COMPETITIVENESS OF DEFENSE INDUSTRIES: A COMPARATIVE ANALYSIS OF THE UNITED STATES, RUSSIA, SOUTH KOREA AND TURKEY

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ABSTRACT

COMPETITIVENESS OF DEFENSE INDUSTRIES: A COMPARATIVE ANALYSIS OF THE UNITED STATES, RUSSIA, SOUTH KOREA AND TURKEY

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The thesis examines the competitiveness of the arms industries of the United States, Russia, South Korea and Turkey. The main research question of the thesis is to understand the competitiveness of the Turkish arms industry in the global arms market compared to the arms industries of United States, Russia and South Korea. The arms industry competitiveness of these four countries are compared by using Porter's Diamond Model. And this thesis argues that, Turkey has been trying to boost its arms industry for a long time, even though the United States and Russia were already advanced in arms technology during the 20th century, South Korea had to develop its arms industry rapidly in half a century, until the 21st century Turkey has not shown major signs of advancement in military technology and this was the outcome of previous strategies, the advancement of the Turkish arms industry can only be achieved with the adoption of certain new strategies and investing in certain products.

The thesis is composed of six chapters. The first chapter is the introduction, the second chapter will analyze the United States. The third chapter will analyze Russia, the fourth chapter will analyze Turkey and the fifth chapter will analyze South Korea. The final and sixth chapter is the conclusion where the findings of previous chapters are summarized and compared.

Keywords: Competitiveness, Arms Industry, Turkish Arms Industry, Global Arms Market, Diamond Model

ÖZ

SAVUNMA SANAYİDE REKABET: AMERİKA BİRLEŞİK DEVLETLERİ, RUSYA, GÜNEY KORE VE TÜRKİYE'NİN KARŞILAŞTIRMALI OLARAK ANALİZİ

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Bu tez Amerika Birleşik Devletleri, Rusya, Güney Kore ve Turkiye'nin savunma sanayi alanındaki rekabet gücünü incelemektedir. Bu tezin temel sorusu; Türkiye'nin savunma sanayisinin, küresel pazardaki rekabetçiliği ve bu rekabetçiliğin Amerika Birleşik Devletleri, Rusya, Güney Kore savunma sanayisi ile farklarını karşılaştırarak anlamak. Bu dört ülkenin savunma sanayilerini Porter'ın Elmas modelini kullanarak karşılaştırılacaktır. Ve bu tezin temelargümanı ise şöyledir; Türkiye uzun zamandır savunma sanayisini ve teknolojisini güçlendirmeye çalışmaktadır, zaten Amerika Birleşik Devletleri ve Rusya'nın savunma teknolojileri 20. Yüzyıldan itibaren gelişmiştir, yarım yüzyılda ise Güney Kore sürekli geliştirmeler ile savunma sanayisini güçlü bir konuma taşımıştır, 21. Yüzyılın başlarına kadar Türk savunma sanayinde güçlü gelişmeler yaşanmamıştır ve bunun sebebi o dönemlerde kullanılan stratejilerdi, şimdi ise Türk savunma sanayisinin gelişimi sadece belirli stratejilerin kabul edilmesi ve belirli ürünlere yatırım yapılması ile ilerleyebilir.

Bu tez altı bölümden oluşmaktadır. Birinci bölüm giriş kısmıdır, ikinci bölüm ise Amerika Birleşik Devletleri'nin analizinden oluşmaktadır. Üçüncü bölüm ise Rusya'nın, dördüncü bölüm Türkiye'nin ve beşinci bölüm ise Güney Kore'nin analizinden oluşacaktır. Son ve altıncı bölüm ise sonuç kısmını oluşturmaktadır, bu bölümde, önceki bölümlerdeki analizlerden elde edilinen bulgular özetlenmiş ve karşılaştırma yapılmıştır.

Anahtar Kelimeler: Rekabetçilik, Savunma Sanayi, Türk Savunma Sanayi, Küresel Savunma Pazarı, Elmas Modeli

To my mother Sevim Yalçın and My Family...

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LIST OF ABBREVIATIONS

GPS	Global Positioning System
US	United States
USSR	Union of Soviet Socialist Republics
OECD	Organization for Economic Co-operation and Development
SSM	Undersecretariat for Defense Industries
GNP	Gross National Product
DOD	Department of Defense
A&D	Aviation and Defense
GDP	Gross Domestic Product
R&D	Research and Development
GKO	State Short-term Bonds issued by the state of Russia
GPV	Russian Defense Policy
NATO	North Atlantic Treaty Organization
MOD	Ministry of Defense
ISIS	Islamic State of Iraq and the Levant
PKK	The Kurdistan Workers' Party
UAV	Unmanned Aerial Vehicle
SIPRI	Stockholm International Peace Research Institute
UMV	Unmanned Mounted Vehicle
ROK	Republic of Korea
USD	United States Dollar
ADD	Agency of Defense Development

CHAPTER 1

INTRODUCTION

Turkey has taken initiatives to increase the competitiveness of its defense industry. As a nearly hundred year old state it has been through many military interventions and sometimes on the brink of war. In recent years Turkey has tried to boost its arms industry using different methods. This thesis aims to find out how competitive the Turkish arms industry is in the Post-Cold War era, when compared to the United States, Russia and South Korea. The tool this thesis will use to analyze the competitiveness of defense industries is Porter's Diamond Model. This thesis also aims to find out how the Turkish arms industry could become more competitive in the global defense market.

1.1 Scope and Objective

To be able to analyze a defense industry, one should first examine its history and how that specific industry became what it is today. It is important to understand the forces that drove those states towards establishing a competitive arms industry. The strategies that the states have adopted during their journey to make their defense industry more competitive must be examined. The reason why this thesis selected South Korea is because it is a newly established state like Turkey.

The Turkish defense industry has come a long way since the birth of the republic. Furthermore, what were the reasons that disabled the Turkish governments' ability to form a full functioning indigenous and independent defense industry? Hence, this study will uncover the development and procurement methods of the Turkish defense industry. This thesis will try to look from the same perspective to each state it analyzes and try to make assumptions on what the Turkish defense industry could do to improve itself.

1.2 Literature Review

This thesis tries to uncover a certain pattern of behavior of states and how their defense industry develops according to their behaviors. In this thesis, four states are being examined; these states are the United States, Russia, Turkey and South Korea. The literature on defense industry development and defense spending of states are very limited. Academics choose not to work on this subject because, acquiring data is very hard. Verge argues that, "Weapons producers, also known as "merchants of death", represent a category of firms with which many wish to avoid contact."[1]. Furthermore, when it comes to states, they are also unwilling to share their information on these subjects. According to Oxenstierna and Westerlund, "…as much as 70 percent of the annual GOZ[2] contracts are classified, whereas merely 6-7 percent of US defense procurement is kept secret."[3]. These are only two of the major limitations, on acquiring data on these subjects but there are many more.

Oxenstierna and Westerlund, are two prominent scholars in the field of Russia's military economics and strategy. Oxenstierna, is a senior economist, who focuses on the economics of Russia's military capability. On the other hand, Westerlund is a senior researcher on Russian defense industry and military strategy. Their mutual research is focused on Russia's Defense Industry and the challenges it faces. In their work they have summarized how Russia's Defense Industry operates and develops. Furthermore, they have underlined important problems of Russia's Defense Industry, such as lack of work force, technology and the absence of an anti-corruption system.

When examining defense industries, it is very important to understand the

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[1] Vergne, J. (2012). Stigmatized Categories and Public Disapproval of Organizations: A Mixed-Methods Study of the Global Arms Industry, 1996-2007.Academy of Management Journal, 55(5), p.1034

[2] State Defense Order in Russian

[3] Oxenstierna, S., & Westerlund, F. (2013). Arms Procurement and the Russian Defense Industry: Challenges Up to 2020. The Journal of Slavic Military Studies,26(1), p.12

target market of states. Russia has two main targets, which also carries strategic importance. One of these targets is Asia. Ahn's research indicates that Russia is deeply interested in the Asian market. His work uncovers the motives of Russia's interest in arms sales in Asia, which according to him is based on economic concerns rather than a geostrategic one. He argues that the main reason Russia is interested in selling arms to South Korea is because of its debt to South Korea, in this case it will become a win-win situation. The secondary motive of Russia is to "alleviate… the serious depression that occurred in Moscow's defense industry…"[4] .

The second market, Russia aims to sell its arms is the Middle East. Kemaloğlu argues that Russia's main motives for selling arms to the Middle East are based on "economic and political crises". According to Kemaloğlu, "western oppression, embargos and military interventions"[5] in the Middle East has become an opportunity for Russia, to sell its arms in the region. However, the political instability in the Middle East have decreased the ability of Russia to sell its arms in the region.

Another opinion on Russia's arms market comes from Blank and Levitzky. They argue that Russia uses arms exports as a tool to achieve their national security interests in the Middle East and Asia. According to them, Russia uses its arms exports to gain influence in the regions where it believes is resourceful. Furthermore, Blank and Levitzky state that, it would be wrong to address Russia's main motivation in trading arms as economic but, rather there is also an equal motivation, which is to "maintain and expand its status as a world power"[6].

The main customer of Russia's arms is itself; also a large percent of the arms industry is state-owned. Hence, to understand Russia's arms trade it is also important

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[4] Ahn, S. H. (2008). Understanding Russian--South Korean Arms Trade: A Nontraditional Security Approach? Armed Forces & Society, 35(3), p.421

[5] Kemaloglu, I. (2013). Russia's Share in the Arms Market in the Middle East. Ortadoğu Analiz, 5(55), p.58

[6] Blank, S., & Levitzky, E. (2015). Geostrategic aims of the Russian arms trade in East Asia and the Middle East. Defence Studies, 15(1), p.1

to understand the structure and the functions of the Russian Defense Ministry. Carlsson has released a report on the Defense Ministry of Russia, where she addressed how the "ministry lacked control over the allocation of the defense budget"[7] and how the ministry was planning on transforming the Armed Forces. The report also explains in detail, the branches of the ministry, which are responsible of arms trade, function.

Asia is one of the grand arms export markets of Russia. Russian arms transfers towards Asia have enabled Asian military modernization. According to Bitzinger, "Russian arms exports to the Asia Pacific are both critical to the Russian defense industry and to regional militaries"[8]. Furthermore, the collapse of the USSR the Russian defense industry has been trying to recover and the Asian markets have been very crucial in its recovery. However, Bitzinger argues that the arms industry is still not stable due to the "uncertain defense spending" and "structural problems".

The United States between 2007 and 2011 was the lead global exporter of arms, which dominated 30% of the market.[9] The second in line was Russia, with a share of 24%. [10] Rarick, Brooke and Mich's research examines the execution of global arms exports by United States manufacturers in detail. Furthermore, they examine the functions of government agencies in the role of legal arms transfer, legitimization of arms exports at large amounts and the involvement of "political jockeying" [11]. According to them the reason of the extensive arms exports of United States

[7] Carlsson, M. (2012). The Structure of Power: an Insight into the Russian Ministry of Defence. FOI, p.1

[8] Bitzinger, R. A. (2015). Russian Arms Transfers and Asian Military Modernisation. Policy Report, p.2

[9] The world's biggest weapons suppliers. The Economist Online, March 23, 2012.

[10] Ibid

[11] R., Brooke, C. A., Mich, R. A., & C., C. (2013, October 1). War Is Business and Business Is Good for the United States: The Military Arms Industry Goes Global. Journal of the International Academy for Case Studies, p.1

manufacturers is the decline of the domestic market.

As mentioned before the United States arms industry has the highest share in global arms export. Furthermore, it can also be assumed that the United States arms industry is the most producing one. However, it is important to understand the driving force behind the excessive production of arms. Latham argues that, The United States arms industry was using Fordist manufacturing techniques, which was considered the best in the United States, this changed in the 1990s and led to a post-Fordist manufacturing trend, which was a more "flexible" and "lean" method of manufacturing.[12] By equipping this trend the arms industry could easily respond to urgent changes in the technology.

One of the reasons of market expansion is excessive production. The United States arms industry has produced very excessively during the War on Terror. However, after the defeat of Al-Qaeda, when Bin Laden was killed, the domestic market could not cope with the production surplus of the arms industry. Furthermore, the United States military gave back the used guns to their producers and bought the new models for a discounted price. This was a good campaign for the military, but it was creating a second hand arms surplus, which could not be sold in the domestic market. The arms industry had to sell the arms elsewhere. According to Bichler and Malm, " With the pending de-escalation of US-led conflict in the Middle East, a flood of second-hand weaponry is about to enter the market.. How the legitimate trade infrastructure facilitates the illicit flow of goods."[13].

The United States arms industry has acted very similarly, in the aftermath of the Gulf War. However, it was not only the United States arms industry but it was the top five global producer and exporter states. In the aftermath of the Gulf War, President

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[12] Latham, A. (1997). The contemporary restructuring of the US arms industry: Toward 'Agile manufacturing'. Contemporary Security Policy, 18(1), p.110

[13] Bichler, G., & Malm, A. (2013). Small arms, big guns: a dynamic model of illicit market opportunity. Global Crime, 14(2-3), p.261

Bush was keen on reducing the arms flow into the Middle East, but at the same time the United States arms industry had agreed on selling 15 Billion dollars' worth of arms to Middle Eastern States.[14] According to Hartung, "The Gulf War is over and the winners are… Boeing, Lockhead, McDonnell Douglas, Grumman, LTV, Raytheon, GE, Martin Marietta…"[15]. The victor of the Gulf War was not the United Sates but the arms industry.

Another view on the previous issue comes from Jo Husbands. According to Husbands, "The care invested in the Saudi sale illustrates how much arms transfers—sales and military aid—remain a tool of U.S. diplomacy in the Middle East and throughout the Third World."[16] Furthermore, what pushed the arms industry to deal arms with the Third World States is the ongoing peace in Europe. After the Second World War, Europe was economically and militarily devastated. However, the secondary customer of the United States was Europe until the 1970s and this started to change as Europe began to prosper again. Hence, the United States arms industry had to find better customers, which were states threatened by the USSR and states threatened because of their rich resources. This was also a diplomatic tool for the United States government to be used wisely. Until 1987, Iraq was the largest buyer of arms in the Middle East, with a total of 29.9 Billion dollars' between the years 1983 and 1987.

Hakkı Bilgen's work on the competitiveness of the defense industry in Turkey is an important literature, which should be examined before studying the Turkish arms industry. According to Bilgen, "The government support is clarified with the development plans and investment programs of the State Planning Organization (DPT). The defense industry, including procurement, is tried to be improved with the

[14] Hartung, W. (1991). The Boom at the Arms Bazaar. Bulletin of the Atomic Scientists, 47(8), p.15

[15] Ibid

[16] Husbands, J. L. (1990). A Buyer's Market For Arms. The Bulletin of the Atomic Scientists, p.14

coordination of the under secretariat for Defense Industries (SSM). The domestic coverage ratio of defense system need in 2010 is aimed as 50%."[17]. In the light of his work, it could be assumed that the Turkish arms industry failed to cover %100 the domestic arms supply and because of that, Turkey is bound to import its needs from foreign arms industries. However, his studies only include the period between 1990 and 2010. Furthermore, it is important to examine the Turkish arms industry after 2013, when the need for security increased domestically.

One other important work on the Turkish arms industry is "Military-Industrial aspects of Turkish defense policy" by Wisniewski. Tukey has positioned itself a as a major actor in the Middle East. This kind of active actorness should also be backed by military power and eventually a strong arms industry to supply the military. With the wake of IS in the region, the Turkish government and decision makers realized the importance of a strong arms industry, not only as a commodity but also as a tool of diplomacy. According to Wisniewski, "This trend has been most recently and starkly illustrated by the ongoing crisis revolving around the advance of the so called Islamic State (IS). Turkey's position and policy are widely considered to be crucial for the effectiveness of international coalition's efforts at diminishing this threat. All this developments make Turkish defense and security policy an important factor shaping international security in the MENA.". [18] Furthermore, this work of Wisniewski, provide the literature with a close examination of the condition and the structure of Turkey's arms industry.

