the assets of this both segments are financed solely by debt.

Table 13, Employee Data

	2017	2018	2019
Total employees	424	422	444
Total expenses for employees	€ 18.035.582	€ 19.068.438	€ 24.139.463

Author's creation with data from (THESSALONIKI PORT AUTHORITY, 2018), (THESSALONIKI PORT AUTHORITY, 2019), (THESSALONIKI PORT AUTHORITY, 2020)

TABLE 14, financial data for the period 2017-2019

	2017	2018	2019
Liquidity Ratio	8,62	7,28	8,39
Quick Ratio	7,75	6,52	7,51
Debt to Equity Ratio	0,13	0,13	0,13
EBITDA Index	34,76%	47,16%	43,12%
EBT Index	23,00%	42,25%	33,39%

Author's creation with data from (THESSALONIKI PORT AUTHORITY, 2018), (THESSALONIKI PORT AUTHORITY, 2019), (THESSALONIKI PORT AUTHORITY, 2020)

Important Remarks

- The liquidity ratio is in more than satisfying levels as it indicates that the assets that it owns can meet the obligations of the firm if they are to be paid.

- Similar to the liquidity ratio, the quick ratio (or acid-test ratio) shows that the company as it is now can for sure pay all its obligations at any time. These two ratios together with the EBITDA and EBT indexes show that the port of Thessaloniki is a stable and financially "healthy" company meaning that more and more investments may be allured in the future.

- As the debt to equity ratio indicates, the port of Thessaloniki has not solely relied on borrowing for financing its function. This once again means that it is an attractive firm in terms of investments, since it is more favorable for lenders and investors to finance such a firm opposed to one that has a higher debt to equity ratio, because their interests are more protected in the unlikely event of a firm decline (Grunert, 2020)

6 Presentation of the main competitors

6.1 Introduction

Having reviewed the port of Thessaloniki with the intention to explore its competitiveness, it is critical to delve into its main competitors when it comes to drawing a competitive analysis. In this chapter 3 of the greatest competitors of Thessaloniki's port are presented. These competitors are considered to consist of the biggest threats to Thessaloniki's port. The port of Burgas, the port of Durres and the port of Piraeus are analyzed in order to conceive what the port of Thessaloniki has to face. These 3 ports were also the ports that most of the respondents used as paradigms in order to evaluate the competitiveness of Thessaloniki's port.

6.2 The port of Burgas

The two major connections that the land of Bulgaria benefits from are the Orient/East-Med Corridor and the Rhine-Danube Corridor. The first one draws links from the German ports of Bremen and Hamburg through the Czech Republic, Slovakia and a part of Austria and then via Hungary to the Romanian port of Constanta, the Bulgarian port of Burgas, the Greek ports of Thessaloniki and Piraeus, providing also links to Cyprus and Turkey. The latter Corridor has established connections from Strasbourg and Mannheim and from Stuttgart and Munich to the Romanian ports of Constanta and Galati. The port of Burgas is situated in the region of Burgas bay, on the shores of black sea coast and is the deep sea port that is the closest to the Bosphorus (BMF PORT BURGAS, 2016).

The port of Burgas is private owned. Its "Terminal Burgas East was offered in a 35year concession plan to BMF Port Burgas EAD which brought a plethora of changes to the terminal, developing the whole port (Navibulgar, 2020).

The main terminals of the port are the Burgas East 2 and the Burgas West. The first terminal has 9 berth areas, one pier, 14,60 meters maximum draft and benefits from 163000 square meters uncovered warehouses and also 6000 square meters covered warehouses (BMF Port Burgas, 2020b). The Burgas West terminal is 641499 square meters and comprises of 6 berths, with the maximum draft being 11 meters and has one area of 442410 square meters of uncovered storage space and one of 31350 square meters covered area of storage (BMF Port Burgas, 2020c). The EAST Terminal mainly handles bulk cargo, whereas the WEST Terminal is basically handling containers. The port of Burgas is able to handle a large variety of cargo types which

are, bulk, general cargo, containers, trailers and liquid cargo (FEPORT, 2018). "The facilities available at the port enable both terminals to practically handle any type of bulk and general cargo, containers and trailers, as well as liquid cargo at the specialized berth#20A." (BMF Port Burgas, 2020a). Apart from this, the tariffs are on a very competitive level putting pressure on other Balkan ports which want to allure clients who are trading from or to the Balkan area.

Table 14, Port Certifications

Quality management system	ISO 9001
Occupational health and safety	ISO 45001
Environmental protection system	ISO 14001
Company	Bureau Veritas Certification

Author's creation based on

In the past year the port of Burgas managed to have overall better financial results which are indicated in the table above.

Table 15, Recent financial data for the port of Burgas

	Year 2018	Year 2019
Net profit in the first 9 months	490,588 euro	542,000 euro
Revenue January-September	2912866 million levs	3321690 million levs
Tonnes of cargo by port operator	303,478 tonnes	409,000 tonnes
Number of employees	175	178
Working capital	353121 euro	1124264 euro

Author's creation based on (Tanev, 2019).

6.3 The port of Durres

"The city of Durres is the second biggest Albanian city, the most ancient one and is situated in the north-western part of the Western Lowland of Albania" (Golgota, Golgota and Spahiu, 2012:155). The port of Durres, in particular, is situated in the center of the Northern Mediterranean, close to the Adriatic and the Ionian Sea. The port is only 300m away from the city center, 3km from the highway, 22km from the airport and 500m from the railway station (Durres Port Authority, 2020a). The main

cargo vessel lines that are active in the port of Durres are the following: CMA CGM, MSC (Mediterranean Shipping Company SA), MSD Levant Shipping, SL (Medazov Line), ZIM integrated and Shipping Services (Durres Port Authority, 2020b). The port of Durres is one of the most valuable pillars of the Albanian economy. Moreover, Durres has a 40km distance by train to Tirana, a 120km by road and 200km distance by road to Skopje and a 120km distance by train and 230km by road distance to Pristina (Vyshka and Metalla, 2016). "Port of Durres processes 77% of imports and 89% of exports to Albania; equal to 78% of all goods moving by sea at the national level. Containerized service has received a recent development in Durres" (Vyshka, Metalla and Cukalla, 2015). Furthermore, its direct employees are about 600 and indirectly it creates thousands of jobs inn many sectors such as transportation, distribution and banks (World Bank Group, 2016). The port of Durres has the advantage of being able to load and unload a lot of different commodities. These commodities are general cargo, grains, minerals, containers and ferry boats.

When the strikes happened in the port of Thessaloniki, a big part of the bulk commodities was allured by the port of Durres. That part has not entirely been kept within the port of Durres though, as many of these clients returned to the port of Thessaloniki when everything came back to normal.

Many reforms and investments have been made in the port of Durres in the past with the most significant ones which set the foundations of the port presented in the table below,

Table 16, Past investments in the port of Durres

"Mater plan of Durres Port	This is the very first master plan of the port of Durres which was created in 1994 and was a 4-year plan. It mainly concerned the movement of all the dangerous liquid cargo to Vlora's port.
"Ferry terminal"	This project had been implemented in 1995 with the help of the European Investment Bank which invested 5 million euros. Restoration and the structure of new quays were its biggest objectives.
"Durres Port project"	The financing of this project reached the amount of 23 million dollars and was implemented in the period of 1998-2004. The goal was to alter the port from inside so as to raise its performance and efficiency. Among other alterations, the port authority became autonomous, a plethora of port functions became private and in general the improvement of Customs' function was attained

	together with the enhancement of the infrastructure and the safety standards of the port.
"Port of Durres Infrastructure Rehabilitation"	A fund of 17 million euros from the European Investment Bank underpinned this project in 2001. Dredging and an environmental scope was added to the port of Durres apart from the further improvement of the quays and the purchase of new cranes etc.
"Container's Multimodal Terminal"	In 2002, 1,9 million dollars financing which focused on market analysis for the exploration of the multimodal container terminal potentials.
"Albania: Port of Durres project"	Reform and enlargement of the ferry passenger terminal with a fund of 40million euros in 2006. With the implementation of this project, the intervention of the politics was restricting and thus the fair competition in cargo handling was promoted with the introduction of new tariffs and dividends
"Hamburg port consulting"	In 2003-2008 intra-port cooperation was attained by the collaboration of the port of Durres with Hamburg port and matters such as operational performance and further reconsideration of the tariffs were in the center of attention.
"Establishment/Updating of the Masterplan"	In 2008 an ambitious new master plan was created with a view of the long-term future (until 2030) in which planning regarding environment, operations and investments were the biggest issues.