Another important literature on the Turkish arms industry is "Assessment of Defense Industry Clusters in Turkey" by Erenel, Demir and Caymaz. Turkey's military expenditure has increased since the IS emerged as a threat. The Turkish government has increased its arms contracts as a result. However, the main problem was that large firms were able to cover these expensive contracts but the small and medium

[17] Bilgen, H. (2010). Competitiveness of Defense Industry in Turkey. International Journal Of Economics and Finance Studies, 2(1), p.63

[18] Wisniewski, R. (2015). Military-Industrial aspects of Turkish defence policy. Rocznık Integracji Europejskiej, (9), p.215

enterprises failed to cover these expensive contracts. Furthermore, the Turkish government wanted the small and medium enterprises to support the arms supply. According to Erenel, Demir and Caymaz, "To overcome this handicap and be a part of the business, defense industry clusters are being established mostly consisting of SMEs. Since 2010, Turkey shows signs of improvement in defense industry clustering…we present an assessment of current defense clusters and point out some of the current challenges."[19].

It is important to examine the history of arms production in Turkey. One of the most detailed literatures on this belongs to Aziz Akgul. According to Akgul, Turkey spends 5 percent of its gross national product to arms production and 25 percent of the total budget is allocated for defense purposes.[20] His paper examines Turkey's enthusiasm for arms production during the 1980 and 1990 period. He discusses in detail, the potential of the Turkish arms industry.

One important literature on the South Korean defense industry is "The Diamond Approach to The Competitiveness of Korea's Defense Industry: From The Park, Chung Hee To Lee, Myung Bak Era" published by Hee-Jung Moon. In her article she uses Porter's diamond model to understand the former strategies which enabled the South Korean government to advance in military technology faster than it had originally planned.[21] Furthermore, in her article she examines how related industries has influenced the South Korean arms industry.

One other literature on the South Korean defense industry is "The Effects of

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[19] Erenel, F., Demir, K. A., & Caymaz, E. (2015). Assessment of Defense Industry Clusters in Turkey. The 10th International Scientific Conference, p.1

[20] Akgül, A. (1990). The Potential of Arms Production in Turkey. Ankara Üniversitesi SBF Dergisi, 45(1), p.273

[21] Moon, H. (2010). The Dıamond Approach To The Competıtıveness Of Korea's Defense Industry: From The Park, Chung Hee To Lee, Myung Bak Era. Journal of International Business and Economy, 11(2), p.1

Korean Government's Defense Industry Fostering Policy on The Performance of Defense Industry Enterprises" published by Rim and Lee. According to Rim and Lee; in 2008 the Korean Government recognized its defense industry as a potential tool for economic growth.[22] Furthermore, in their article they examine how the South Korean "defense industry fostering policy" in the 1980s has emerged to become a tool for economic growth.[23]Another literature on the South Korean Defense industry is "Military Spending and the Arms Race on the Korean Peninsula" published by Moon and Lee. In their article Moon and Lee has examined the defense budget of South Korea and how it shifted as administrations change.[24] Moreover, they also examine how the Korean Government has planned to foster their defense industry and what kind of tools the administrations have used to foster it.

1.3 Argument

This thesis aims to assess the competitiveness of defense industries of four countries. There are two dominant contemporary theories of competitiveness. One of them is Krugman's concept of competitiveness and the other one is Porter's theory of competitiveness. Porter argues that; "competitiveness is a country's share of world markets for its products. This makes competitiveness a zero-sum game, because one country's gain comes at the expense of others."[25]. According to Jhamb; "Porter in his book 'The Competitive Advantage of Nations' has developed an interesting model

[22] Rim, C., & Lee, H. (2010). The Effects Of Korean Government's Defense Industry Fostering Policy On The Performance Of Defense Industry Enterprises. International Public Procurement Conference, p.1

[23] Ibid

[24] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journa, 8(13), 2nd ser., p.2

[25] Siudek, T., & Zawojska, A. (2014). Competitiveness in the Economic Concepts, Theories and Empirical Research. Oeconomia, 13(1), p.93

named as Diamond Model with an aim to analyze and understand the reason for the success of certain industries in a specific nation in comparison to others."[26]. On the other hand, Krugman argues that; competitiveness has no meaning but it is another way to express productivity.[27] According to him, one nation's high standard of living is directly related to its ability to increase its productivity and that applying the word competitiveness in national economies is meaningless.[28] For that reason, Krugman's concept of competitiveness is focused on regional industrial specialization and concentration.[29] This thesis aims to assess the competitiveness of four national industries and Krugman's concept of competitiveness is not one of the theoretical approaches that could be used in this research. Porter's Diamond Model does not limit the spectrum of analysis into regions like Krugman but rather it analyzes the competitiveness of national industries. For that reason, this thesis aims to use Porter's Diamond Model to analyze the defense industry competiveness of Turkey, South Korea, Russia and the United States.

Porter has conducted a study on 10 countries, to from an analytical framework that would be able to analyze the reasons of success of particular industries around the world. Furthermore, in his research he wanted to understand the factors that enable global rivalry in specific industries of different countries. After more than 100 case studies, Porter found out that there were four determinants that enable competiveness of domestic industries. These determinants are factor conditions, demand conditions,

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[26] Jhamb, P. (2016). An Application of Porter's Diamond Framework: A Case of Sports Goods Cluster at Jalandhar. Pacific Business Review International, 8(8), p.141

[27] Siudek, T., & Zawojska, A. (2014). Competitiveness in the Economic Concepts, Theories and Empirical Research. Oeconomia. Oeconomia, 13(1), p.93

[28] Martin, R., & Sunley, P. (1996). Paul Krugman's Geographical Economics and Its Implications for Regional Development Theory: A Critical Assessment. Economic Geography, 72(3), p.260

[29] Ibid

related and supporting industries and firm structure, strategy and rivalry.[30] Furthermore, Porter argues that these determinants are also not enough for a specific domestic industry to flourish globally, chance and the role of government is also able to influence these determinants.[31] However, Porter indicates that it is impossible for a specific country to be competitive in all industries, but according to its determinant mix it would be able to create an advantage in some specific industries.

To use the Diamond model one should understand the determinants that enable competitiveness. One of the Diamond Model's determinants is the factor conditions. According to Jhamb; "Factor conditions are the compulsory inputs which are required by an organization to compete in the market."[32] These inputs are physical resources, capital resources, human resources, infrastructure resources and knowledge resources. For an industry to compete it should have all the compulsory inputs. According to A.J.; "Factor conditions are further subdivided into basic and advanced factors that can be either general or specialized. Basic factors such as unskilled labor, raw materials, climatic conditions and water resources are inherited and require little or no new investment to be utilized in the production process. Advanced factors are created and upgraded through reinvestment and innovation to specialized factors, which according to Porter form the basis for the sustainable competitive advantage of a country."[33]. The absence or shortage of any factor pushes the companies to innovate.

Another determinant that enables competitiveness according to Porter's Diamond Model is demand conditions. Porter identified three important characteristics that determine the demand conditions. These conditions are "the composition of the

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[30] Jhamb, P. (2016). An Application of Porter's Diamond Framework: A Case of Sports Goods Cluster at Jalandhar. Pacific Business Review International, 8(8), 142

[31] Ibid

[32] Ibid

[33] Smith, A. J. (2010). The competitive advantage of nations: is Porter's Diamond Framework a new theory that explains the international competitiveness of countries? Southern African Business Review, 14(1), p.115

demand, its size and patterns of the growth and the internalization of domestic demand."[34]. According to Porter, firms react faster to the domestic market rather than foreign markets, so if the domestic customer is demanding, firms gain competitive advantage in the foreign market while trying to satisfy the domestic customer. If the demand increases towards the products of the firm, the firm will be more motivated to buy and adopt new technologies to enhance its production capabilities, which eventually will increase competitiveness. Demanding customers are very important for competitiveness, as the demand rate increases, so does the firms will to innovate.

One other determinant that enables competitiveness according to Porter's Diamond Model is related and supporting industries. According to Jhamb; "The presence of suppliers accelerates the process of innovation and upgrades the business of the cluster."[35]. The availability of supporting industries enables the flow of information and it creates an environment which eases the identification of new opportunities. Another determinant that enables competitiveness according to Porter's Diamond Model is related and supporting industries is firm strategy, structure and rivalry. Rivalry is the main driver that spurs competition among firms, rivalry is very beneficial for the development of an industry because it pushes the competitors to innovate and improve. If the competitors are closely located, they would be able to benchmark each other's actions and form strategies to counter these actions. As the number of competitors increase in an industry, imitation will also increase; competitors will try to find the best strategy to counter the competition.

There are two elements that affect these determinants, the first element is chance and the second element is government. Sometimes events occur which are beyond the control of companies. These events could become a burden or improve the competitive position of firms in an industry, reshaping the structure of the industry

[34] Jhamb, P. (2016). An Application of Porter's Diamond Framework: A Case of Sports Goods Cluster at Jalandhar. Pacific Business Review International, 8(8), p.142

[35] Ibid

positively or negatively, in regards of competition. These events that occur are directly related to chance. The government is another element that affects the determinants above. The government's role is very important in regards of competition. The increase of exports and innovation in an industry is directly related to the government's attitude towards that industry. Furthermore, giving initiatives or promoting entrepreneurship in a specific industry is also related to the efforts of the government. Tax subsidies are one of many ways for governments to cultivate competitiveness in a specific industry.

This thesis will use Porter's Diamond Model to assess the competitiveness of the defense industries of Turkey, South Korea, Russia and the United States. After the application of the framework, this thesis aims to find out the main determinants that negatively affect the competition of the defense industries of the selected states. This research aims to use the Diamond model to analyze the position of the defense industry of the selected states with regard to the availability of the drivers of the competitive advantage. Furthermore, this thesis will try taking an advisory role on, what the government of Turkey and Turkish Defense firms should do to increase their competitiveness in the defense industry and in the global defense market.

1.4 Methodology

As mentioned before the subject of defense industry is very hard to work on, because the literature available is very limited. Furthermore, it is also harder to find primary sources that would give information about the industry. However, certain trends in the defense industry could be uncovered by using available data. Porter's diamond model focuses on certain factors, resources which uncover those factors are very rare and hard to find.

Majority of the research has been based on library sources, reports prepared by public agencies or private firms, academic journals and newspaper archives. Furthermore, this research has also recovered information from the websites of companies operating in the area of defense. The majority of the data used in this research has been recovered from SIPRI's databases.

1.5 Organization of the Thesis

This thesis is structured on six chapters. The first chapter includes the introduction part which describes the scope and objective, literature review, argument and research methods and the organization of this thesis.

The second, third, fourth and the fifth chapter is about the defense industries of the states this thesis is analyzing. The historical background parts of these chapters include the historical development of the defense industry of each state. The second part in these chapters describe the characteristics of these states' defense industries, which is the development of their defense industry after the Cold War. In the third part the largest defense companies of each state is listed, their current products, their focus in the defense industry and their current projects are discussed. The fourth part of these chapters are market share and analysis. In this part the defense budget and arms exports of each state is analyzed to find a pattern or a certain market behavior. Furthermore, in the fourth part the factors of Porter's Diamond Model are applied to each state to find how competitive they are in the global arms market.

The seventh chapter is the conclusion part of the thesis. In this part the data collected from the application of Porter's Diamond Model is summarized. In this chapter, the challenges and opportunities of each state has been described. Moreover, the author points out what these states should do to become more competitive in the global arms market, especially for Turkey.

CHAPTER 2

THE UNITED STATES

In this chapter, this thesis will firstly examine the historical background of the United States defense industry. Furthermore, it will describe the characteristics of the industry and examine the largest companies in the defense industry. Lastly, this thesis will analyze the market share and certain patterns of market behavior. Afterwards, it will apply Porter's Diamond Model to assess the competitiveness of the country's defense industry.

2.1 Introduction

Currently the United States is the largest exporter of arms according to SIPRI with a market share of 33%.[36] As a state which has waged war continuously out of its continent, the United States have always been war ready. Its security concerns has pushed the state to invest in military technology.

2.2 Historical Background

In 1775 the Marine Committee of the Continental Congress met in a waterfront tavern in Philadelphia and agreed on forming a continental Navy.[37] The need for a stronger navy eventually was needed after the geopolitical expansion due to increasing trade routes and foreign threats. The need for a stronger navy also had another effect on the colonies, which shifted the maritime construction yards into the foundations of

[36] Figure 1 Global Share of Major Arms Exporters by the 10 largest exporters, 2012-16

[37] Toll, Ian W. Six Frigates: The Epic History of the Founding of the U.S. Navy. New York: W.W. Norton and Co., 2006.

the United States "defense industrial base"[38].

The Philosophy of George Washington which was, "avoiding foreign entanglements" was the dominant U.S. defense policy until World War I[39]. Furthermore, until 1914 the U.S. enjoyed large industrial and economic growth within the limits of industrial and consumer goods. Technological advancements were not being used for the mass production of weapons but rather it was used for the mass production of industrial and commercial goods.

The mass production of arms during the World War I was possible because of the technological advancements of mass production in consumer goods. The car producer Henry Ford and his system of line assembly manufacturing process, has enabled mass production in arms. Hence, other inventions gave the U.S. cutting edge military communications technology, which aided the U.S. Navy during the World War I. However, Ford's production system was the strongest contributor to the mass production of complex defense products in the U.S. during the World War I.

During the World War I the U.S. acted as a supplier of military goods. Firstly, the U.S. secured its coasts and afterwards sold its arms largely to France and Great Britain. However, the U.S. did not stop with selling arms but it wanted to get involved in the conflict. The U.S. started sending troops and military products to Europe. Moreover, having installed mass production nearly into all its facilities the U.S. had increased its capacity to trade arms with allied nations. The U.S. arsenal was composed of armored vehicles, ammunition and arms. However, the U.S. had a magnificent capability to produce military goods, what the U.S. lacked in was producing aircrafts for combat. The U.S. mainly used foreign produced combat aircraft, with a few exceptions. After the World War I, the U.S. defense policy shifted into "protecting the

[38] Slay, A. (1999). Defense Manufacturing in 2010 and Beyond Meeting the Changing Needs of National Defense. United States: National research council washinton dcboard on manufacturing and engineering design. p.89
[39] Ibid

interest of the U.S."[40]. The League of Nations was established to ensure the peace in the world. However, the economic crisis which erupted in the U.S. in 1929 caused economic instability not only in the U.S. but also on other European states. After the eruption of the crisis the U.S. Banks had to recall their short term credits from European states. However, Germany had been financing itself with these short term credits for five years. Industrial production started to decrease and unemployment started to increase in Germany. Hence, German banks were slowly going bankrupt. In the light of these unfortunate events, national socialists and communists thrived in the collapsed economy of Germany.

These European nations started on investing in mass arms production secretly under the disguise of mass producing commercial goods. Germany was one of those nations which invested in aircraft production for combat. Furthermore, German factories were newly built with the latest technology available for production which gave the German producers an edge in production.

During the Pre-World War II period the U.S. military was producing its arms and ammunition in facilities owned by the U.S. Armed Forces. So it would be safe to say that the U.S. arms production was largely state-owned. However, support systems for these arms and aircraft manufacturing were produced by private-owned companies, in private-owned facilities. Even though, the Military operated these facilities, products were produced in private-owned facilities.

On August 22, 1940 the Congress chartered the Defense Plant Corporation, which according to Northrup is "in anticipation of war hostilities and assigned it the task of expanding production capabilities for military equipment."[41]. Furthermore, "the DPC disbursed over $9 Billion on 2,300 projects in 46 states and in foreign countries.

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[40] Slay, A. (1999). Defense Manufacturing in 2010 and Beyond Meeting the Changing Needs of National Defense. United States: National research council washinton dcboard on manufacturing and engineering design. p.89

[41] Northrup, C. C. (2011). The American economy: a historical encyclopedia. Santa Barbara, CA: ABC-CLIO. p.76

In general, the government owned the plants and leased them to private companies to operate."[42].

The government agencies pushed the private sector, especially the industrial sector, and converted them into military equipment production. This eventually led into the adoption and development of new mass arms production methods which expanded the production capabilities of the U.S. military. Sources suggest that "Automobile and truck production lines were converted to military production, existing commercial shipyards were expanded, and new ones were built. In some commercially owned and operated shipyards, a new class of vessel—the liberty ship—was produced in massive quantities using newly developed manufacturing concepts. By the end of the war, Kaiser Industries was able to build a liberty ship in one day at its shipyard in Richmond, California."[43].

Towards the end of World War II, the U.S. had built an incredible mass arms production capability. Furthermore, the mass production of combat aircraft had increased due to the usage of new manufacturing technologies. The mass production of combat aircraft was so developed that, per hour one combat aircraft could be produced. When the World War II ended the Defense Plant Corporation was brought to an end.

After the World War II the Allied forces started dismantling their arms production capabilities and started turning them into the production of commercial and industrial goods. During time of peace the best option for states is focusing on their economic prosperity and development. Furthermore, the mass production of arms was

[42] Northrup, C. C. (2011). The American economy: a historical encyclopedia. Santa Barbara, CA: ABC-CLIO. p.76

[43] Slay, A. (1999). Defense Manufacturing in 2010 and Beyond Meeting the Changing Needs of National Defense. United States: National research council washinton dcboard on manufacturing and engineering design. p.89-90

decreased and a large portion of production plants were closed.

Until the 1950s the U.S. military and arms production was decreased because of President Johnson. However, interestingly at a time like this new technologies and production methods flourished in the U.S.. According to sources, "The Air Force and Navy progressed from propeller to jet aircraft and developed several new military aircraft systems. Manufacturing methodologies and tooling in aircraft plants kept pace with the modernization trend."[44].

During the Korean War the U.S. military was in its weakest state, and the U.S. arms production industry was not ready to meet the increasing demands of the U.S. military. The congress acted fast to meet the demands of the U.S. military and with the signing of President Truman the "Defense Production Act" was released in 1950. The U.S. government started financing the development and production of arms again.

After the Korean War the Cold War's tensions started to accelerate between the U.S. and the Soviet Union. The focus of war shifted dramatically, rather than a more physical war, the Cold War was preparing both sides for a psychological war. The limits of the war had changed from land dominancy into arms technology dominancy. The Cold War forced both sides to retreat from tactical warfare and forced them to follow strategical warfare. During this period the focus of weapon production changed from mass production to weapons of mass destruction. Nuclear programs were given priority and land bombs and missiles were becoming a trend for the U.S. Military.

The Vietnam War again reversed the focus of arms production in the U.S.. The U.S. Military demand for traditional arms increased, and at the same time the U.S. tried to continue its nuclear research program during the Vietnam War. Furthermore, when the Vietnam War ended the focus on the mass production of arms shifted again

[44] Slay, A. (1999). Defense Manufacturing in 2010 and Beyond Meeting the Changing Needs of National Defense. United States: National research council washinton dcboard on manufacturing and engineering design. p.91

and economy became the focus of the U.S.. According to Slay; "In the late 1950s, DOD established the Manufacturing Technology (ManTech) Program under the provisions of the Defense Production Act of 1950 and its extensions. The objective of this program was to strengthen the U.S. defense industrial base by encouraging the development and use of innovative manufacturing methods and processes."[45].

The Cold War period was calmer than previous wars because there was less military activity. Less military activity meant less mass production of traditional arms. However, the focus of the U.S. Defense industry shifted towards more unconventional weapons. Furthermore, the U.S. economy and defense industry benefitted from technological advancements. Advancements in communications and computing had a major effect on the U.S. arms industry and military technology.

After the Cold War the government support towards the arms industry decreased. The funds which were supposed to be used for arms production were allocated towards other programs. Hence, the U.S. government supported mergers and acquisitions of companies which were in the area of arms production. The reason for this was to encourage these companies to produce not only arms oriented products but also mass oriented products. The U.S. government tried to keep these companies alive without the need of government funding.

One of the major studies on the U.S. Defense industry is "The Evolution of the U.S. Defense Industry"[46] by Michael Rich. According to Michael; there are three major subjects that effect the defense industry in the U.S.. These three major subjects are; "the evolving geopolitical environment", "the dynamics of the defense budget" and "the condition of the defense industry".[47]

According to Michael; the U.S. had to take action against "the evolving

[45] Ibid
[46] Rich, M. D. (1990). Evolution of the U.S. Arms Industry. The RAND Corporation. p.1

[47] Ibid

geopolitical environment". He argues that, around the world the turmoil of war had not ended and developed and developing states around the world started manufacturing arms and the U.S. government had to protect itself and its allies for an upcoming attack or war. They had to be prepared for an attack in every continent which they had interests in.[48]

Another argument that Michael has pointed out is "the dynamics of the defense budget"[49]. According to Michael; "Since peaking in FY(Full Year) 1985, the defense budget has declined in real terms in every year since. Depending on how the FY 1991 budget works out, the average rate of decline over that period works out to a fairly gradual 2.9 to 3.1 percent". Furthermore, according to Michael; "Thus, between FY 1985 and FY 1990, the total budget has declined by one-eighth in real terms, procurement by also one-third."[50]. This shows that the U.S. defense industry is mostly dependent on the U.S. defense budget.

Michael argues that; if the defense budget decreases, the defense industry behaves according to it. As a result companies would be forced to lay off their employees and throughout history there are many examples, between 1969 and 1975 due to defense budget cuts McDonnell Douglas, Boeing and Lockhead shrunk nearly 40 percent in terms of employment. As a result this forced companies to merge and some of these companies started to manufacture products for the use of the mass. McDonnell and Douglas, Vertol and Boeing are examples of some mergers. Also some of these defense firms have bought other companies which are functioning in other industries, for example, Textron and Bell, Rockwell and North American are some examples of these cases.[51]

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[48] Rich, M. D. (1990). Evolution of the U.S. Arms Industry. The RAND Corporation. p.2

[49] Rich, M. D. (1990). Evolution of the U.S. Arms Industry. The RAND Corporation. p.7

[50] Ibid, p.7-8

[51] Ibid, p.8-10

2.3 Characteristics of the United States Defense Industry

While assessing the U.S. Defense Industry it is important to emphasize words of former U.S. President Eisenhower, "guard against the acquisition of undue influence, whether sought or unsought, by the military-industrial complex." [52]. Eisenhower realized the power of the defense industry and the political pressure it could up hold in the future. He was well aware of the consequences of creating a privatized defense industry. The U.S. Defense industry knew how to put political pressure on the presidents. According to Husbands; "the Bush administration enjoyed a stunning triumph on Capitol Hill: with no political bloodshed Congress accepted a major arms sale to an Arab nation. The $3 billion deal will send 315 of the export version of next-generation M-1A tanks to Saudi Arabia, along with support vehicles and other equipment. Such a sale normally arouses the full fury of Israel's supporters in Congress, who have forced past administrations to modify or withdraw important deals, or to pay a high price for approval. The Reagan administration had a particularly difficult time winning approval for its proposed sales, made harder by its confrontational style and attempts to slip controversial sales through the congressional notification process without warning."[53]. However that was during the late 80s but even today the political pressure of the U.S. Defense Industry is weighing heavy on the presidents of the U.S.. For example, recently elected U.S. president Donald Trump visited Saudi Arabia for the sales of 110 Billion Dollars' worth of military goods. Furthermore, according to Brooke, Mich and Rarick; "The military weapons industry isn't like most. Selling tanks, drones, and attack helicopters isn't quite the same as selling soap or soda. While international business transactions may be more complex than domestic sales, the marketing and selling of war equipment is far more complex

[52] Eisenhower's Farewell Address

[53] Husbands, J. L. (1990). A Buyer's Market For Arms. The Bulletin of the Atomic Scientists, p.1.

and regulated. While international business transactions may in some way be affected by politics, arms sales are especially affected by political activities. By the very nature of the business almost all sales are made to governments. Political changes can create or destroy market opportunities for weapons manufacturers. Politicians can be directly or indirectly involved in arms sales as well. While American embassies have for some time been marketing U.S. weapons to their host governments, the Obama administration has been especially active in promoting military equipment exports to strategically friendly countries."[54]. This is the consequence of a privatized defense industry; these defense firms have to extend their markets abroad and are searching for newer markets because the domestic markets are not enough due to defense budget cuts.

The U.S. government has given the defense industry the benefits of the free market. This free market approach towards the defense industry eventually resulted in the emergence of monopolies or oligopolies. According to Watts; "The government's policy was to take a hands-off approach to the future structure of the industrial base, and the result was the emergence of supplier monopolies or duopolies in many defense product lines. For example, the nation's six shipbuilding yards are now owned by two large defense firms, Northrop Grumman and General Dynamics, and Lockheed Martin is getting close to being the only prime contractor with a full capacity to design, develop, and produce advanced combat aircraft. Moreover, Boeing is now the only US supplier of the large transport aircraft that could be modified to replace the US Air Force's aging KC-135 fleet of aerial tankers. These developments, which erode healthy competition and limit the military's choice of suppliers, argue that the federal government should not continue with its laissez-faire approach to the structure of the defense industry."[55]. Furthermore, there is also another side of this approach, the U.S.

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[54] R., Brooke, C. A., Mich, R. A., & C., C. (2013, October 1). War Is Business and Business Is Good for the United States: The Military Arms Industry Goes Global. Journal of the International Academy for Case Studies, p.2.

[55] Watts, B. D. (2008). The US Defense Industrial Base Past, Present and Future. Center for Strategic and Budgetary Assessments Strategy for the Long Haul, p.9. Retrieved from http://csbaonline.org/research/publications/the-us-defense-industrial-base-past-present-and-future

government has empowered the defense industry and made them politically sensitive as an industry. The Defense Industry in the U.S. has gained great leverage over the U.S. government.

Another argument Watts points forward is the change of metrics in the acquisition of arms for the U.S. government. Before 2007, the U.S. government was using a cost-based metric which means that the firm which offers the minimal cost will be contracted by the government. However, this has created monopolies in the arms industry; large firms were bound to have competitive advantage over smaller firms in this race. Furthermore, the U.S. government shifted towards a time-based metric, which allowed smaller firms to compete. According to Watts; "while development times and the lengths of production runs would tend to decrease, more frequent new starts would benefit industry design teams and make losing a given competition less of a threat to a company's survival, whether in specific product lines or the defense business in general. Thus, the government's adoption of time-based acquisitions would incentivize more companies to remain in the defense industry, and possibly attract others to enter the defense market, by offering more new business opportunities more frequently than in the past."[56]

2.4 Defense Companies in the United States

Today, there are many companies operating in the field of Defense in the United States. After many mergers and acquisition in the past, now there are nine companies which have become very dominant in the U.S. Defense Industry. Furthermore, the largest Defense contractor of the U.S. is Lockheed Martin with 47 Billion Dollars[57] net sales revenue. Lockheed Martin has been operating in many

[56] Ibid, p.11

[57] Lockheed Martin Corporation, Annual Report 2016, p.1. Retrieved from https://www.lockheedmartin.com/content/dam/lockheed/data/corporate/documents/2016-annual-report.pdf

segments in the Defense industry. However, today their major project is "Terminal High Altitude Area Defense", which are long range missile defense systems. Other areas Lockheed Martin operates in are aircrafts, ground vehicles, missiles and guided weapons, naval systems, radar systems, rotary wing (Sikorsky), tactical communications and unmanned systems.

The second largest company operating in the U.S. defense industry is Boeing. Boeing has been operating in the areas of avionic defense. Furthermore, the company has also been operating in commercial areas as well. Currently the company is occupied with developing a product named the "Growler"[58]. The "Growler" is a device that provides electrical protection and tactical jamming. This product is embedded with the EA-18G military grade aircrafts.

The third largest company operating in the U.S. defense industry is Raytheon Company. Raytheon has been operating in the fields of missile defense, command and control, cyber, electronic warfare, precision weapons, training and mission support. Currently the company has focused on the "464 Excalibur extended-range precision projectiles"[59]. With the aid of GPS the Excalibur is the longest ranged projectile in the world. The net sales of Raytheon in 2016 were 24 Billion dollars[60].

The fourth largest company operating in the defense industry in the U.S. is General Dynamics Corporation. Currently the company is working on constructing a new DDG

[58] Choi, D. (2016, May 25). The top 9 biggest defense contractors in America. Retrieved July 21, 2017, from http://www.businessinsider.com/the-top-9-biggest-defense-contractors-in-america-2016-5/#1-lockheed-martin-corporation-1

[59] Choi, D. (2016, May 25). The top 9 biggest defense contractors in America. Retrieved July 21, 2017, from http://www.businessinsider.com/the-top-9-biggest-defense-contractors-in-america-2016-5/#1-lockheed-martin-corporation-1

[60] Raytheon Corporation, Annual Report 2016,1. Retrieved from http://investor.raytheon.com/phoenix.zhtml?c=84193&p=irol-reportsannual

51 Class Destroyer for the US Navy[61]. According to Choi, the destroyer has "The all-steel, gas turbine ship is equipped with the AEGIS combat system, Vertical Launching System, an advanced anti-submarine warfare system, two embarked SH-60 helicopters, advanced anti-aircraft missiles, and Tomahawk anti-ship and land-attack missiles."[62]. The company revenue in 2016 was 31.4 Billion Dollars. General Dynamics currently operates in the fields of aerospace, combat systems and marine systems.

The fifth largest company operating in the defense industry in the U.S. is Northrop Grumman Corporation. The company's current major project is the "Long Range Strike Bomber (LRS-B)"[63]. This project is very significant because it empowers the bomber aircraft with nuclear projectile and the bomber would be able to release the projectile without going out of stealth mode. In 2016 Northrop Grumman Corporation's revenue was 24.5 Billion Dollars. Northrop Grumman Corporation focuses on advanced electronics, commercial aviation, military aviation, missile defense and naval systems.

The sixth largest company operating in the defense industry in the U.S. is United Technologies Corporation. United Technologies Corporation is very famous with its jet fighter F-35. The revenue of United Technologies Corporation in 2015 was 56.1 Billion Dollars. United Technologies Corporation focuses on aerospace and aviation both commercial and military grade products.

The seventh largest company operating in the defense industry in the U.S. is L-3 Communications. Since 2001, the Pentagon has purchased large amounts of holographic optical sights from L-3 Communications. The holographic optical sights

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[61] Choi, D. (2016, May 25). The top 9 biggest defense contractors in America. Retrieved July 21, 2017, from http://www.businessinsider.com/the-top-9-biggest-defense-contractors-in-america-2016-5/#1-lockheed-martin-corporation-1

[62] Ibid

[63] Ibid

of L-3 Communications have the reputation of functioning in various kinds of harsh environments. L-3 Communications have been operating in the areas of aerospace systems, electronic systems, communication systems and sensor systems. The net sales revenue of L-3 Communications in 2016 was 10.5 Billion Dollars.[64]

The United States has a long history in the defense industry. Companies operating in the defense industry have been producing their goods in terms of the quality and reputation of their products. These companies have gained a competitive advantage over at least one product. For example, L-3 Communications on holographic optical sights, General Dynamics Corporation on Naval Defense, and Boeing on military aviation.