Author's creation based on (Ibrahimi, 2009)

The port of Durres went from a public port to a landlord one and its overall performance went substantially up comparing to what it was before the reform, as statistics such as waiting time, dwell time, total amount of commodities handled report (Metalla, Vyshka and Nexhipi, 2016).

Table 17, Terminals of Durres's port

General cargo and grains terminal	Quay length of 600-900meters with a complex of silos
Container terminal	Quay length of 450meters with an additional area of 55000 m^2
Ferry terminal	Square of 10 hectares
Dry bulk terminal	Quay length of 250meters

Author's creation based on (Metalla, Vyshka and Nexhipi, 2016)

The dry bulk terminal most commonly has commodities such as exporting cement, clinker and minerals as well as importing coal and is located in the eastern part unlike the container terminal which is in the northern one (Metalla, Vyshka and Nexhipi, 2016).

As studies in the field of port performance with the port of interest being the port of Durres have reported, its major strengths are the competitive tariffs, the certification for ISPS Code, the investments of the port on infrastructure, the competitive performance of warehousing companies and fact that it can handle a large variety of cargo (Vyshka and Metalla, 2016).

If we exclude the period of the pandemic of COVID-19 which had an adverse impact on almost all ports all over the world and in particular Durres faced a 41% traffic down, in December 2019 the port of Durres showed a 14,4% rise of cargo being handled in the port comparing to the same month of the previous year (Ullyett, 2020a), (Ullyett, 2020b).

6.4 The port of Piraeus

Piraeus' port is the largest port in Greece and among the biggest in Europe. It is situated on the Saronic Gulf on the western coasts of the Aegean Sea. It has a long history as a port dating back at 1924. The port of Piraeus can accommodate any vessel of any size and of any type. It is a considerable player in Europe and the Balkans with both advanced developed cruise and commercial services. It employs more than 1000 employees serves more than 24000 vessels per year (OLP, 2020b).

The port went under many changes throughout the years with 2 of the most important having happened in 2002 and in 2009. The concession contract was finalized and signed in 2002 between the Greek government and OLP SA which let the latter party

to exploit the land, buildings and facilities of the inland port for 40 years (OLP, 2020a). Furthermore, in 2009 one of the two container terminals which existed at that time was leased to COSCO. In 2016, COSCO created another container terminal. Nowadays, these 3 container terminals can handle circa 6.7 million TEUs. With COSCO investing more and more in the port of Piraeus and the fact that it has one leased container terminal and created another one, 51% of the whole container segment is COSCO's property (Plataniotis, 2018). COSCO aims at developing further the port of Piraeus and linking not only Piraeus' port but also the whole Europe with Asia through the One Belt One Road action, by providing inland connections from China directly to Europe.

COSCO bought 51% of the shares of OLP in the price of 280,5 million euros and in the future, it will have the chance to buy 16% of the shares of OLP in the price of 88 million euros as long as all the agreed investments have been made. In addition, COSCO is held liable of investing 350 million euros in the port of Piraeus until 2026 (FOUNDATION FOR ECONOMIC & INDUSTRIAL RESEARCH, 2016). The investments of COSCO in the port of Piraeus are constantly revisited resulting into the introduction of new trade deals and concepts which will further raise the competitive position of the port. For instance, after a recent visit of Mr Xi from the side of COSCO with the prime minister of Greece Mr Mitsotakis a loan of 140 million euros for the facilitation of COSCO's investments in the port of Piraeus (Georgiopoulos, Koutantou and Maltezou, 2019).

Table 18, Main advantages of Piraeus' port

Beneficial location, providing links to Asia, Africa and Europe
Ability to serve each and every type of vessel, independent of size and cargo type
Advantage of having a free zone
Both the car and the container terminal work 24-7 during the whole year
Competitive tariffs based on scales for the transshipment and cars and competitive cost scheme in logistics
Advanced logistics and technology related information systems

Author's creation based on (OLP, 2020b)

The fact that heavy investments took place, primarily by COSCO, in the port of Piraeus together with the main advantages presented above contributed to a huge

growth over the past decade. In 2016 the port of Piraeus handled about 3.7 million TEU which is a 167,7% increase from the corresponded number of containers which it handled in 2007, which was 1.4 million TEUs (Plataniotis, 2018). Right now, the port of Piraeus is ranked as the 6th biggest container port in Europe.

6.5 Other competitors

After the developments that are about to happen in the port of Thessaloniki, it would be meaningful to take into account competitors such as the port of Rotterdam or the port of Hamburg. The port of Thessaloniki is trying to achieve better performance mainly in its container terminal and allure as many new clients as possible. Since its container terminal will be reinforced, its competitiveness will grow substantially which may potentially trigger competition between the port of Thessaloniki and various ports of north west Europe.

Currently, ports that are located in Turkey, such as the port of Izmir or the port of Mersin, constitute of a threat to the port of Thessaloniki as they already compete in both conventional and container cargo.

Last but not least, the port of Kavala and the port of Alexandroupoli may potentially be a threat to the port of Thessaloniki, mostly for the conventional cargo as both ports are scheduled to be privatized in the imminent future. As the privatization is planned to happen, investments will reform these ports and make them more competitive against the port of Thessaloniki which *operates in the* same geographic area. The existence of many agriculturally based businesses in those areas, may increase the interest of trading directly from those ports instead of trading through the port of Thessaloniki.

7 Analysis tools

7.1 Introduction

In this chapter four distinct tools, namely the five forces of Porter, PESTEL (Political-Economic-Social-Technological-Environmental-Legal) analysis of the port of Thessaloniki, SWOT (Strengths-Weaknesses-Opportunities-Threats) analysis are employed in order to further examine the Balkan port market and the port of Thessaloniki from several significant aspects. It is believed that specifically these 3 tools will provide a representative image of the port of Thessaloniki's current state which will simultaneously indicate possible future directions in regards with its competitiveness level. By taking into account that each and every port is unique we can securely infer that it should be explored in its own special frame from many different perspectives in order to reach to conclusions in terms of its overall strategy and competitiveness plan. These 3 tools will function complementary to the Diamond matrix, with the intention to give a broad view of the port.

The data used for this chapter are composed of both the literature and an empirical analysis. Acknowledging that not all information about the Balkan market and the data needed for the SWOT analysis and the PESTEL analysis are publicly available as some constitute of a critical assessment of the case of Thessaloniki, the insights of port experts, who also participated in the qualitative part of the research, were taken into consideration for the completion of this part of the thesis .

7.2 Five forces of Porter for the Balkan port market

Theoretical Frame

The five forces of Porter were created by Michael Porter, who is a Harvard Business School Professor and was published in Harvard Business Review in 1979. As Johnson et al. (2008) explain the perspective of M. Porter's tool is "outside-in" as light is shed on the external environment of the firm. In addition, the basis of the concept of the 5 forces of Porter is inspired of the Industrial economics (IO). (Raible, 2013) and (Slater and Olson, 2002) argue that the IO concept prescribes that the attractiveness of a market is dependable on the market structure and the which in turn influence the actions of the market contributor. As a consequence, it makes sense to define and analyze the market structure and contributors exclusively so as to obtain a thorough assessment of the market of interest. M. Porter constructed a market tool that can be utilized in order to mainly look closely at the different aspects of a market and

derive useful information about the market under scope (Porter, 1985). This tool facilitates firms to shape their strategy and reinforce their position in the market that they operate (Porter, 1980). According to Porter (1979), it is fruitful to examine the competitive environment of a company either by reviewing the company's competitors/contributors or by defining a broader framework in which the company functions. To do so, 5 specific forces that are believed to have a great impact on any market and in the end form its ability to evolve and change, were selected. These 5 forces are the following: Rivalry among existing competitors, bargaining power of buyers, threat of substitute products, bargaining power of suppliers and threat of new entrants. Below the 5 forces are explained separately.