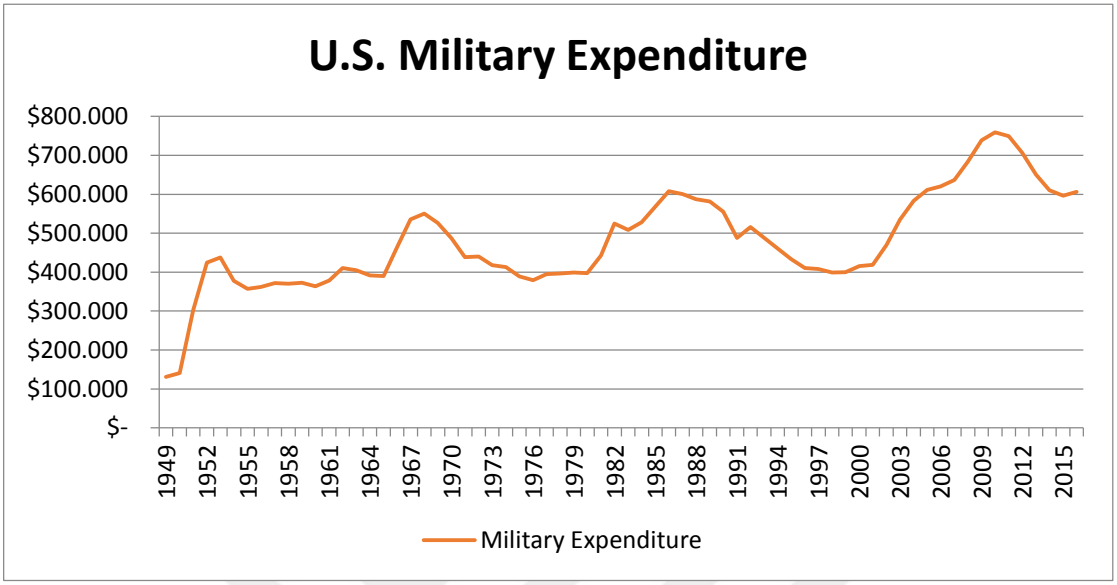
2.5 Market Share

The U.S. Defense Budget has been financing the defense industry since the birth of the United States government. It is known that the United States has the largest defense budget in the world. However, between times of war and peace the defense budget has depreciated greatly. On the other hand, the companies which were operating in the defense industry during times of war had already increased their production rates; this eventually created a surplus in arms production. These events triggered the companies in the defense industry to search for new and profitable markets around the world.

To clearly understand the statement above, one must first look at the military expenditure of the United States. Furthermore, after looking at the data one could easily conclude that the arms industry in the United States has increased their exports after the decline of the United States military expenditure. However, it is also important not to generalize this data; there are also other factors and small data which, show that it could

[64] L-3 Communications. (n.d.). Retrieved July 10, 2017, from https://www.l3t.com/products-services/capabilities

Table 1: United States Military Expenditure 1949-2015



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

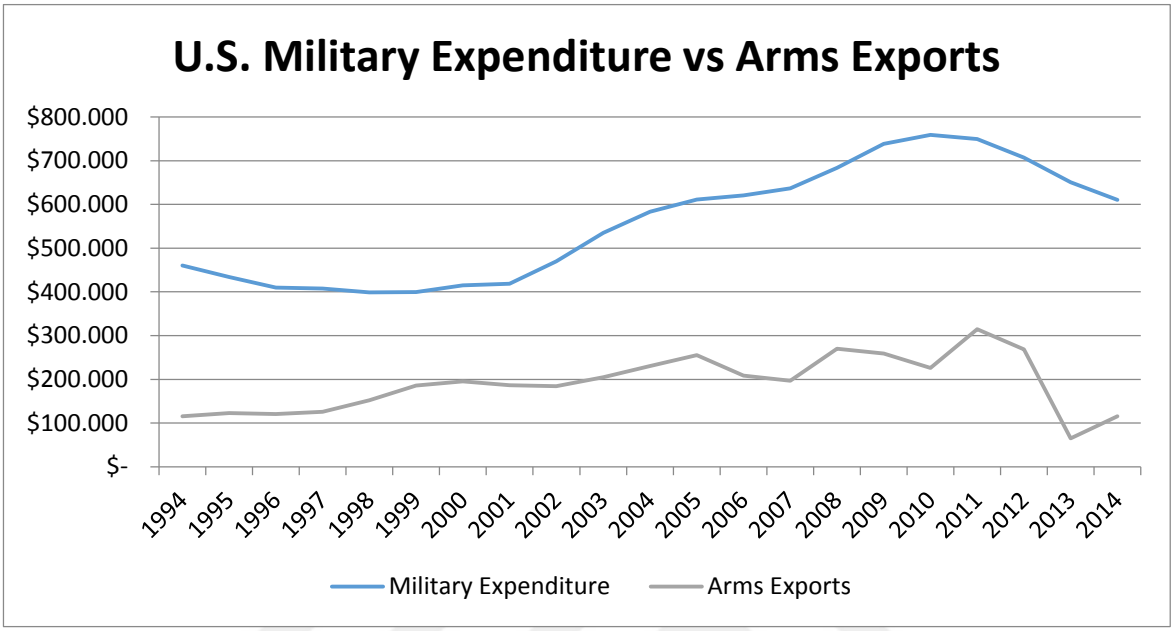
be also vice versa. The data indicates that the United States military expenditure increased during times of war. For example, the Korean War was between the years 1950 and 1953 and in the data its effect on the military expenditure can be observed. Another example, is the Vietnam War which, took place between the years 1960 and 1975, here it is possible to spot the same increase. Starting from 1986 the military expenditure was in a declining trend but because of the Persian Gulf War between the years 1990 and 1991 the military expenditure was increased again due to the war. Furthermore, it is possible to trace the incremental increase in the military expenditure during the War on Terror after 2001.[65]

To deepen this research, it is important to compare the military expenditure with the arms exports of the United States. To get a clear view of the argument above it is necessary to find a correlation between the military expenditure and arms exports. Finding this correlation would enable this research to examine the moves of the arms

[65] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

industry during times of military expenditure declination.

Table 2: United States Military Expenditure and Arms Exports 1994-2014



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

From the outcome of this data it would be appropriate to argue that as the military expenditure decrease the arms exports increase. Furthermore, this is a normal behavior for companies operating in a free market economy. Looking for new markets would keep the production pace up for companies. As the government decreases its purchasing power, companies start to sell their production surplus to other clients. However, it is impossible to generalize this kind of behavior but this picture, would give this research a hint of how the arms industry in the United States operates.

To increase the depth of this research it is important to include the United States market share of arms exports. This will further increase the credibility of this research's arguments. The United States have a market share of 33%[66] which is the largest in the world. This means that not only the United States is the leader of the

[66] Figure 1 Global Share of Major Arms Exporters by the 10 largest exporters, 2012-16

market but this also means that the United States has dominated the arms market.

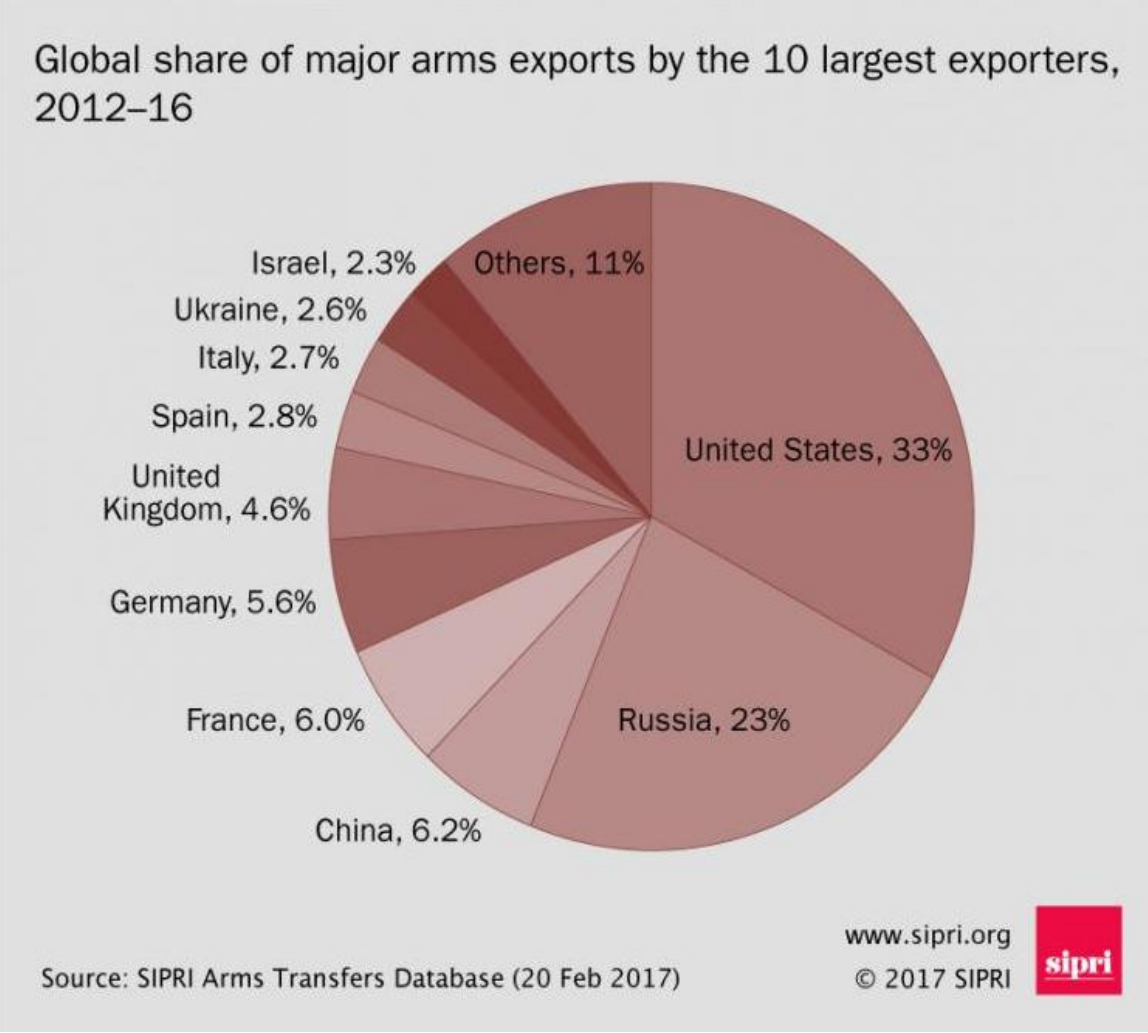


Figure 1 Global Share of Major Arms Exporters by the 10 largest exporters, 2012-16

Source: SIPRI Arms Transfers Database (20 Feb 2017)

To conclude, the United States has enjoyed the benefits of the military industrial complex. Even in the areas of policy and diplomacy the arms industry has been very dominant on policymaker and diplomats. The close relation between the arms industry and government has flourished the trade of arms between states.

According to, Rarick, Brooke and Mich; "political jockeying"[67] has enabled the United States arms industry to flourish. After the Persian Gulf War Hartung argues that the real winner of the war was the arms industry because their market expanded and the government was backing their sales. According to Hartung; "The Pentagon's new, aggressive posture was fist revealed in a March 6 memo from Paul Wolfowitz, undersecretary of defense for policy who directed the Defense Department to do everything in its power to mount "a positive US Presence" in support of U.S. industry. Ironically, these marching orders for the Pentagon to help promote U.S. arms sales in Paris were handed down on the same day that President Bush told a joint session of Congress that one of his four post-Gulf War goals was to limit the transfer of advanced armaments to the Middle East."[68].

2.6 Application of the Diamond Model

According to a sector report released by Deloitte, in 2010 the total employee number of the United States defense industry was a little more over 1 million.[69] However, that number decreased 18% until the end of 2014 and in 2014 the employee number was nearly 850 thousand.[70] There are 1845 private 4-year universities in the United States and currently there are more than 4 million students enrolled.[71] These universities generate skilled labor for the defense industry.

Physical resources of the United States are very suitable for the defense industry. The rich lands of the United States enable the industry to supply their goods

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[67] R., Brooke, C. A., Mich, R. A., & C., C. (2013, October 1). War Is Business and Business Is Good for the United States: The Military Arms Industry Goes Global. Journal of the International Academy for Case Studies, p.1.

[68] Hartung, W. (1991). The Boom at the Arms Bazaar. Bulletin of the Atomic Scientists, 47(8), p.17.

[69] Deloitte. (2016). US Aerospace & Defense Labor Market Study. p.6.

[70] Ibid, p.7

[71] Ibid, p.7

from domestic mines. According to a report released by the United States Department of Interior; "In 2015, U.S. production of 14 mineral commodities was valued at more than $1 billion each. These were, in decreasing order of value, crushed stone, cement, industrial sand and gravel, copper, gold, construction sand and gravel, iron ore (shipped), molybdenum concentrates, salt, lime, phosphate rock, zinc, soda ash, and clays (all types)."[72].

Currently the United States defense industry is struggling with the decreasing skilled labor in the defense industry. According to a report released by the Aerospace Industries Association; "The U.S. economy relies on a strong aerospace and defense industry… The lack of skilled workers is yet another threat to an industry already struggling with the effects of sequestration, shrinking defense budgets and a corporate tax rate that is 10% higher than the OECD average."[73]. Furthermore, the absence of skilled labor could cause less productivity in the defense industry.

The defense industry could finance itself through banks but major projects take long time to develop, the longer the project becomes, so does the burden of that project to the firm. Adam Jay Harrison, director of the Department of Defense's National Security Technology Accelerator argues that; "The Department of Defense is the world leader in funding high-risk, high-pay-off technology."[74]. The defense industry is able get low interest loans from domestic banks. Furthermore, certain government contracts are financed by the government and the Department of Defense is also able to finance some projects.

For a strong defense industry a modern and well-functioning infrastructure is a must. Porter argues that; modern infrastructure is an advanced factor for

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[72] U.S. Geological Survey, 2016, Mineral commodity summaries 2016: U.S. Geological Survey, p.20.

[73] The Aerospace Industries Association. (2016). The Defining Workforce Challenge in U.S. Aerospace & Defense. p.9.

[74] Sender, H. (2016, September 4). US defence: Losing its edge in technology? Retrieved September 15, 2017, from https://www.ft.com/content/a7203ec2-6ea4-11e6-9ac1-1055824ca907

competiveness; other factors can be accounted as basic. According to Taibl; "Too much of limited defense dollars goes to support areas—the "tail". In fact, support and infrastructure now consume nearly 70% of all defense dollars, an annual sum of roughly $160 billion per year. Such excessive overhead is inexcusable when many warfighting needs—"tooth"—remain unmet."[75] Already the United States have been spending most of its defense budget on infrastructure and to become more competitive it must continue to.

Currently, every defense industry in the world is domestic oriented. Furthermore, the main client of the United States defense industry is the United States government itself. According to Metha; "Lockheed Martin was the largest single contractor for the US government in 2015, easily lapping the rest of the field with $36.2 billion. The next closest competitor was Boeing at $16.6 billion. The federal government's top 100 as a whole obligated $238.5 billion in 2015, meaning the DoD represented about 73.5 percent of those contracts awarded to the biggest firms."[76]. The United States government is a very demanding and sophisticated client, this kind of demanding character motivates competitiveness and innovation in the defense industry. However, there are also very demanding global clients which motivate the firms to innovate more. According to Brown, Browne and Cohen; "Saudi Arabia was the top recipient of American-made arms from 2011-2015, followed closely by the United Arab Emirates…The rest of the top 10 included Turkey, South Korea, Australia, Taiwan, India, Singapore, Iraq, and Egypt."[77]. Customers such as South Korea and Tukey are in demand of advanced technological products.