5 Forces of Porter

- Rivalry among existing Competitors
- Threat of New Entrants
- Bargaining Power of Buyers
- Market under scope
- Bargaining Power of Suppliers
- Threat of Substitute Products
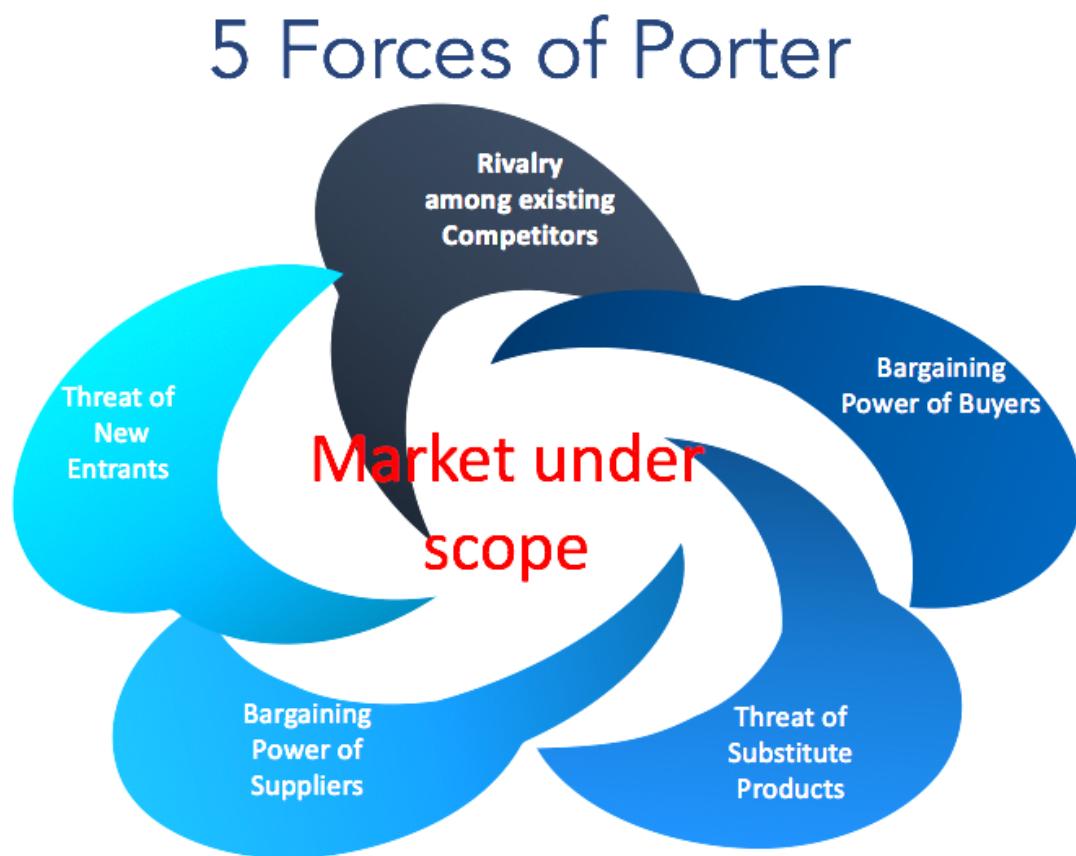
Figure 5, Visual representation of the 5 forces of porter

Source: Author's creation

Table 19, Explanation of the 5 forces of Porter

Rivalry among existing competitors
is concerned with the level of competition in the market. As the competition among existing players gets fierce many firms choose to alter their pricing policy and make it more competitive as it should be in accordance with the competitors so as to allure more clients. Firms also may focus on introducing innovation, new products/services and promote their products via advertisements (Porter, 1985). It is also important to mention that firms are expected to practice the abovementioned strategies on an extent that varies upon the level of competition (Hubbard and Beamish, 2011).
Bargaining power of buyers
Buyers' actions can be determinantal for the function and strategy of a company. For this reason, firms should take into consideration how and to what extent their power can have an impact on their operations.
Threat of Substitute
threat of substitution should not be overseen when someone examines the external environment of the market of a company. As such, the buyer's intention or desire of utilizing substitutes and the quality or the fact that substitutes can influence the costs of a firm should be taken into consideration (Hubbard and Beamish, 2011).
Bargaining Power of Suppliers
Suppliers are of great importance in any market as they can directly influence the firms which operate there. For instance, they can raise their prices and thus make the firms to increase their prices or find other potential suppliers.
Threat of New Entrants
encloses the possibility of new players to be established in the market. "new entrants to an industry bring new capacity, and the desire to gain market share that puts pressure on prices, costs and the rate of investment necessary to compete" (Porter, 1985:8). This force is highly dependable on the size of the barriers to entry that exist in the market. New entrants can have an impact on the existing players as they may be led to change their strategy and adopt new strategies that will be needed in order to sustain their market share.

Author's creation mainly based on (Bruijl, 2018) and (Porter, 1979)

5 Forces of Porter in the Balkan port market

Rivalry among existing competitors

HIGH- highly intense competition, internationally (port of Durres and port of Burgas) and relatively high rivalry nationally (port of Piraeus) (Kaloyanchev, Kusen and Mouzakitis, 2018), (Gabrisch, Hubert et al., 2016)

Bargaining power of buyers

LOW- the growth rate of each country is inseparable from the bargaining power of buyers. The economic state of each country also plays an important role in defining the bargaining power of each potential buyer. It is safe to say that external factors i.e. economic crisis, corona virus etc. set a limit on the bargaining power of buyers at each occasion (OECD, 2020). Taking under consideration that the Balkan area offer a large number of buyers with equally small trading activity we can then infer that the bargaining power of buyers can be characterized as low (Sanfey and Milatovic, 2018).

Threat of Substitute

LOW- most of the industries in the Balkans are heavily relying on the seaborne trade which also function complementarily with the hinterland. Trading tons by air does not constitutes a big threat as the cost increases substantially and for the most types of cargo it is not beneficial to use the aviation industry for the same reason.

Bargaining Power of Suppliers

MEDIUM- abundance of cargo that goes between the Balkans and the rest of Europe (Eurostat, 2020). There is not a large number of suppliers but it is sufficient for the needs of the ports and in most of the ports, suppliers are integrated with the city and the ports, creating synergies (Global Relations Policy Insights, 2019).

Threat of New Entrants

LOW- it is difficult to develop the needed infrastructure and technology in order to be competitive. Requirement of huge investments and a lot of time for someone to enter the market are in place, lowering the possibility of "new-comers" to get in the market (European Commission, 2017).

Important Remarks

Considering all the above, since there are not two or more of Porter's forces at a high level, we can infer that the market of the Balkan is relatively attractive. Considering the lack of infrastructure and the relatively medium-low quality of services usually offered in the market, new entrants may be able to enter if only they can provide medium-high quality of services but be competitive in their pricing policies. As it has been mentioned in the "Threat of new entrants" part, it is rather difficult for a completely new player to get into the market. What is possible though, is the reform of an already existing player by making investments or by being privatized. As the recent past shows, more and more major ports are being privatized in the Balkans (port of Durres, port of Piraeus, port of Thessaloniki) repositioning themselves in the market, alluring more and more clients by being more competitive.