There are many industries that relate or support the national defense industry

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[75] Taibl, P. (1997). Outsourcing & Privatization of Defense Infrastructure. BENS Special Report, p.1.

[76] Mehta, A. (2016, May 9). Lockheed Martin Biggest US Government Contractor in 2015. Retrieved September 15, 2017, from https://www.defensenews.com/industry/2016/05/09/lockheed-martin-biggest-us-government-contractor-in-2015/

[77] Browne, R., & Cohen, Z. (2016, May 25). Here's who buys the most weapons from the U.S. Retrieved September 15, 2017, from http://edition.cnn.com/2016/05/24/politics/us-arms-sales-worldwide/index.html

of the United States. According to Kazmierczak and Platzer; "Defense industry spending has a strong impact throughout the U.S. economy. Major industries that supply products and services to the U.S. defense industry include important services industries such as scientific research and development and engineering and architectural services. Other major industry sectors closely tied to defense and aerospace spending are wholesale trade, telecommunications, and aircraft. Defense purchases in the scientific research and development industry are projected to total $47.1 billion in 2006, followed by projected defense purchases in the engineering and architectural services industry of $33.2 billion. Other key industries that supply goods and services to the U.S. defense industrial base are telecommunications and aircraft manufacturing." [78]. The advanced technology of United States defense industry depends on these industries and their infrastructure.

The United States structure of the defense industry is different from other structures. There are many large companies in the defense industry but there are also small and medium enterprises. The major contracts are won by the large companies and some parts of the contracts are subcontracted to more specialized small and medium enterprises. Rivalry and competition is a must in the free market economy because it motivates innovation through competition. The domestic defense companies have always been competing with each other. However, the global competition and rivalry is fiercer than domestic rivalry. According to a Deloitte Report; "US sector products will continue to be in high demand by foreign customers despite the relatively higher price point in US dollars. US exports of commercial A&D sector products face increased competition, especially from established European companies. Competition from newer Asian A&D companies may be several years away, but could affect export competitiveness in the next decade. Other competition is increasing intensely from foreign defense enterprises, especially in Russia, all of which are increasing their

[78] Kazmierczak, M., & Platzer, M. (2007). Defense Trade: Keeping America Secure and Competitive. U.S. Chamber of Commerce, p.11.

pipelines of innovative products. Many of these foreign entities offer their products at lower prices and with less regulatory controls than their US counterparts. Further intensifying this competitive landscape, about 60 countries now operate export credit agencies, such as the US ExportImport (EXIM) Bank, that support foreign sales of A&D sector products."[79]

The United States government has always aided the defense industry during their global sales. In this paper, this behavior was addressed as "political jockeying". According to Hartung; " From the president on his trips abroad to visit allied world leaders to the secretaries of state and defense to the staffs of US embassies, American officials regularly act as salespeople for the arms firms. And the Pentagon is their enabler. From brokering, facilitating, and literally banking the money from arms deals to transferring weapons to favored allies on the taxpayers' dime, it is in essence the world's largest arms dealer."[80]. Furthermore, the government has given low interest credits, has exempted tax and has given many more incentives to promote the defense industry.

[79] Deloitte. (2015). US Aerospace and Defense Export Competitiveness Study. p.4.

[80] Hartung, W. D. (2017, June 23). The US government is literally arming the world, and nobody's even talking about it. Retrieved September 15, 2017, from http://www.motherjones.com/politics/2016/07/tomdispatch-dc-congress-defense-international-arms-business/

CHAPTER 3

RUSSIAN FEDERATION

In this chapter, this thesis will firstly examine the historical background of the Russian defense industry. Furthermore, it will describe the characteristics of the industry and examine the largest companies in the defense industry. Lastly, this thesis will analyze the market share and certain patterns of market behavior. Afterwards, it will apply Porter's Diamond Model to assess the competitiveness of the country's defense industry.

3.1 Introduction

Russia is currently the second largest exporter. According to SIPRI Russia currently holds 23% of the Global Arms Market.[81] Russian military technology is also very advanced but its infrastructure is getting old. The Russian Government has been actively seeking to get a larger share of the Global Arms Market.

3.2 Historical Background

The Soviet Union was once a legend in the bipolar world. However, after the collapse of the USSR, the Russian Federation was born out of its ashes. Hence, it is important not to forget that Russia nearly took over two thirds of the Defense Industry the USSR has left behind. This takeover is important for this research, because to understand the arms industry of Russia today, one must find out its past. Furthermore, even before the Soviet Union defense factories played a large role during and before the World War I. According to Simanov and Starkov; "From the late 1920s onwards

[81] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

the Soviet Union was engaged in preparation for war. The preparations were defensive, but also active. They were not limited to development of the armed forces themselves, but also embraced largescale construction of specialized defense industry facilities. The forced-march industrialization program could also be understood as contributing to the preparation of the country for war, by enlarging its potential for war production."[82].

Unlike its counterparts in the 1930s the USSR had already started to increase its defense spending. According to Harrison; "In contrast the peacetime share of Soviet military spending rose unremittingly from 2 per cent in 1928 to 6 per cent in 1937 and 15 per cent in 1940."[83]. Harrison argues that there were two motivations that pushed the Soviet Union to increase their defense spending; these arguments were "Moreover, the argument that the Soviet Union was spending more than was necessary on defense is undermined by two stubborn facts. One is that a war was coming. In 1937 Germany was already spending 15 per cent of national income on military rearmament. Given the relative sizes of the two economies, Soviet real military outlays at this time were probably only half Germany's. The other is that the peacetime burdens were modest by comparison with those imposed by war itself. War drove the defense share far higher: as a share of GDP at prewar prices the Soviet military burden rose from 17 percent in 1940 to more than 60 per cent in 1942 and 1943 before falling back to 9 per cent by 1950."[84]. This kind of state behavior indicates that the USSR was already distributing large amounts of its income to defense spending and eventually to its own defense industry. However, the USSR defense industry was state controlled and lacked autonomy, which created an environment of limited R&D.

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[82] Simanov, N., & Starkov, B. (2000). The structure and development of the Soviet defence-industry complex. In J. Barber & M. Harrison (Authors), The Soviet defence-industry complex from Stalin to Khrushchev, p.2.

[83] Harrison, M. (2003). Soviet Industry and the Red Army Under Stalin: A Military-Industrial Complex? Les Cahiers du Monde russe, 44(2), 3rd ser.p.7.

[84] Ibid

In the Soviet Union there were two concepts emerging in the means of defense production. One of these concepts was "cadre"[85] , which were factories designed to produce and stock arms during time of peace and to sustain the technological advancement of the military. The other concepts was "reserve"[86] , these factories were operating half time for the defense industry, the reason for this was if a war broke out these factories would shift to full time production so the military would not be left without arms during time of war. However, this system changed after the fear of war emerged and rearmament began. The "reserve" factories were converted into cadres and the production rates increased eventually.

In the USSR the defense industry was directly linked to the government because it was a very centralized state. However, there were other factors which enabled defense industries to prevail. The main factor was the lobbying of agencies for project funding in the USSR. R&D was a rare commodity which the USSR could offer to all of its agencies. For that reason lobbying for project funding was very common in the USSR. According to Harrison; "Irina Bystrova has suggested a useful distinction between lower–level lobbying by agents within ministerial departments, which I will call lobbying for project funding, and the sort of higher–level lobbying that ministers and ministries engaged in where the funding of entire ministerial programs was at stake."[87].

During the transition towards the Soviet Union, military spending had already been declining greatly. However, this changed after the rise of Stalin in the Soviet Union, who focused on industrialization in his five year plan between the years 1928

[85] Simanov, N., & Starkov, B. (2000). The structure and development of the Soviet defence-industry complex. In J. Barber & M. Harrison (Authors), The Soviet defence-industry complex from Stalin to Khrushchev p.7-8.

[86] Ibid, p.8

[87] Harrison, M. (2003). Soviet Industry and the Red Army Under Stalin: A Military-Industrial Complex? Les Cahiers du Monde russe, 44(2), 3rd ser.,p. 9.

and 1932. Furthermore, the pressure of external threats had increased the importance of the defense sector. According to Harrison; "The country's defense capacity was promoted not only in the long run but also through immediate orders for defense products. Externally the aggressive plans of the Axis powers reinforced the new economic priority of the Soviet defense sector."[88]. However, the Soviet defense sector should not be taken as a private sector, as in the U.S. but it should be understood that the Soviet defense sector was constituted of government ministries.

Before 1938 there was only one agency planning, implementing and producing in the defense industry. However, this changed in 1938 and the defense industry was divided into six different agencies. Hence, these ministries were segmented on the basis of the products they produce. According to Harrison; "Defense production was administered by a powerful grouping of supply and user ministries (called "people's commissariats'') – the defense industry complex. The core supply ministries were four people's commissariats formed in 1938 on the breakup of the former unified commissariat for the defense industry; they comprised the commissariats for (1) the aircraft industry, (2) shipbuilding, (3) armament, and (4) ammunition. To this list might also be added two other commissariats, for (5) the tank industry, and (6) mortar armament, both formed shortly after the outbreak of war from engineering enterprises previously subordinated to nominally civilian commissariats…"[89]. Moreover, civilian industries slowly started to convert into defense industries.

The World War II changed the Soviet economy greatly, as Germany marched towards the Union. During the 1940s, the Soviet Union started to give more weight on the defense industry and arms production. However, that was not the only thing that changed during war time. According to Harrison; "In the war's first phase, high-level decisions about defense industry management were taken informally by individual leaders of the GKO and party Politburo, charged with supreme personal responsibility

[88] Harrison, M. (1994). The Soviet Defense Industry Complex in World War II. World War II and the Transformation of Business Systems p. 1.

[89] Ibid, p.2

and acting largely on their own initiative… Individual leaders such as Beriia, Kaganovich, Mikoian, Molotov, and Voznesenskii, also took on key tasks of defense industry mobilization and conversion, armed with unlimited personal powers."[90]. The power of production shifted from ministries towards individual leaders in the party. It took until 1942 to reassert the power of production into a government agency rather than individuals.

After the World War II the Soviet Union raised as a titan among European and other States. However, it was not the only victor of the war the U.S. had gained the same title as a victor but the Soviet victory had brought the state into the spot light of other states. The Soviet Union had learned an important lesson during the times of war, the lesson it learned was always to be ready for war. The Soviet Union not only figuratively centralized its defense industry but also figuratively, it moved its factories away towards the east.

The rise of the Soviet Union in the World also brought high attention towards the state. The objectives of the Soviet Union rivalled with the objectives of the United States. Towards the end of the World War II the power of nuclear weapons were demonstrated on Japan by the United States. The devastating results of the nuclear weapons echoed through all other states. This echo was going to create a new war amongst titans. The USSR had to develop new weapons to confront its greatest threat, so did the Cold War began.

Two opposites in the political and economic spectrum, the USSR and the United States began to fear each other. This however, pushed both states to develop stronger and newer weapons, which created an arms race between both states. The arms race did not enable new methods of production in the USSR but also it developed its arms industry. This industrial development enabled the USSR expansions in the future.

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[90] Ibid, p.13

The USSR had already developed the nuclear bomb in 1949 and the hydrogen bomb in 1953. However, the USSR started to gain the upper hand in 1957, with the introduction of the first inter-continental ballistic missile and the first satellite. However, USSR did not stop at that point it introduced its first early warning radar system in 1958. In 1968 the USSR had developed its first Submarine lunched ballistic missile and before the United States in 1968 the USSR had developed its anti-ballistic missiles. In 1971 the first sea cruise missile was lunched by the USSR. By 1975 the USSR had developed its first multiple independently targetable reentry vehicle.[91]

Technological military advancements had increased the USSR's reputation around the bipolar world. However, economical struggles were increasing in the USSR and it became harder for the Soviet economy to operate smoothly. He Soviet Union started to break during the 1990s and it completely dissolved in 1991. A new era began for Russia, but the military industry was adopted by the federation to be put in good use. As the Soviet was a large military power, Russia adopted its large arms industry.

3.3 Characteristics of the Russian Defense Industry

After the dissolution of the USSR the Russian Federation was born. The cold war had already ended but the regime change also created new challenges in the struggling economy of Russia. Pensions, savings and health care had already failed the citizens of the Russia. The Federation had to focus on fixing the economy, to do that they had to allocate the some of the military expenditure to other sectors.

It was not until the First Chechen War in 1994 that Russia realized that their military had weakened due to the lack of technological and strategical advancements. According to Lutz; "The low-intensity conflict exposed the weakness of the Russian military and drove the country to the brink of economic and political disaster… failure

[91] What was the impact of the arms race during the cold war? (n.d.). Retrieved June 10, 2017, from http://images.pcmac.org/SiSFiles/Schools/TN/HamiltonCounty/OoltewahHigh/Uploads/DocumentsCategories/Documents/Chapter_10_Arms_Race.pdf

included the inability of the frail economy to support both "guns and butter," the role of the independent media which shaped resistance to the war, and a general inefficiency within the military."[92] The military campaign of Russia ended in 1996 with failure and the Russian Army withdrew from the region.

The failure of the Russian Army has thought the Russian Army an important lesson. Their weapons and tactics were getting old and had to be replaced. According to Blank; "Despite 15 years of continuous reorganizations and upheavals, Russia's defense industry remains a backward, crisis-ridden, unproductive sector and is acknowledged as such by high-ranking state officials, not just outside analysts. It currently works at about 20-30 percent of its capability, depending on the particular analysis or estimate in question. Its infrastructure and personnel are aging, and the former is increasingly dilapidated. Only 20 percent of Russian weapons are of contemporary quality, and this depressing fact actually represents an improvement on earlier conditions."[93]. A few measures were taken for the modernization of the Russian Army. Furthermore, during the Russo-Georgian War in August 2008 it was evident that the Russian Army had progressed since the Chechen Wars. According to Oxenstıerna and Westerlund; "However, the results of the reform and the GPV 2005 and GPV 2010 were meager and, as became apparent in the war with Georgia in 2008, the equipment of Russian Armed Forces lagged behind."[94].

In 2000 when Vladimir Putin became the President of Russia increasing the military budget was his political priority. It was not until October 2008 that Vladimir Putin had intensified his focus on the defense industry. According to Sakaguchi; "Putin

[92] Lutz, R. R. (1997). Russian strategy in Chechnya: A Case Study in Failure. Air War College: Air University, p.7.

[93] Blank, S. J. (2007). Rosoboroneksport: arms sales and the structure of russian defense industry. U.S. Army War College: Strategic Studies Institute. p.19

[94] Oxenstierna, S., & Westerlund, F. (2013). Arms Procurement and the Russian Defense Industry: Challenges Up to 2020. The Journal of Slavic Military Studies, 26(1), p.2.

describes that over the past three decades the industry fell behind considerably in research and development as well as production, and is simply producing old-fashioned equipment in a routine manner. Regarding tasks that the defense industry should address, Putin cited (1) an increase in the supply of advanced next generation equipment; (2) development of scientific and technological capabilities with an eye to the future; (3) development of and proficiency in technologies necessary to produce competitive equipment; and (4) upgrading of the technological bases of industries specializing in production of advanced equipment."[95]. Putin had allocated large amounts of money to complete the four objectives he had pointed forward. As in conjunction with Vladimir Putin the Ministry of Defense had pursued a similar plan. According to Dyner; "The Russian rearming program is an integral part of the reform of the armed forces, launched in 2008 by then defense Minister Anatoliy Serdyukov. In 2010 it was assumed that within 10 years the military would receive 100 warships, 600 new and 400 upgraded aircraft, 11,000 units of armored equipment, 14,000 military vehicles, 1,000 helicopters, 56 batteries of the S-400 (NATO: SA-21 Growler) anti-aircraft and anti-missile system, and 10 batteries of S-500 surface-to-air missile systems, the Armata and Kurganets-25 universal combat platforms, and the Boomerang combat vehicle platform, on the basis of which a number of completely new armor systems will be created."[96]. The reforms which wanted to be taken were quite positive but not very realistic. The Defense industry in Russia was facing grave problems.