7.3 PESTEL analysis

Theoretical Frame

PESTEL analysis is commonly proposed when it comes to researching the external environment of a firm (Johnson and Scholes, 2000; Johnson et al., 2005). As Eren (2002) argues the macroeconomic environment of a firm is comprised of the political, economic, socio-cultural, technologic, ecologic and legal factors. It is further believed that these factors exactly, either directly or indirectly have an impact on the functions of a firm (Ülgen & Mirze, 2007). In the literature there is not just one way of exploring the macro-environment of a company as many different types of analysis have been introduced (Lynch, 2009). The first time this kind of tool was introduced was by Aquilar (1967). Aquilar (1967) developed the ETPS model (economic, technical, political and social) at that time.

In this study the model of PESTEL is being used even though other similar models have been developed such as PEST (Dare, 2006) or STEPE (Richardson, 2006). PESTEL analysis has been utilized in examining many different segments (Katko, 2006), (Richardson, 2006) and (Shilei and Yong, 2009). The PESTEL analysis as a tool facilitates a firm in developing its strategic management plan (Dinçer, 2004). The first to utilize the PESTEL analysis which is an acronym that stands for Political, economic, social, technological, ecological and legal, was Katko (2006). The concept of carrying out such an analysis has to do with the examination of the macroenvironment of a company. A PESTEL analysis is performed when the researcher is interested in studying the environment in which a business entity operates. The external factors of a firm with which the PESTEL analysis is concerned are factors that a firm cannot fully

control (Sammut-Bonnici and Galea, 2015). In the following table the different categories that a PESTEL analysis encloses are briefly explained.

Table 20, PESTEL Analysis explained

Political	Is about the intervention of the government together with other political factors and impacts that political parties have on a specific firm.
Economic	Is concerned with all the different influences that the economic surroundings of a business entity face from its environment. This may include the growth rate, the interest rates, unemployment levels etc.
Social	Encloses the behavior of the people that are directly or indirectly linked to the business entity under scope. The behavior of the people is heavily influenced by the demographics of a place.
Technological	Has to do with the research and development as well as the innovation that has an impact on the firm which is being examined.
Environmental	Includes all the factors that are derived from the eco-friendly point of view and is related with the effects of the weather, the climate, the potential impacts of the operation of a whole industry or a single firm etc.
Legal	Consists of all the factors that stem from the law and play or may play a role in the function of a company.

Author's creation

In this case, the PESTEL analysis facilitates the examination of the port of Thessaloniki from the political, economic, social, technological, environmental and legislative aspect. Each and every of these viewpoints should be investigated at first separately and then be considered in combination with the each other.

Political

- Government wants to allure foreign direct investments and thus promotes it by giving subsisdies and by actively participating in negotiations with invenstors (GTP, 2019).
- Government wants to upgrade Thessaloniki's port as they see a great interest in it.
- Government facilitates the privatization of the greek ports and in the same time enforces the buyers to invest on specific amounts of money, with

specific plans, holding them liable for the levels of investments they bring in the country (ΟΛΘ, 2020)

- Government imposes low labor wages which in turn lower the expenses of the ports making them even more competitive towards foreign competitors (Tradingeconomics, 2018).

Economic

- Greece has not yet overcome its financial crisis and thus trade is not thriving in this unstable economic frame (Varoufakis, 2020).

- Banks are providing loans with low interest rates relatively easily in Greece, enabling big entities to have investments (Tradingeconomics, 2020).

- A large number of European financial programs and subsidies are provided to greek companies such as ESPA contributing to the increase of availability of credit.

- After the 2008 recession in Greece, the greek unemployment rates are in low levels which is a bright sign of a healthy economy (Plecher, 2020).

- The ups and downs of the worldwide prices of raw materials and goods in general have a direct impact to the inputs and outputs of all ports (World Bank, 2020).

- European countries enjoy the power of the euro as a currency and the same holds for Greece (Francesco and Efstathiou, 2018).

- The business cycle stage that Greece is currently in is recovery since all the indexes are recovering from the past devastating recession (Focus Economics, 2020). This means that it is highly luckily to further ascend and establish a healthy economy in the imminent future.

Social

- The touristic value and overall Thessaloniki's attractiveness will rise as the metro of Thessaloniki is expected to be fully operational in 2023 (Bogaers, 2020). Metro will enhance the image of the whole city as it is a city which has always been relying on its bus links. The completion of the metro of

Thessaloniki will in turn alure more and more tourists as well as invenstors.

- The vast majority of the people who live in Thessaloniki have accepted the port as an integrated part of the city. The port of Thessaloniki creates directly and indirectly a large number of vacancies.

- Concerns may raise because the master plan of the port of Thessaloniki subsequent to its privatization because it incorporates the accomodation of bigger vessels with bigger depth and bigger berth area and thus possibly higher levels of emissions (ΟΛΘ, 2020).

- The greek society increasingly have higher standards regarding the shared value strategy of the port with citizens who do not have any relationship with the port, question its environmental impact and in general its added value to the city. The environmental policy of a port can enhance its competitiveness directly. For this reason, all major European port authorities encompass eco-friendly strategies in their mission and vision (COGEA, 2017).

- The current master plan entails changes regarding the first pier of the port. Hotels as well as a casino are planned to be built. Furthermore, even now there are some bars and restaurants in the first pier and the biggest film festival of the country is being held every year there. As it is recognized that there are a lot of activities for the citizens in the port and more are yet to come, the port should try to implement these plans in a way that the environment will be respected so as to enhance the port-city relationship and in general the relationship that it has with the regional bodies.

Technological

- There is continuous flow of information regarding new port-related technologies and new concepts that are able to enhance port performance. Sometimes certain technologies are mandatory for some types of vessels and customers. As a consequence, ports are directly influenced by the developments of new technologies which are seen to be one of the key factors when it comes to competition.

- New technologies usually result in not only better performance but also in the reduction of the human resources needed within the port cluster (MarketPlace, 2019)

- The evolution of digitalization alters the way all port clusters components work in a way that there is a compelling need for advanced initial training programs or re-education or the hiring of employees with certain knowledge in specialized technologies (Inkinen, Helminen and Saarikoski, 2019).

Legal

- Greece's law is adopting the provisions of the European one, making the Greek port-related legal standards high as they are at the same level as the European ports.

- The Greek legislation is in favour of the trade and the port industry.

- The Greek legal frame has clear directions towards custom declaration, custom clearance and in general tariffs for nearly all types of cargo making this kind of actions relatively easy and quick.

- Greek legislation is in accordance with electronical ways of functioning in the maritime industry reinforcing the ease of payments and documentation.

- New provisions of the tonnage tax which have to do with replacement of the annual doubling voluntary tax (Constantinou, 2017) by a 10% dividends tax payment on a yearly basis (Athanasiou, 2019) making the Greek flag even more competitive for shipowners.

Environmental
- Large amounts of dust are released in the atmosphere of the city daily by the activities of the bulk cargo inside the port as there is absence of windbreakers. As it has been found in the past the air pollution in the areas close by the port of Thessaloniki has a high concentration of pollutants (Valavanidis, Vlachogianni and Loridas, 2015)

- Even though the port has already adapted to the IMO 2020, the rules that IMO 2050 mandates are yet to be achieved putting pressure on the port (IMO, 2020).

- Climate change, creates uncertainty to the port because the changes of the physical phenomena such as denser rainfalls for instance creates problems with the handling of some types of bulk cargo and in general the infrastructural assets of a port are vulnerable to climate changes (Asariotis, Benamara and Mohos-Naray, 2019)

Important Remarks

If we are to correlate the environment of a business to its competitiveness, we will conceive that it is vital for any business to evaluate the pros and cons that its environment entails so as to exploit it in the best way possible and thus be more competitive. As the external factors of Thessaloniki's port have been examined through the PESTEL analysis, it is really important that the port of Thessaloniki should look closely to the fact that the Greek government underpins the actions of the port. The port authority should make sure that all the upcoming investments will actually happen and facilitate the port in the best way possible. The concession agreement and the current master plan should be only the starting point of further planning and the beginning of developments that will enable the port of Thessaloniki to go ahead of its competitors. Moreover, the port of Thessaloniki should try to build up its relationship with the city further and develop its technological equipment in order to be more competitive. Last but not least, on no account should the port of Thessaloniki oversee the importance of complying with the environmental regulations, since sustainability as a concept and the directives of the IMO compels the need of respecting the environment which in turn makes the eco-friendly ports more favorable in terms of clients' preferences.

7.4 SWOT analysis

Theoretical Frame

SWOT analysis has been characterized as a "simple" but at the same time "powerful" tool (Thompson et al., 2007:97). The acronym of SWOT stands for strengths, weaknesses, opportunities and threats. As a concept SWOT analysis has been first introduced in the 1960s. Table 22 below indicates what we take into account in the 4 different categories of a SWOT analysis

Table 21, SWOT analysis explained

Strengths	Weaknesses
Aspects that the firm is benefited from such as Internal resources, tangible assets and in general things that the firm excels at	Characteristics that the company lacks of and have an impact on it or other characteristics that other competitors are better at

Opportunities	Threats
Opportunities in the market or the internal of the firm that are either overseen or not yet spotted	The operations of competitors that threaten the firm, changes in the internal or external environment of the company and other factors that jeopardize the profitability and smooth function of the firm

Author's creation based on (GÜREL, 2017) and (Helms and Nixon, 2010)

Performing a SWOT analysis lets a business explore both its internal and external surroundings. Under the scope of examination are put the strengths, the weaknesses, the opportunities and the threats of a certain firm. The threats and opportunities of this analysis may apply to various other companies of the same market. On the other hand, the strengths and weaknesses are solely referring to one firm. In this case Thessaloniki's port is put under scope and will be examined with the help of the SWOT analysis tool. By mapping out these factors in relation to a business, useful information regarding the future strategy of a firm and its position towards its competitors can be derived (Valentin, 2001).

As for the case of Thessaloniki's port the four components of the SWOT analysis are presented below,

Strengths

- Advantageous geographic location (close to Balkan and central Europe) (THPA, 2020b)
- ISO degree for both container and bulk cargo (Thessaloniki Port Authority, 2020)
- The port is situated next to the city of Thessaloniki
- High market share in transportation of bulk cargo and containers from and to the Balkan countries
- Long history in operations (THPA, 2020c), resulting in high experience and specialized human resources
- Is able to accommodate all types of cargo (Thessaloniki Port Authority, 2020)

Weaknesses

- Aged mechanical equipment which deteriorates its performance (shore cranes etc.) (Thessaloniki Port Authority, 2016)

- Cannot accommodate large vessels (mother vessels) with big draft more than 12.00 m. Moreover, this draft is offered only from one berthing dock in the port. (Thessaloniki Port Authority, 2016)
- Limited number of warehousing
- Lack of sufficient crane drivers and other machine operators
- Ageing labor.
- Shortage of cranes and other machines' maintenance workforce resulting in time lost for repairs and occurrence of ship delays.
- Lack of infrastructure such as windbreakers for the prevention of the pollution to the environment from the loading and unloading of bulk cargo, causing tense at the port-city relationship.
- Restricted number of cranes and berths, increasing the waiting time of the vessels.
- Relatively high levels of pay schemes comparing to the competitors, influencing the competitiveness directly (Mertzanidis, 2019). Quality of services and prices given do not appear to match (THPA, 2020d)
- The conventional port works in two 8hour shifts with normal charge, while third shift is considered as overtime work which results to a significant increase of operational cost (Thessaloniki Port Authority, 2020).

Opportunities

- Governments' desire to develop Thessaloniki's port (recent port privatization) and in general attract foreign direct investments
- Further improvement of its rail connections in cooperation with the recently privatized national rail organization
- Based on the new master plan of the privatization, new infrastructure and concepts will be introduced to the port as the accommodation of big cruise ships and bigger container vessels, reduction of port congestion etc. (THPA, 2020e)

Threats

- External tough competition in Balkan ports (such as the developing port of Durres in Albania and port of Burgas in Bulgaria)
- Internal tough competition from the port of Piraeus, especially in the container sector.

- The upcoming privatization of two other Greek ports, namely the port of Kavala and Alexandroupoli which will be reformed and ready to serve more clients
- Impact of port-city relationship in regards to the complete implementation of the new master plan which entails more traffic and bigger vessels
- The continuous fear of further restrictions that will stem from a second wave of the corona virus

Important Remarks

The SWOT analysis reports a plethora of weaknesses that influences the competitiveness of a port adversely as the lack of infrastructure and sufficient human capital are two of the most important factors that define the productivity of a port. Combining the latter point with the tough competition that comes from the Balkans and may also come from other national ports, apart from the port of Piraeus which is already a competitive Greek port, lead us to understand the importance of the reform that the port of Thessaloniki is currently undergone. The port of Thessaloniki should take full advantage of its location by improving the quality of services it offers and allure more clients by having the infrastructure needed for achieving high performance for not only feeder vessels but mother ones as well.

8 Results

8.1 Introduction

This chapter is dedicated to the presentation of the results from the survey of the port of Thessaloniki. The goal of this thesis is to explore how the competitiveness of the port of Thessaloniki can be enhanced. In the following section the insights of 30 executives coming from different fields of the port cluster of Thessaloniki are being reported. As a consequence, the advantages and disadvantages of the port of Thessaloniki are displayed with the help of statistics. The main point of interest is the container segment but there is also a part of the survey which have to do with the conventional port of Thessaloniki. Both the answers of the executives from the interviews as well as the matrixes that have been filled out are interpreted and further analyzed in the next chapter, which is discussion.

8.2 Factor analysis

The factor analysis occurred after the average score for each and every of the variables were calculated and was carried out by using SPSS IBM. These average scores were standardized by centering their values on the average and scaling by the standard deviation of the value of each and every of either the logistics chain activities or the diamond determinants. The standardization contributed to making clearer whether there are relations or not. The factor analysis via SPSS IBM program was subjected to Varimax rotation and Kaiser normalization. The Varimax rotation has been utilized in order to simplify the expression of the data via the maximization of the shared variance and consequently showcase the potential relationships clearer, without changing the data. Kaiser normalization on the other hand, facilitates the rotation of the data via normalizing and de-normalizing the dataset.

Table 22, Factor analysis on the perceived value of the activities

Logistics Chain Activities	Factor 1	Factor 2
Activities maritime accessibility	.878	.353
Loading-unloading conventional	.865	.399
Loading-unloading containers	.870	.477
Transshipment of containers	.905	.337
Warehousing	.328	.891
Value added	.471	.812
Activities by shipping agents, forwarders etc.	.478	.850
Distribution activities within cluster	.330	.848
Road	.714	.606
Rail	.839	.410

Author's creation by using SPSS

The factor analysis, with the use of two factors, carried out on the logistics activities indicates that the first factor is mostly about maritime accessibility activities, loading and unloading of both conventional cargo and containers, transshipment of containers, rail and road. This first factor seems to refer distinctly to all the activities that have to do with the transportation of the cargo, whereas the second factor is dedicated to the activities that are responsible for the management of the cargo inside the port. As the second factor suggests these activities are warehousing, activities by shipping agents, forwarders etc., distribution activities within the port cluster and value added.

These two factors indicate that both the shipping activities and the management of cargo within the cluster play a significant role but the transportation of the cargo is shown to be more important for the port of Thessaloniki, meaning that the management team may need to view these activities as the main source of a competitive advantage.