The Russian leadership did not even have faith in the defense industry because it lacked the technology and efficiency to produce equipment necessary for the modernization of the Russian military. On the other hand the companies which are operating in the Russian defense industry were state owned and they were 20 years

[95] Sakaguchi, Y. (2014). Russia's Policy on Strengthening the Navy and the Defense Industry. Boei Kenkyusho Kiyo [NIDS Security Studies], 16(2), p.57.

[96] Dyner, A. M. (2015). The Modernisation of the Russian Army: Too Ambitious for the Local Defence Industry. The Polish Institute of International Affairs, (31), 763rd ser., p.1.

behind the current technology. One other problem the companies operating in the defense industry has according to Sakaguchi; "these companies hardly have any incentives to push ahead with reforms that conform to the market economy, due to the special circumstances facing these companies in which the government is their principal client."[97].

In 2012 Vladimir Putin issued the Russian armament plan of 2020 and his objective was to modernize at least 70% of the military until 2020. However, the defense industry could not function correctly due to many factors such as corruption, technology and autonomy. The defense industry still has to negotiate with the government on large projects to gain access to a larger sum of the defense budget. This actually shows how the Soviet legacy of lobbying for projects is being adopted by Russia. However, the Russian armament plan of 2015 slightly failed due to factor such as corruption. According to Oxenstıerna and Westerlund; "The root of these problems is that the state-owned and -controlled part of the defense industry has barely been touched by market reform during the past 20 years. The system of procurement and delivery of arms that Russia inherited from the Soviet Union was designed for a command system where there was not a distinct demand side and a supply side but a united military-industrial complex. There was no market competition, and prices did not play any role in the allocation process. Defense was of first political priority and neither the client nor producers needed to bother about costs and efficiency."[98]. The main challenges of the Russian arms industry is monopolistic prices. According to Oxenstıerna and Westerlund; "The MoD tried to create a price department in 2011, in order to improve knowledge about and the transparency of prices of military equipment. However, the defense industry has had guaranteed profit margins of up to 25 percent, and, given the soft budget constraints in the form of large subsidies and

[97] Sakaguchi, Y. (2014). Russia's Policy on Strengthening the Navy and the Defense Industry. Boei Kenkyusho Kiyo [NIDS Security Studies], 16(2), p.62.

[98] Oxenstierna, S., & Westerlund, F. (2013). Arms Procurement and the Russian Defense Industry: Challenges Up to 2020. The Journal of Slavic Military Studies, 26(1), p.10.

favorable credits, the tendency is to let all cost increases spill over into prices. For 2011, the MoD required the industry to reduce its average level of profit from 15 percent to 5 percent. Companies producing priority equipment, however, have been allowed a margin of 25 percent. These include 200 products, including nuclear weapons, intercontinental ballistic missiles, cruise missiles, and other advanced arms in high demand."[99]. This kind of pricing led companies to manage their expenses and eventually this led to the insufficiency in the industry. These companies were also struggling with their own social service provision and this led to the allocation of money from production towards social services. Only 23% of the contracts between companies and the government are public, this also creates an opportunity for corruption.

Against all challenges the Russian defense industry is one of the top five defense industries in the world. The Russian defense industry has been restructured many times since the dissolution. Today 60% of the production is done by 55 large companies, which are under the control of the state. According to Oxenstıerna and Westerlund; "The companies in predominantly private ownership make up 40 percent of the industry. Among the top 20 Russian defense industry companies in 2012, only six were privately owned. The sales revenues of the largest private company, the shipbuilder Severnaia Verf , were less than a tenth of the revenues of the largest state-owned companies on the list."[100]

3.4 Defense Companies in Russia

The Russian defense industry is not very well structured but companies have been largely segmented. Unlike the firms in the United States which produce a variety of products the Russian firms have been segmented according to the products they are

[99] Oxenstierna, S., & Westerlund, F. (2013). Arms Procurement and the Russian Defense Industry: Challenges Up to 2020. The Journal of Slavic Military Studies, 26(1), p.12.

[100] Ibid, p.14

producing. The top ten defense companies in Russia should be assessed to understand the nature of the industry. Furthermore, these companies do not compete with each other on issues such as trade and price but they compete amongst each other's projects to get a larger part of the defense budget.

The largest company operating in the Russian defense industry is Almaz-Antey Air and Space Defense Corporation. Almaz-Antey focuses on air defense missile systems and complexes. Almaz-Antey produces short, medium and long ranged land and naval based air defense missile systems. Furthermore, the company also produces air and ground surveillance radar stations. The company's current large project is the development and production of the S-500 surface-to-air missile system. Almaz-Antey's revenue in 2014 was 9.2 Billion Dollars[101].

The second largest company operating in the Russian defense industry is United Aircraft Corporation. Currently the company is occupied in developing the new Su-35 and Su-30MK jet fighters. Moreover, the company has been famous of their jet fighters the MIG-35 and MIG-29K/KUB. Furthermore, the company's new jet fighter PAK FA (T-50) is currently in testing. The United Aircraft Corporation has also been developing aircrafts for commercial and transportation use. The United Aircraft Corporation revenue in 2014 was 2.2 Billion Dollars[102].

The third largest company operating in the Russian defense industry is Tactical Missiles Corporation. The company focuses on missile production. Tactical Missiles Corporation has been producing multiple purpose, anti-radar, anti-ship, air-to-air missiles. Furthermore, the company has also been producing smart bombs, modules for underwater-to-air missiles, airborne systems and equipment, torpedoes and missile

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[101] Shishkov, A. (2015, December 15). Russia's 11 Major Defense Contractors Yield $40.9 bln in Revenues in 2014. Retrieved July 26, 2017, from http://www.brics-info.org/russias-11-major-defense-contractors-yield-40-9-bln-in-revenues-in-2014/

[102] Shishkov, A. (2015, December 15). Russia's 11 Major Defense Contractors Yield $40.9 bln in Revenues in 2014. Retrieved July 26, 2017, from http://www.brics-info.org/russias-11-major-defense-contractors-yield-40-9-bln-in-revenues-in-2014/

systems. Tactical Missiles Corporation is also producing goods for medical, electronic and commercial use. The revenue of the company in 2014 was 2.8 Billion Dollars[103].

The fourth largest company operating in the Russian defense industry is Russian Helicopters. The company focuses on Helicopter production for military and commercial purposes. The company holds two lines of military use helicopters the KA and Mİ. Russian Helicopters have been producing military helicopters for military transportation, multipurpose, sea-based, special, attack and training purposes. The company's revenue in 2014 was 3.89 Billion Dollars[104].

The fifth largest company operating in the Russian defense industry is Uralvagonzavod Corporation. The company focuses on main land tank production. However, it also produces railway vehicles, containers, road-building machinery and tractors. Currently its best tanks are the T-90s third-generation main battle tank and Terminator 2 fire support combat vehicle BMPT. The company's revenue in 2014 was 1.45 Billion Dollars[105].

The sixth largest company operating in the Russian defense industry is United Shipbuilding Corporation. The company focuses on naval products for commercial and military use. The company has been producing submarines, warships, support vessels and training sets, mine sweepers, landing ships and boats and patrol ships and boats. Currently the company's main project is to produce a nuclear powered floating power unit. The United Shipbuilding Corporations revenue in 2014 was 5.98 Billion Dollars[106].

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[103] Ibid

[104] Ibid

[105] Shishkov, A. (2015, December 15). Russia's 11 Major Defense Contractors Yield $40.9 bln in Revenues in 2014. Retrieved July 26, 2017, from http://www.brics-info.org/russias-11-major-defense-contractors-yield-40-9-bln-in-revenues-in-2014/

[106] Ibid

3.5 Market Share

To understand Russia's arms industry exports and imports one should be able to understand the importance of "Rosoboronexport". Rosoboronexport has a great impact on the exports and imports of the Russian defense industry. This agency accounts for 90% of the yearly arms and related exports. According to Clouet; "ROE controls the totality of exports financial resources, which effectively grants it a right of "light and death" over Russian MIC companies, in the absence of any procurement budget for the armed forces' equipment."[107].

It was established by Vladimir Putin during the 2000s and Rosoboronexport aids the Russian government in the fields of arms exports. According to Blank; "…ROE, the key arms sales organization, to the state, to defense industrial policy, and to defense industry. These relationships reveal much that is important, if not crucial, to understanding Russia's politics and economics."[108] It is also important to understand the governments' motivation for establishing "Rosoboronexport". This agency is an efficient checking system for the privatized defense industry in Russia. The agency keeps the defense industry under control and is able to change anything that it does not see fit for the government. According to Clouet; "In ROE, the Kremlin has found a catalyst of its sectorial concentrations due to the financial resources stemming from exports as well as the executives' own skills and an efficient tool for gaining back control over privatized companies considered to be strategic. ROE may act by acquiring stakes, appointing its managers to executive boards and boards of directors, etc."[109].

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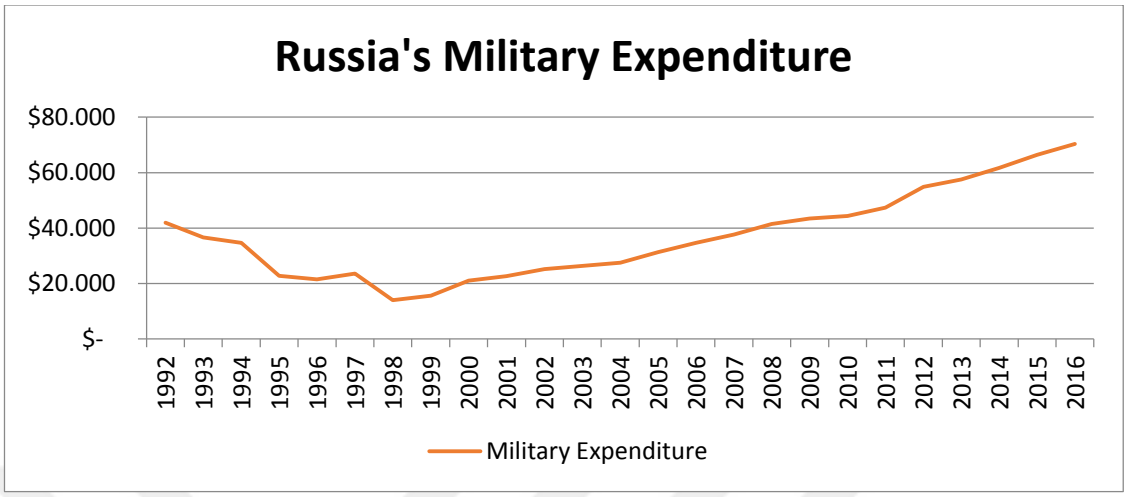
[107] Clouet, L. (2007). Rosoboronexport, Spearhead of the Russian Arms Industry. Paris: The Institut français des relations internationales. p.6-7

[108] Blank, S. J. (2007). Rosoboroneksport: arms sales and the structure of russian defense industry. U.S. Army War College: Strategic Studies Institute. p.3

[109] Clouet, L. (2007). Rosoboronexport, Spearhead of the Russian Arms Industry. Paris: The Institut français des relations internationales. p.9

Table 3: Russia's Military Expenditure 1992-2016



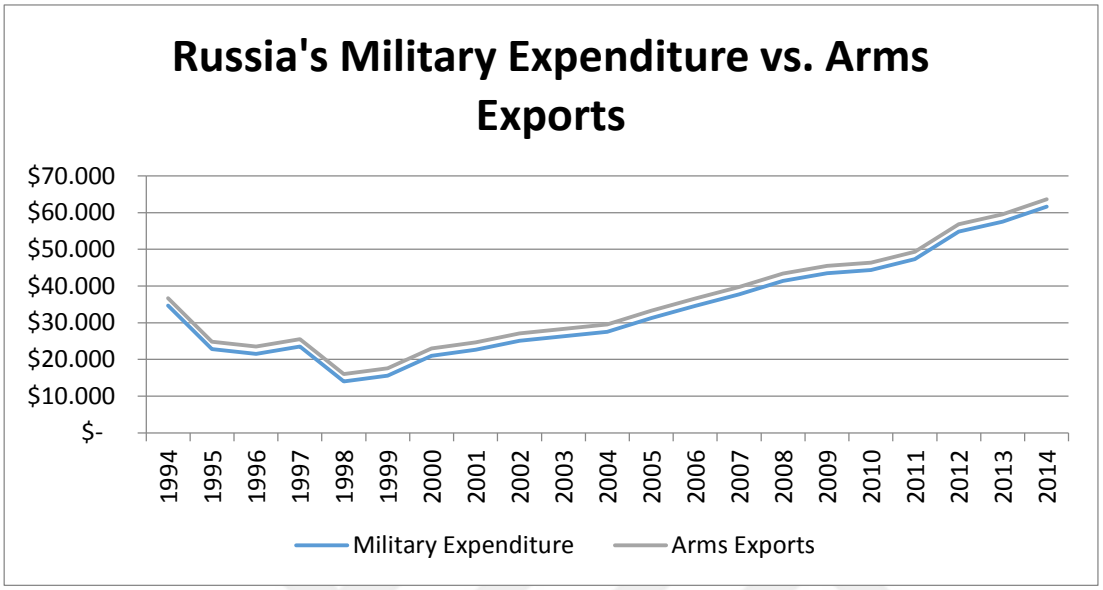
Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

The Military expenditure of Russia has incrementally increased since the presidential election of 2000, when Vladimir Putin had become President. After the dissolution of the Soviet Union the military expenditure depreciated due to the economic concerns of Russia. The increase of military expenditure in 1999 was due to the Chechen War and the need for the modernization of the Russian army. One other jump in the military expenditure can be observed in 2008, which was when the Russo-Georgian War escalated and the government announced the rearmament plan of 2015 to modernize the army. Another jump can be observed between 2011 and 2013, during the beginning of the Syrian Civil War and the rearmament plan of 2020 was initiated in 2012. According to Oxenstierna and Westerlund; "Nevertheless, since 2008, the Russian government has invested unprecedented political and financial resources in a new GPV for the period 2011 to 2020 in an effort to bring the Armed Forces into the 21st century. Arms procurement, as a share of GDP, rose from 0.7 percent to just over 1 percent over the period 2000–2010, and is expected to double to almost 2 percent of GDP up to 2014. One of the first actions taken by Vladimir Putin on his return to the Kremlin in 2012 was to issue a decree setting the pace for the realization of the GPV

2020 and the modernization of the Russian defense industry."[110].

Table 4: Russia's Military Expenditure vs. Arms Exports 1994-2014



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

This data show that actually arms exports is a revenue stream for Russia. The military expenditure of Russia is less than its arms export revenue. Furthermore, this has become a business for Russia, probably to close the gap of the budget deficit; the ROE has taken action to increase the arms exports according to the military expenditure. Russia knowingly and willingly has turned their arms industry into a profitable business. According to Blank and Levitzky; "while it is true that Russia does sell arms and military equipment to generate revenue and extend production runs for its defense industry, it is erroneous to claim that this in the central driver behind Russia's arms trade. Russia seeks to maintain and expand its status as a world power, and views the focused, purposeful export of its military technologies to key countries

[110] Oxenstierna, S., & Westerlund, F. (2013). Arms Procurement and the Russian Defense Industry: Challenges Up to 2020. The Journal of Slavic Military Studies, 26(1), p.1-2

as a fundamental tool in achieving this."[111] Moreover, Russia has been using its arms to finance its debts in other states. Hence, this action does not only ease the economic burden of Russia but it also increases Russia's soft power in these states. According to Ahn; "From a nontraditional and economic security perspective, this article argues that Russia's interest in selling weapons to South Korea has been primarily motivated by economic concerns and that this trade has also secured the economic interests of both countries. By being a new consumer of Russian arms, South Korea can help to alleviate both the serious depression that occurred in Moscow's defense industry after the collapse of the Soviet Union and—Moscow's more immediate concern—Russia's debt to South Korea."[112] Henceforth, Anthony argues that; "…it is clear that the primary determinants of Soviet arms transfer decisions were political and strategic rather than economic considerations. However, it is also clear… the Soviet Union was not indifferent to economic returns from the arms trade.

Since the dissolution of the Soviet Union the defense industry has been plunged into a deep, at times seemingly existential, crisis… Under these conditions it is widely believed that economic motivations have become more important as a causal explanation of Russian arms export behavior."[113] With the aid of the data above and the arguments of these scholars it should be clear that the Russian arms industry is motivated due to economic conditions.

Between the years 2012 and 2016 Russia has had the market share of 23% in arms exports globally. The largest share of Russian arms is exported to Asia and the Middle East. According to Bitzinger; "the Asia Pacific market has been particularly crucial for Russian overseas arms sales. The Asia Pacific is still Russia's single most important market, despite some diversification of buyers. Between 2005 and 2014,

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[111] Blank, S., & Levitzky, E. (2015). Geostrategic aims of the Russian arms trade in East Asia and the Middle East. Defence Studies, 15(1), p.63

[112] Ahn, S. H. (2008). Understanding Russian—South Korean Arms Trade. Armed Forces & Society, 35(3), p.421

[113] Anthony, I. (1998). Russia and the arms trade. Solna, Sweden: SIPRI. p.71

nearly two-thirds of all Russian weapons exports, worth approximately US$42.3 billion, were to this region, according to SIPRI. In particular, this region contains Russia's two largest arms buyers, India and China… In recent years, it has found new buyers in Indonesia, Malaysia, Myanmar, and Thailand."[114]

It is evident that Russia has an efficient arms industry in terms of trade. However, in the case of technological advancements and advanced military equipment the Russian arms industry has not come to a level to compete with its counterpart the United States. The Russian arms industry should focus on the global arms market but it should also increase its advancement towards more modern arms or its global market share could decline in the long run.

3.6 Application of the Diamond Model

Russia's defense industry has been suffering from the shortage of skilled labor. Even if there is already a large work force employed in the defense industry, it seems that the quality of the work force can be questioned. According to Weitz; "Although some 2 Million people still work in Russia's military-industrial complex, many experienced employees have retired or founded jobs elsewhere."[115].

Russia owns and extracts most kind of physical resources. As a mine and energy rich country, Russia could be able to become more competitive in the global defense market, as it utilizes the use of its natural resources. A report released by KPMG indicates that; "Russia has huge reserves of major minerals, as the country is the largest in terms of geographic area. Russia is ranked among the world's leading producers of a great number of mineral commodities."[116].

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[114] Bitzinger, R. A. (2015). Russian Arms Transfers and Asian Military Modernisation. Nanyang Technological University,S. Rajaratnam School of International Studies: Policy Report, p.4

[115] Weitz, R. (2010). Global security watch--Russia: a reference handbook. Santa Barbara, CA: Praeger Security International. p.18

[116] KPMG. (2016). Metals & Mining in Russia. p.2

As mentioned above, the Russian defense industry is in a shortage of skilled labor. To enhance the capabilities of the defense industry skilled labor is one of the advanced factors that must be met. While, improving the output of fresh engineering graduates, it is important to improve the employees with training and education. According to Goble; "He praised Moscow officials for their work in improving the production of engineers, but he said that the central government has not been effective in training the number of skilled workers needed even with the progress that has been made in boosting the productivity of the military-industrial workforce."[117].

For firms operating in the defense industry, financing their projects is their primary objective. However, the government only finances companies if their project is contracted by the government. To finance these projects, the government allocates some part of the defense budget to the project. Moreover, this is not the only option for financing; Sberbank offers low interest credits to the defense sector.[118] The requirement of fixed capital is very high in the defense industry.

The Russian's have adopted their defense industry from the Soviet Union. However, struggling with economic problems, the Russian government could not allocate much of its resources, to renew its infrastructure. Only after 2008, there were a few attempts to renew some percentage of the defense industry infrastructure. Blank argues that; "Its infrastructure and personnel are aging, and the former is increasingly dilapidated. Only 20 percent of Russian weapons are of contemporary quality, and this depressing fact actually represents an improvement on earlier conditions."[119].

Currently the Russian defense industry's primary and most demanding client

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[117] Goble, P. (1970, January 01). Russian Defense Industries Can. Retrieved September 15, 2017, from http://windowoneurasia2.blogspot.com.tr/2017/01/russian-defense-industries-cant-find.html

[118] Sberbank of Russia - Loans to Defence Industry Companies. (n.d.). Retrieved September 15, 2017, from http://www.sberbank.ru/en/corporateclients/credits/defenseindustrycompanies

[119] Blank, S. J. (2007). Rosoboroneksport: arms sales and the structure of russian defense industry. U.S. Army War College: Strategic Studies Institute. p.20

is the Russian government. However, the Russian defense industry is the second largest importer of arms but it started losing some of its market share to other countries. Grady argues that; "Speaking at the Center for Strategic and International Studies, a Washington, D.C., think tank, Sergey Denisentsev said, "The domestic market will be the main priority for Russian defense industry" at least through 2019. While Russia remains a major international arms exporter, the Kremlin has seen its sales have fallen flat in recent years largely because its largest markets — China and India — have built up their own defense industries and can do the work themselves at a lower cost."[120]. The Russian arms industry is still a very effective importer but its weapons are getting older and so is its technology. To become more competitive in the global market, Russia should increase the competitiveness of its defense industry. Moreover, majority of the defense companies are still partially owned by the state and this decreases the rate of innovation and development in the defense industry due to less competitiveness.

Russia has many other competitive industries, such as oil and gas, mining, metals, aircraft building; aerospace production, electric engineering and automotive industry.[121] Furthermore, some of these industries are partially supporting the defense industry. The companies operating in the Russian defense industry are domestically less competitive with each other. However, there is a domestic competition among defense companies to lobby and get a larger share of the defense budget. Companies become rivals only to allocate a large share of the defense budget to them. However, the same rule of little competition does not apply in the global defense market. As the number of competitors increase in the global defense market, so does the competition. Bandett argues that; "Global competition from countries using technologies analogous to Russia's, such as Ukrainian and Chinese exports, challenges Russia in arms markets that are increasingly crowded. Prior to the fighting in Eastern Ukraine and the conflict

[120] Grady, J. (2017, April 17). As Russian Arms Slow, Moscow Focus Now on Domestic Weapons Modernization. Retrieved September 15, 2017, from https://news.usni.org/2017/04/17/russia-arms-slow-moscow-focus-now-domestic-modernization

[121] Industry, Economy of Russia. (n.d.). Retrieved September 15, 2017, from http://www.advantour.com/russia/economy/industry.htm

over Crimea, Ukraine used to deliver technical components and technology to its Russian counterparts, maintaining the relationship established in the Soviet era, when certain key military industries were based in Ukraine."[122]. Ukraine and China are not the only new competitors of Russia in the global defense industry. According to Wenk; "Russia has also been facing increased competition, with relative new comers to the global arms market like South Korea, Singapore, and Turkey ramping up production."[123].

The Russian government continued its Soviet heritage of centralization in the defense industry. After the Russian Federation was established defense companies were privatized. However, Putin gained control over these companies through Rosoboronexport. Currently the Russian government does not give major benefits to the defense industry. According to Blank; "Sergei Stepashin, Chairman of the State Audit chamber, already had called for the state to assume the regulatory function of debtor-creditor relations in the defense sector to cope with the enormous number of bankruptcies there. Similarly, Moskovskiy has urged the Federation Council to give the industry more state support."[124]. The Russian government may not give the defense industry any extra benefits but in terms of arms sales the Russian government is very effective in getting the job done.

[122]Bendett, S. (2015, April 2). Is Russia Losing Competitiveness on Arms Markets? Retrieved September 15, 2017, from http://www.realclearworld.com/blog/2015/04/is_russia_losing_competitiveness_on_arms_markets_111092.html

[123] Wenk, J. (2017, April 24). Stagnation in Russian Arms Exports. Retrieved September 15, 2017, from http://www.caspianpolicy.org/articles/stagnation-in-russian-arms-exports/

[124] Blank, S. J. (2007). Rosoboroneksport: arms sales and the structure of russian defense industry. U.S. Army War College: Strategic Studies Institute. p.46.

CHAPTER 4

TURKEY

In this chapter, this thesis will firstly examine the historical background of the Turkish defense industry. Furthermore, it will describe the characteristics of the industry and examine the largest companies in the defense industry. Lastly, this thesis will analyze the market share and certain patterns of market behavior. Afterwards, it will apply Porter's Diamond Model to assess the competitiveness of the country's defense industry.

4.1 Introduction

Turkey has been trying to advance its military technology to be able to compete in the global arms market. It currently constitutes 0.7% of the global arms market.[125] In recent years the ambition of the Turkish Government has increased for military technology advancements, to decrease its foreign dependency. Turkey currently is the 16th largest exporter of arms.

4.2 Historical Background

After the World War I, the Ottoman Empire was in Ruins. Divided by the victorious allied states, the Ottoman Empire seized to function as a state. The public was suffering from the results of the war. Under the Mustafa Kemal Leadership the remnants of the Ottoman Empire's army and arms were combined but that was not enough to win the war. A new army was raised within the people and the War of Independence began in 1919. The War of Independence ended in 1923 and the Turkish

[125] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

Republic was born from the ashes of the Ottoman Empire.

It is important to understand that the Ottoman Empire lacked the infrastructure and the technology to leave behind a functioning arms industry. During the World War I the Soviet Union inherited their arms industry from the Russian Provisional Government and the Russian Federation inherited theirs from the Soviet Union. The United States already had a functioning arms industry since the mid-19th Century. The Turkish Republic could not inherit such an industry from its predecessor, the Ottoman Empire. However, there were few military factories that the Turkish Republic inherited from the Ottoman Empire. According to Akgül; "In the first years of the Republic of Turkey, military production facilities of Istanbul, Erzurum, Eskisehir and Ankara were reorganized in Ankara in 1921, under the General Directorate of Military Factories."[126].

The Turkish Republic was established under military rule and its first constitution was drafted by senior military officers. The most important aspect of the Turkish Republic was its strong army, as the Turkish Armed Forces motto states "Strong Army, Strong Turkey". So, it was very important for the Turkish Army to be modern and strong. The scars of the War of Independence were so deep that the Turkish Republic could not forget it. The army needed to be strong, to achieve that goal in the short run the Turkish Republic spend most of its tax income on the modernization and rearmament of the Turkish Army during the first years of the republic. However, soon the Turkish Government realized that Turkey needed to establish a strong arms industry to maintain a strong army.

A retired Turkish Armed Forces general Aytekin Ziylan; divides the Turkish arms industry history into four parts. The first part is between the years 1923 and 1950, the second part is between the years 1950 and 1974, the third part is between the years

[126] Akgül, A. (1990). The Potential of Arms Production in Turkey. Ankara Üniversitesi SBF Dergisi, 45(1), p.273

1974 and 1998 and the fourth part is starts from the year 1998 and onwards.[127]

Under the Mustafa Kemal Leadership the newly established Turkish government pursued a statist policy towards the economy. The state supported and established industries, which the private sector could not establish due to insufficient equity. Also in the literature of economy this is called a natural monopoly. These industries required high startup costs and the private sector could not support the establishment of these industries. Also these industries were established under the ideology of nationalism by the Turkish Government. This meant that the Turkish Government envisaged that these industries would be and stay national. According to Ziylan; the industries which were built to support the arms industry were consolidated under one company "the Machine and Chemical Industry Compnay"[128]. To ensure the development and continuity of these industries the Turkish Government established technical schools during that period. Ziylan argues that "For the establishment of an aviation industry in Turkey the Turkish Government built an Aircraft Engine factory in Ankara, The Turkish Government also built a wind tunnel for avionic tests and opened the first Aviation Engineering department in the Istanbul Technical University… when the wind tunnel was built its expanses were equal to one third of the total government budget in 1950."[129].

Turkey's transition towards a multi-party system in 1946 was very swift but necessary. However, after Adnan Menderes became the Prime Minister of the Turkish Republic, the government slowly lost its motivation in backing the national industries in Turkey. In 1952 Turkey became a full member of NATO to protect itself from the Soviet Union and the Warsaw Pact. The Turkish arms procurement became western oriented, lease or buy became the new trend in Turkey's industries. As a result new

[127] Ziylan, A. (2001). Savunma Nereden Nereye. Ulusal Strateji Dergisi, p.1.

[128] Ibid

[129] Ibid

national industries could not be formed. This gradually affected the arms industry because; to keep the army modern the Turkish government started buying foreign arms and equipment for the Turkish Armed Forces. The Aircraft Engine Factory built by the former government was closed due to the Marshall Plan's aircraft engine aid. In 1957 the Turkish Republic ceased any projects that were related to avionics.

There were not many changes in the arms industry and the Turkish government kept buying foreign arms products until 1974. In 1974 the Turkish army initiated the Cyprus Peace Operation and invaded Cyprus. This action of the Turkish Republic was answered by the United States with an arms embargo. According to Gilbey; "This is despite the leading role of the armed forces within Turkish society and government, its occupation of northern Cyprus in 1974… Imported weapons from the US, Germany, Russia and the UK have been used to carry out this policy. Western powers have also contributed to the massive build-up of the Turkish military-industrial complex."[130]. These events changed everything, without a functioning arms industry the Turkish army failed to modernize after the embargo. The foreign flow of arms was cut and the Turkish army was left with what it had. However, these events increased the ambition of Turkey, on establishing a domestic defense industry. According to Akça; "The desire to develop Turkey's military industry date back to the early years of the Republic, though Turkey's ambitions to develop an authentic arms industry were reinvigorated after the Cyprus invasion of 1974 and the subsequent US embargo. Accordingly, foundations to support and develop land, air, and naval forces were established, and corporations such as Aselsan, Tusaş, İşbir and Havelsan were institutionalized within these foundations."[131]. It is evident that the U.S. embargo left an unforgettable scar in the Turkish military's arms procurement program, which eventually led to the belief that a domestic arms industry would serve Turkey better than an independent one during times of crisis. The basis of Turkey's military-

[130] Gilby, N. (2003). Turkey and The Arms Trade 1998–2002: A Precis Nurturing Turkey's War Machine. Campaign Against Arms Trade, p.1

[131] Akça, I., İlhan, E., & Kalaycıoğlu, E. (2010). Military-economic structure in Turkey: present situation, problems and solutions. İstanbul: TESEV. p.24

industrial complex was established on the aftermath of these events.