Table 23, Factor analysis on the perceived value of the diamond determinants

Diamond Determinants	Factor 1	Factor 2	Factor 3	Factor 4
Infrastructure	.160	-.142	.450	-.043
Superstructure	.207	-.105	-.282	-.024
Human capital	-.169	.818	-.097	-.016
Logistical technology and communication systems	-.015	-.017	-.513	.077
Intra-cluster competition	.083	.050	0.93	-.925
Inter-cluster competition	.066	-.032	.557	.184
Internal cooperation	.013	-.024	.014	.118
External cooperation	.101	-.140	-.388	-.003
Client relationships within and outside port cluster	-.862	-.095	.145	.051
Intervention of the port authority	.420	-.013	.136	.163
Regional intervention	.149	.240	.022	.376
National and supranational intervention	-.153	-.540	-.138	.042
Port supporting services	.000	.000	.000	.000

Source: Author's creation by using SPSS

As the four-factor analysis for the diamond determinants suggests the first factor is related to the role of the regional intervention of the municipality of Thessaloniki. In regards to the second factor, it is determined substantially by the human capital. The third factor has to do with the infrastructure of the port and the inter-cluster competition. Last but not least, the fourth factor is triggered by the regional interventions and partially by the intervention of the port authority and the inter cluster competition.

The first factor is linked to the fact that the regional intervention may boost trade or in any way possible not facilitate. This for instance may occur when constraints are set and the customs clearance may cause delay in the container shipments. The second factor underlines the importance of the human capital that has been highlighted by the vast majority of the respondents who declared that the human capital of the port is trying to do its best for the "common good" given the relatively poor circumstances of the infrastructure and the resources available. The third factor indicates the link between the infrastructure of a port and the inter-cluster competition it faces. As for the case of Thessaloniki the extension of the 6th pier, which will be a game-changer addition to the infrastructure of the port, will raise its competitiveness as it will enable the port to accommodate container mother-vessels. The fourth factor draws links among the intervention of the port authority, the regional intervention and the inter-cluster competition signaling the fact that both the regional intervention and the

intervention of the port authority have an impact on the inter-cluster competition, for instance by setting better terms for the trade or even more specifically for the contracts of carriage in the form of regulations and conditions.

## 8.3 Plot of the standardized residuals versus the fitted z-scores
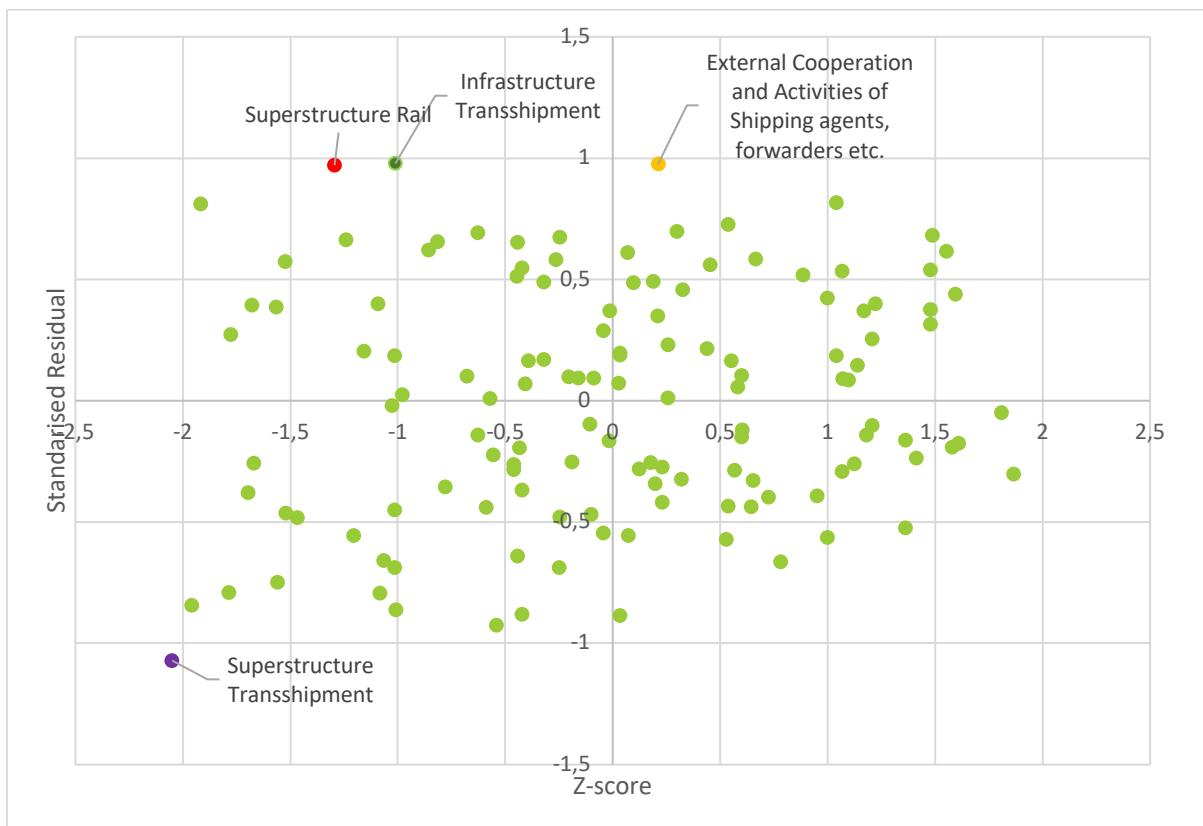
Figure 6, Plot of the standardized residuals versus the fitted z-scores

Source: author's creation using Office Excel

In Figure 6 the standardized residuals were computed and have been viewed as an expression of the z-scores of the variables. In this way the interactions between the variables have been detected. The figure indicates that only the following variables Superstructure-rail, Infrastructure-Transshipment and External cooperation and activities of shipping agents, forwarders etc., have had a positive interaction comparing to the rest of the values whereas the variable of Superstructure-Transshipment seems to have a negative interaction in comparison with the rest of the variables. If we set cut-off values of +2 and -2, we will notice that we can not spot any outliers.

8.4 Scatterplot of z-scores
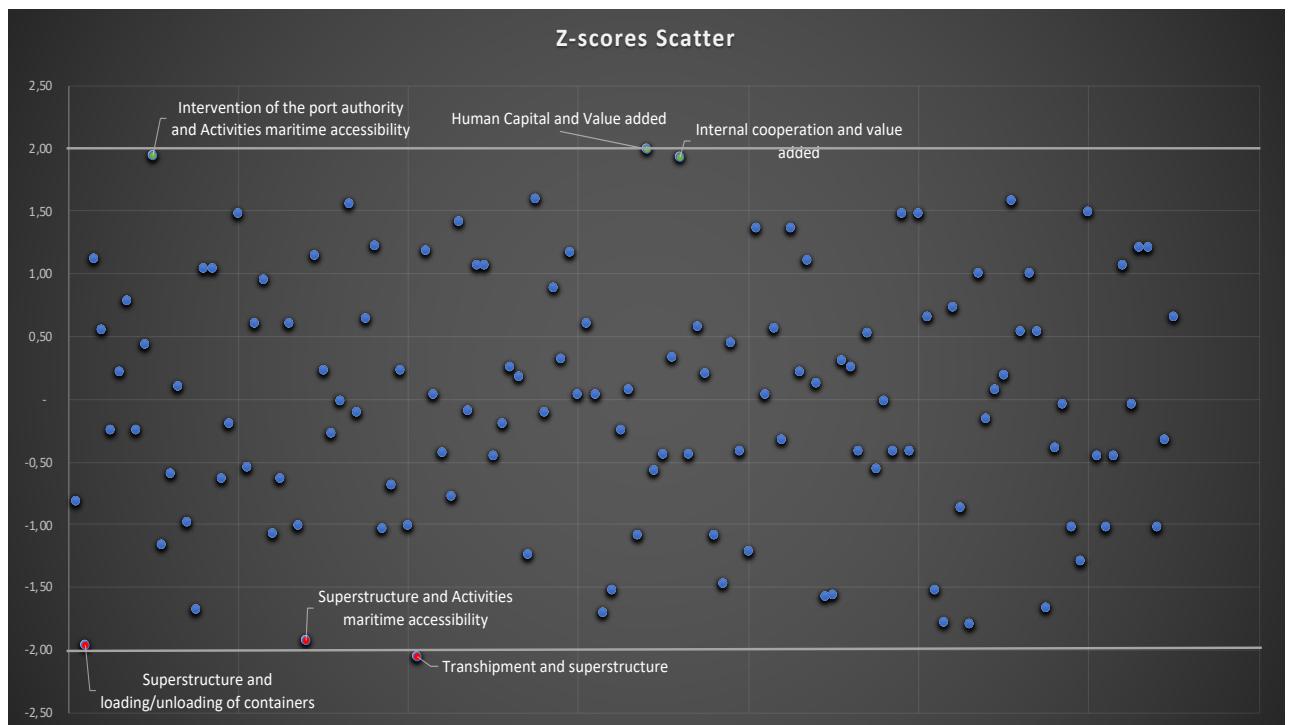
Figure 7, Scatterplot of z-scores

Source: author's creation by processing interview data in Excel

The scatterplot of z-scores has been used in order to analyze the results of the respondents. Instead of focusing on the values of the raw means of the variables the z-scores were selected as a way of expressing the findings from the matrixes because they have been centered to the average. By using the cut-off values of +2 an -2 we are able to distinguish the outliers of z-scores. As Figure 7 above, indicates the three positive outliers are the variables of Intervention of the port authority and the activities for maritime accessibility, the human capital and the value added and the internal cooperation and the value added. On the contrary, negative outliers are the variables of superstructure and loading and unloading of containers, the superstructure and the activities for maritime accessibility and the transshipment and superstructure.

9 Discussion

9.1 Introduction

The present chapter is about the interpterion of the results of the 30 interviews. The discussion of the results enables the reader to see beneath the report of the data. In this way, the most important findings of the study come to the surface unveiling the reasons why the certain advantages and disadvantages, which have been reported in the previous chapter, exist. Reinforcing the significance of the 30 interviews and their analysis, new concepts and ideas about the enhancement of the competitiveness of the port of Thessaloniki are being introduced. Lastly, strategic proposals are being outlined that consist of the answer to the research question, giving directions about the enhancement of the competitiveness of the port of Thessaloniki.

9.2 Competitive advantage of the port

Surprisingly, the vast majority of the interviewees addresses no current competitive advantage of the port. There were only 5 informants who stated that the quality of the services and the experience of the working force of the port could in some aspects be regarded as a competitive advantage against some other Balkan port such as the port of Burgas and the port of Durres. All the respondents mentioned the advantageous position of the port but this is not a competitive advantage that the port itself has developed throughout the years. Adding upon the location of the port most of the respondents believe that the position of the port has not fully been exploited by the port itself.

9.3 Strengths and weaknesses of the port

All the informants reported the beneficial position of the port of Thessaloniki and the vast majority of it (24 out of 30) characterized the port of Thessaloniki as the gate to the Balkans. Furthermore, the vast majority of the interviewees reported that the port of Thessaloniki is very flexible as it can underpin the handle of all types of cargo. Moreover,

When it comes to the weaknesses of the port, the most common answer among the respondents was the lack of infrastructure, superstructure and the insufficient equipment in both the conventional and the container segment. Most of the informants specifically talked about the small depth of the container terminal and the insufficient warehousing choices that the port has. Apart from this, 22 out of the

30 respondents highlighted that many clients choose other Balkan ports such as the port of Durres and the port of Burgas over the port of Thessaloniki, because of the expensive pricing policy and tariffs that the port of Thessaloniki has. It is important to mention though that the 19 out of these 22 respondents opinioned that the quality of the services that the port of Thessaloniki offers is on a relatively "better" level in comparison with the Balkan competitors. In regards to the negative aspects of the port of Thessaloniki, it has also been mentioned by all the participants that the shifts in the conventional port are not covering the whole day, which in turn has a negative impact on the productivity of the vessels.

Many respondents (22 out of 30) also highlighted the fact that the privatization of the port facilitated its competitiveness substantially. Some of them mentioned that the mentality of a public organization is fading away and that something that helps the port to move on in a new era of more productivity and improved efficiency. One of the executive managers of the port authority said that: "the mentality of a Greek public organization is opposite to what we stand right now. We aim at being more efficient and we also opt for the minimization of public intervention and thus the cut down of costs and bureaucracy".

One of the port authority's main concern is the activities related to maritime accessibility. Given the circumstances in place, regarding the basic equipment and in some cases the lack of human resources, the port authority is facilitating in every way possible such activities. The management team of the port authority keeps a close eye on the shifts, managing of berthing areas and finally performance of all the maritime accessibility activities and thus the vessels are reaching the port not just smoothly but also efficiently without long waiting hours because of congestion or poor communication among various port bodies such as pilots or towage workforce. As a consequence, the z-score of the intervention of the port authority and the activities of maritime accessibility is high in Figure 6. Moreover, as we can see in the same figure the internal cooperation and the value-added variable has been reported to be really high too. As it has been previously mentioned in the current paper the vast majority of the human resources of the port of Thessaloniki are aged. The aged human capital comes with great experience and advanced decision making. This fact exactly contributes to the advanced quality of services, that is perceived by the respondents, to be provided by the port. In addition, most of the current directors of the port have spent years working in many lower positions and thus they have a deep understanding and a holistic view of their segment. Therefore, they are able to quickly react to problem and find the most suitable solution. Last but not least, as most of the informants (22 out of the 30) declared the human capital of the port is still motivated even though it is aged and takes every issue that comes up as a personal challenge. Another variable that has been found to have a really high score is the added value of the internal cooperation. Coming to reinforce the significance of the

overall human capital of the port of Thessaloniki, the results of the study found out that there is great internal cooperation among the various port cluster's actors. As it has been reported during the interviews the human capital of the port and the human resources of the various companies that operate within the port cluster have built up strong relationships in which the values of trust and respect prevail. These personal bonds that have been developed among the actors have resulted in quick and direct communication that facilitates the operations of the whole port.

On the other hand, it has been spotted that the overall superstructure of the port is on a really low level and in some sectors it is almost absent. As the interviewees reported, the lack of superstructure in many segments is a considerable negative aspect of the port. To begin with, Figure 6 indicates that the variable of superstructure and activities of maritime accessibility has a really low score. During the analysis of the results from the interviews, it has been noticed that also the infrastructure of the activities for maritime accessibility is low as well. If we are to take into account the fact that the variable of intervention of the port authority and maritime accessibility activities was high, meaning that the management and the performance of such activities are on a high level, we can then infer that if the superstructure was on an equal level the accessibility of the port of Thessaloniki could be exceptional. Apart from the superstructure of the maritime accessibility activities, the superstructure of the loading/unloading of containers has been found to be something that has a great negative impact on the competitiveness of the port. As the port of Thessaloniki is now focusing on the development of the container terminal, it is vital that the superstructure gets substantially improved. Furthermore, the superstructure of the of the transshipments has a really low score in Figure 7 and was found that the relationship that the superstructure and the transshipments of the port have, has a significant negative interaction. Even though transshipments have never been of great interest to the port of Thessaloniki, it is considered that providing this service at least at a basic level will raise the competitiveness of the port as clients will have a standard quality of this service too.

9.3 Additional Comments

Even though there are many other variables that do not have either a really high score or an exceptionally low score, it is considered meaningful to discuss them so as to get a holistic view of the findings. At this point it should be reminded that the analysis is drawn in a benchmark basis meaning that some variables may not be that good for the port of Thessaloniki but they have been scored as neutral because they were "said" to be at least sufficient in comparison with the competitors.

In the case of the warehouses, it should be mentioned that although they are managed by individuals who rented them from the port, their management by these individuals is considered, by the maritime experts, to be great. Moreover, their infrastructure and superstructure has been found to be on a good level opposing to other competitors but still on a basic level. Thus, the port of Thessaloniki and more specifically the management team should not only invest in upgrading by for instance providing more reefer container warehouses but also create more warehouses by taking advantage of some of the areas that are yet to be exploited in any way. This investment is a low risk and relatively low-cost plan that is needed to be implemented in view of all the cargo that is expected to be attracted to the port of Thessaloniki. Furthermore, the work of all the shipping agents who act as the intermediators between the port and the clients has also been recognized during the interviews phase. All the shipping agents are freelancers that are working closely with the port in order to provide their services and in many cases attract cargo to the port. The port should in turn facilitate their work and incorporate their views more in the decision making. Moreover, the competition within the port cluster is not high and that is what the reports of the experts indicated. Although someone would expect that the internal competition would be more than welcome from at least some maritime experts, their answers show the opposite. It seems that the internal competition in the port of Thessaloniki will not play a major role in raising the competitiveness of the port. Currently, internal competition is kind of absent as there are no different terminal operators or many different actors in most of the segments whereas in some sectors such as the shipping agents and the warehouses there are only freelancers and the port do not play an active role. As a consequence, the level of the competition within the port cluster is low and it seems that by remaining like this the port will be benefited. Last but not least the factor analysis for the diamond determinants indicated that the intervention of the regional governance is significant. The results of the case study as it has been described by most of the maritime experts show that indeed the role of the regional governance is important. The port-city relationship should remain on the good levels that it is now even though more vessel traffic may put challenges ahead. The port should keep respecting the environment and link the activities of the cruise ships segment to the city.

The management team and the board of the port of Thessaloniki should at first make use of more of the unexploited space. More warehouses are needed as all of the informants suggest. The huge parcel of land that remains unexploited should mainly be developed into warehousing areas. As experts report, there is a compelling need for more warehouses even now and thus if the new master plan brings more clients and as a consequence more cargo, a considerable number of warehouses should be available too. Experts coming from the side of the shipping lines also expressed their request for the creation of more warehouses that can accommodate reefer containers.

9.4 Strategic proposals

It is known that when it comes to making business with a certain port, pricing policies is one of the biggest drivers. Since the main competitors of the port of Thessaloniki are situated in the Balkans and offer more competitive price schemes, as the SWOT analysis revealed, Thessaloniki's port should provide its clients either better quality of services and sustain the current relatively high prices or lower its prices. As it has been found that most of the experts appreciate the quality of services that the port of Thessaloniki offers and believe that benchmarked to its competitors the quality of Thessaloniki's port is high, the port should stick to offering better quality than its direct competition. As for the pricing schemes, they should get revisited and study the possibility of altering some pricing scales and only apply a slight increase which will be normal since the infrastructure, the superstructure and other services will be improved after the implementation of the new master plan.

The plethora of the interviewees reported that the port of Thessaloniki has big potentials and especially the port authority and a certain number of managers from shipping companies have high hopes for the new investment era that is yet to come. On the other hand, some other executives coming from the shipping companies' sample of respondents as well as several shipowners and shipping agents showed a more conservative stand regarding the new investments. It has been stated that: "We are all very much aware of the current master plan but we have our doubts regarding its implementation. I can say with certainty that I have seen some changes that facilitated the function of the port but the implementation of the whole plan is moving slowly, making me feel hesitant about its completion". The port management team should make sure that all the investment plans will be carried out timely so as to not only actually do them but also get ahead of the competitors in due time.

In addition, the port of Thessaloniki should adopt a customer-centric approach so as to perceive and also enhance the quality of its services. In this difficult task the fact that the human capital and the internal cooperation are on a high level, will promote this concept. The port should keep finding solutions to potential problems with quick decision making and strong internal bonds. By aligning the overall strategy of the port with the customer-centric approach the quality of the services will get even better as the human capital and the internal cooperation, which are positive competitive traits of the port, will contribute.

Moreover, the port should take a close eye on the ageing of its human capital. The human capital of the port of Thessaloniki has been found to be really valuable both from the results of the factor analysis of the diamond determinants (Table 23) and the findings of the scatter of the z scores (Figure 7). There should be a smooth phase between the replacement of the retired human labor and the acquisition of new

partners. For this reason, a plan that will be developed by the human resources managers of the port should be created in order to focus on talent management. Last but not least, more and more efficient training programs should be developed in order to sustain the quality of the human capital of the port.

Lastly, the port of Thessaloniki should explore the possibility of functioning as a logistics center. Its rail and road infrastructure and superstructure as well as the managing team of these areas should work on developing a compact strategy of transporting mainly containers but also bulk cargo to the Balkans. This proposal will assist the "transportation of the cargo" which was found to be of great importance in the factor analysis of the logistics chain activities (Table 22). Moreover, the interaction between the superstructure and the rail of the port of Thessaloniki has been found to be really significant from the plot of the standardized residuals and the z-scores, reinforcing the applicability of the proposal. As the containerized cargo is expected to rise after the full implementation of the current master plan and even mother vessels will be able to be accommodated by the port of Thessaloniki, the port can possibly hit its direct competitors directly by this plan. The vessels may no longer need to go deeper in the Balkan area and reach out to other Balkan ports and instead offload their cargo to Thessaloniki and then ship their cargo to many Balkan destination via the road and rail links. The regional bodies of Thessaloniki can once again play an important role in promoting the improvement of such links. In regards to the road links the port should concern about the development of the PATHE road connection and as for the rail system, a plan of establishing upgraded infrastructure should be addressed for the links within the port cluster mainly. Secondly, the port should work with the recently privatized rail company of Thessaloniki, TrainOSE in order to develop the rail links that lead to the port of Thessaloniki.

10 Conclusion, limitations and further research

10.1 Introduction

In this very last chapter of the current thesis the conclusions are drawn, pointing out the key findings and the key proposals to the port of Thessaloniki. Providing specific findings and concrete proposals fulfill the initial purpose of the whole study, as the main research question, which is no other than: How can the port of Thessaloniki be more competitive is covered. Last but not least, the conclusion of the paper is being presented and the limitations and suggestions for further research are being mentioned.

10.2 Key findings

- The port of Thessaloniki currently does not have a competitive advantage over its competitors

- Positive characteristics of the port of Thessaloniki are its human capital, its internal cooperation and the connection between the activities of maritime accessibility and the port authority

- Negative characteristics of the port of Thessaloniki are the superstructure of the container segment, the transshipments and the maritime accessibility

10.3 Key proposals

- The port of Thessaloniki should at first make sure that all the plans regarding its infrastructure and its superstructure will be implemented to the full

- After the full implementation of the master plan the port should not increase its prices a lot but instead it should reassess some of its pricing schemes

- The top management team of the port should adopt and promote in all sectors a customer centric approach and focus on providing better quality of services opposed to its competitors

- The management team in collaboration with the human resources team of the port should develop training programs and talent acquisition programs so as to sustain the quality of its human capital in order to get ahead of the

implications that will show up because of the current aged human capital

- The port of Thessaloniki should invest in enhancing the road and rail connections of the port so as to fully exploit its geographic location and function as the gate to the Balkans

10.4 Conclusion

Having presented the case of the port of Thessaloniki by outlining its background, its competitors and a number of statistical and financial data and by having explored the port from many angles by the help of 3 distinct analysis tools, namely 5 forces of Porter, SWOT analysis and Pestel analysis and beyond all the conduct of 30 in-person interviews with maritime experts in the port cluster of Thessaloniki the abovementioned findings and proposals were extracted. The findings of the paper are based on port competitiveness and benchmarking against competitors. It is firmly believed that with the implementation of the abovementioned strategic proposals the port of Thessaloniki can go ahead of its rivals by being more competitive. Lastly, the current master plan of the port of Thessaloniki and any other concept that will be introduced should function as the starting point of vast investments and the introduction of new concepts, meaning that it should be revisited in due time with the intention to assess the significance of its implementation.

10. 5 Limitations and Suggestions for further research

Due to the time restriction the number of interviews was only 30. Future research can be done likewise, but for instance with a number of 80 interviewees so as to get even more insights of the port from the relevant experts.

This survey regarding the port of Thessaloniki can be conducted again in 10 years, so as to see whether major changes have come or the levels of competitiveness are on the same or similar level.

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