During this period Turkey left its former motivation of establishing a national arms industry and focused on supporting its domestic arms industry. ASELSAN and TUSAŞ were established during this period. These companies were established so that the Turkish Armed Forces could domestically produce its needs. However, this aim of the Turkish government did not result as they have hoped. The Turkish arms industry was not able to develop a well-functioning domestic arms industry as other European states because it lacked the components, design and the technology to develop state of art arms. The Turkish arms industry failed to be a contestant in the arms trade in the global market.

The Turkish government was well aware of their problem and they tried to solve it by bringing in foreign capital and technology into the Turkish arms industry. Foreign arms producers started to establish partnerships with the domestic arms industry, forming companies which the majority of shares would be seized by foreign arms producers. According to Ziylan; "To think that partnering with foreign arms producers would bring foreign technology to Turkey and to think that this would contribute to the national technology of Turkey would be wrong. Forming foreign partnerships could only prevent the development of national technology in the areas they operate."[132]. In the efforts of developing a domestic arms industry the Turkish Government established the Directorate of Defense Equipment in 1983.[133]

4.3 Characteristics of the Turkish Defense Industry

Turkey became more experienced since the establishment of the Turkish Republic in 1923. By using that experience the Turkish government drafted the "Turkish

[132] Ziylan, A. (2001). Savunma Nereden Nereye. Ulusal Strateji Dergisi, p.3

[133] Mevlütoğlu, A. (2016). Türkıye'nın Savunma Reformu Tespit ve Öneriler. SETA: Analiz, (164), p.11

Defense Industry Policy and Strategy Principles"[134] in 1998. These principles and strategies indicated the obligation of domesticity in the procurement of priority technologies in the arms industry. Furthermore, the government wanted to guarantee the continuity of the development of domestic technologies and arms projects could only be produced in facilities which have the proper security clearance. Turkey had already started its modernization process in 1996.[135] According to Weitz; "In the 1990s, Turkey launched a campaign to modernize its military that will cost an estimated $150 billion by 2026. The motives for this indigenous defense industrialization were not only military, but also economic and political. Turkey consciously pursued a parallel strategy of security and development, building its heavy industry and high-technology sectors while striving for greater self-sufficiency in arms production. Turkey has also pursued an advanced arms production capability to enhance its international status and influence."[136]. From past experiences Turkey realized the importance of having a developed defense industry and how it could be used for strategic purposes.

The escalation of the PKK in the Eastern provinces of Turkey and the arms race between Turkey and Greece has increased the need for arms procurement. However, the most important event that triggered the dependency and need for a strong arms industry was the beginning of the Syrian Civil War and the Rise of ISIS in the Middle East in 2011. As terror attacks from both ISIS and PKK struck Turkey, the Turkish government realized the importance of a functioning and innovating arms industry. Slijper argues that; "Turkey's procurement of military equipment is clearly shaped by

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[134] Savunma Sanayii Müsteşarlığının Kurulması Ve 11 Temmuz 1939 Tarih Ve 3670 Sayılı Milli Piyango Teşkiline Dair Kanunun İki Maddesi İle 23 Ekim 1984 Tarih Ve 3065 Sayılı Katma Değer Vergisi Kanununun Bir Maddesinde Değişiklik Yapılması Hakkında Kanun

[135] Hen-Tov, E. (2004). The Political Economy Of Turkish Military Modernization. Middle East Review of Internatio nal Affairs, 8(4), p.49-59

[136] Weitz, R. (2014). Turkeys new regional security role: implications for the United States. Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press. p.123

the Kurdish conflict… More recently, Turkey has also attacked targets in Syria."[137]. Furthermore, according to Korkmaz; "the common reason for developing a domestic defense industry, Turkey has three major unique reasons for developing its own industry. The first reason is experience learned from history, the second is terrorist attacks that occur in Turkey's Southeast regions, and the third is its geographical and strategic position and nearness to conflict zones."[138]. However, there is another important factor which has become a driving force for Turkey to build its own defense industry.

The Turkish government has been struggling to enhance its capabilities in the arms industry so that Turkey could be self-sufficient and independent in terms of arms procurement. The need for such independence surfaced when the U.S. congress blocked the transfer of two Oliver Hazzard Perry-Class guided missile frigates in 2014 and also the congressional block for drone sales towards Turkey made the Turkish government more ambitions on acquiring such technology. [139] The German government has also rejected the arms requests of Turkey, 11 requests were rejected due to the concern of human rights violations since 2016.[140]

A column writer Güngör Uras has divided the Turkish arms procurement and defense industry policy after the Cold War into four parts. Uras argues that, before the 1990s Turkey procured the majority of its arms by exports from foreign producers.[141]

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[137] Slijper, F. (2017). Turkey's Military Build-Up: Arms Transfers and an Emerging Military Industry. Power Projection. p.7

[138] Korkmaz, G. (2009). An Analysis of Turkey's Defense Systems Acquisition Policy. Naval Postgraduate School. p.64

[139] Turkey Builds a Military-Industrial Complex to Match Its Ambitions. (n.d.). Retrieved August 17, 2017, from https://worldview.stratfor.com/article/turkey-builds-military-industrial-complex-match-its-ambitions

[140] Ibid

[141] Aras, G. (2015, September 8). Savunma sanayii önem kazanıyor. Retrieved August 17, 2017, from http://www.milliyet.com.tr/yazarlar/gungor-uras/savunma-sanayii-onem-kazaniyor-2114607/

Beginning from the 1990s until 2000, the Turkish defense industry was focused on joint production of arms with foreign companies.[142]

Between the years 2001 and 2011, the Turkish defense industry has ambitiously pursued domestic designs in the production of arms, for example Altay, Milgem, Anka ve Hürkuş projects were mutually designed with foreign partners.[143] According to Weitz; "Turkey sees producing its own tanks, helicopters, UAVs, and fighter jets as high-priority national projects…the Turkish government has sought to raise the share of items and services purchased from the country's own defense industries...In 2008, Turkey had more than 200 defense companies and 1,000 subcontractors dealing in $3 to $4 billion worth of business. That year, Turkey was the world's 28th largest arms exporter."[144]. During these years the Turkish arms industry started to develop an independent arms industry. Akça argues that; "In the 2000s, the military modernization project was believed to have led to "partnerships with foreign capital, imports, and indebtedness." Hence, in 2004 Turkey adopted a new model to reduce its dependency on foreign contractors, with which Turkey previously partnered in arms production, by 50 percent and to produce weapons domestically."[145]. This was a tactical maneuver for the Turkish arms industry. The arms industry lacked the know-how and the technology to produce unconventional and technological arms and with this maneuver the Turkish government increased its chances for developing sophisticated arms in the future. Moreover, according to Korkmaz; "Increasing the domestic contribution rate to develop an independent defense industry is the primary aim of Turkey's defense systems acquisition policy. Although the domestic contribution rate has an increasing trend, and the 2010 objective is achievable according to trend analysis, comparing

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[142] Ibid

[143] Ibid

[144] Weitz, R. (2014). Turkeys new regional security role: implications for the United States. Carlisle, PA: Strategic Studies Institute and U.S. Army War College Press. p.125

[145] Akça, I., İlhan, E., & Kalaycıoğlu, E. (2010). Military-economic structure in Turkey: present situation, problems and solutions. İstanbul: TESEV. p.25

these numbers with other countries shows that special emphasis is needed to reach the level of developed countries and achieve the primary objective of this policy."[146]. Uras argues that; starting from 2011 until 2020 is the era of domestic production for the Turkish defense industry has begun and the projects for producing a domestic helicopter, fighter jet and satellite has been initiated.[147]

During the opening ceremony of the Radar and Electronic Warfare Technology Center in Ankara, President Erdoğan said; "We plan to eliminate external dependency on defense equipment supply with ongoing projects and investments by 2023. We will not allow the use of any ready defense equipment without our being involved from design to production…"[148]. In his speech President Erdoğan addressed the ambitions of the Turkish defense industry and that his administration was working to end the foreign dependency of this industry. Slijper argues that; "Whereas currently half of its military equipment is still bought abroad, Turkey – unrealistically - aims to be self-sufficient by 2023. Its emerging arms industry has also fostered exports; Turkey is currently the world's 18th arms exporting country."[149]. Even though the Turkish arms industry is more underdeveloped from its counterparts, it has still managed to become the world 16th largest arms exporter in 2016 according to SIPRI.[150]

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[146] Korkmaz, G. (2009). An Analysis of Turkey's Defense Systems Acquisition Policy. Naval Postgraduate School. p.64

[147] Aras, G. (2015, September 8). Savunma sanayii önem kazanıyor. Retrieved August 17, 2017, from http://www.milliyet.com.tr/yazarlar/gungor-uras/savunma-sanayii-onem-kazaniyor-2114607/

[148] President Erdoğan: Turkey to eliminate defense supply dependence. (2015, March 17). Retrieved August 17, 2017, from https://www.dailysabah.com/politics/2015/03/16/president-erdogan-turkey-to-eliminate-defense-supply-dependence

[149] Slijper, F. (2017). Turkey's Military Build-Up: Arms Transfers and an Emerging Military Industry. Power Projection. p.7

[150] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

4.4 Defense Companies in Turkey

Today there are many companies operating in different areas in the Turkish arms industry. From avionic defense to military outfit design there are many companies segmented according to the products they produce. According to Wioeniewski; "Turkish exports are comprised in large majority of land systems, such as armored vehicles and artillery pieces. While these products can generate substantial revenue and require advanced technologies, they are generally less sophisticated than air and naval platforms and thus are easier to manufacture (this increases the number of suppliers on the global market) and produce less added value."[151] The Turkish arms industry is more focused on land vehicles and land defense systems rather than other areas; the main reason that lies behind that focus is the geopolitical condition of Turkey. As mentioned before Turkey faces the majority of its threats and attacks from land, this is the main reason that its arms production are focused on land defensive military equipment.

The largest company operating in the arms industry in Turkey is ASELSAN. ASELSAN was established in 1975 as a company which produced military communications equipment by the Turkish Armed Forces Foundation. Today ASELSAN has become the largest company in the arms industry with 1 Billion Dollar revenue according to SIPRI.[152]Furthermore, according to SIPRI ASELSAN is the 69th largest arms company in the World.[153] The first product of ASELSAN was delivered to the Turkish Armed Forces in 1980, the products was "the first manpack and tank wireless radios"[154]. In 1986, ASELSAN contributed to the power of Turkish Armed

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[151] Wioeniewski, R. (2015). Military-Industrial aspects of Turkish defence policy. Rocznik Integracji Europejskiej, (9), 14th ser., p.220

[152] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

[153] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

[154] Milestones. (n.d.). Retrieved August 17, 2017, from http://www.aselsan.com.tr/en-us/about-us/Pages/milestones.aspx

Forces with the Electronic Warfare and Data Terminal appliances it developed.[155] In 1988, ASELSAN produced the first avionic appliance for the F-16 program.[156] These and much more developments were integrated into the Turkish Armed Forces. Currently, the Turkish Armed Forces Foundation holds 84,58% of the total shares of ASELSAN, the 15,30% of the company shares are traded in the Istanbul Stock Exchange and the 0,12% of the shares belong to other groups.[157] ASELSAN is currently occupied with multiple major projects and it is well segmented according to the products it produces. Its products range from military and public safety communication systems, space technologies, information technology systems, electro-optic systems, navigation and avionics systems, naval systems, air and missiles defense systems, unmanned, security and weapons systems, radar, electronic warfare and transportation systems to energy systems.

The second largest company operating in the arms industry of Turkey is Turkish Aerospace Industries (TAI). Before TAI, TUSAS was established in 1973 under the Ministry of Industry and Technology.[158] The purpose of its establishment was to reduce foreign dependency. As the need for F-16s increased in the Turkish Air Force, TUSAS Aerospace Industries, Inc.(TAI) was established to supply that demand. In 2005 TAI was restructured, TAI and TUSAS were merged into the TAI we know today. Currently, the Turkish Armed Forces Foundation holds 54,49% of TAI's shares, 45,45% of the shares belong to the Undersecretariat for Defense Industries and lastly the 0,06% of the shares belong to the Turkish Aeronautical Association.[159] According

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[155] Ibid

[156] Ibid

[157] Shareholder Structure. (n.d.). Retrieved August 17, 2017, from http://www.aselsan.com.tr/en-us/InvestorRelations/Corporate-Governance/Pages/Shareholder-Structure.aspx

[158] TAI, I. T. (n.d.). Company Profile. Retrieved August 24, 2017, from https://www.tai.com.tr/en/about-us/company-profile

[159] Industries, I. T. (n.d.). Company Profile. Retrieved August 17, 2017, from https://www.tai.com.tr/en/about-us/company-profile

to SIPRI, TAI was the world's 78th largest arms supplier in 2016 and its revenue in 2014 was 1 Billion Dollars. Currently, TAI is occupied with three major projects; the first project is the first indigenous jet fighter the TAI TFX, the second major project is the T-129 ATAK attack helicopter and the last major project is the ANKA UAV. The TAI TFX project has been initiated in 2011 and it's planned to be produced in 2023. The T-129 ATAK helicopter has already been developed and 16 helicopters were serviced to the Turkish Armed Forces in November 2016.[160] Furthermore, it is planned that until the end of 2017 this number will rise to 35.[161] The ANKA project was initiated in 2013 and the Turkish government ordered 10 ANKA UAVs. The ANKA was developed and introduced in 2016 with a test flight in Elazığ. TAI's services range from design, development, and manufacturing, integration of aerospace systems, modernization to after sales support.

Otokar is one of the most promising armored vehicle production companies in Turkey. Furthermore, it is the largest privately-owned defense industry company in Turkey and it is established in 2005. Otokar is focused on armored vehicle production. Moreover, the company also produces turret systems and has sold its products to 30 countries. It most prominent product is the Cobra 4X4 currently used by the Turkish Armed Forces. Currently, Koç Holidng owns 45% of Otokar's shares, in second place is Ünver Holding with 25% and 30% of the shares belong to other investors.[162] Otokar was chosen to develop the indigenous tank Altay in 2008 and Otokar has developed it in a short period. In 2018 the Tank Altay will be added to the inventory of the Turkish Armed Forces but the company which will mass produce the Tank Altay is not certain.

FNSS Defense Systems is another prominent company operating in the Turkish

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[160] Turkey"s indigenous helicopter to be equipped with locally-made missiles - Economics. (n.d.). Retrieved August 17, 2017, from http://www.hurriyetdailynews.com/turkeys-indigenous-helicopter-to-be-equipped-with-locally-made-missiles.aspx?pageID=238&nID=106468&NewsCatID=344.

[161] Ibid

[162] Shareholding Structure. (n.d.). Retrieved August 17, 2017, from https://www.otokar.com/en-us/investorrelations/corporateinformations/Pages/shareholding-structure.aspx

arms industry. FNSS was established in 1988 as a joint venture company, 51% of the shares belong to Nurol Holding and 49% of the shares belong to BAE Systems.[163] FNSS has been focused on armored vehicles production, but it also produces weapon systems and offers services for the modernization of armored vehicles. Its current major project is the development of the medium weight tank KAPLAN MT. KAPLAN MT prototype was first publicly displayed in IDEF 2017.[164]

The Machine and Chemical Industry Company is one of the oldest corporations established by the Turkish government during the early years of the republic. This company is a completely state-owned company, officially established in 1950 with the consolidation of former state-owned companies operating in the defense industry. The company owns 10 factories which are built completely with its own capital.[165] The Machine and Chemical Industry Company produces small and heavy arms, arms ammunition, rockets and explosives, and lastly pyrotechnical products. According to Slijper; "MKEK also makes several types of firearms, including the JNG-90 sniper rifle, the T94 submachine gun and the MPT-76 and MKEK T50 assault rifles. The Turkish armed forces have ordered some 35,000 MPT-76 rifles and may eventually buy as many as 500,000 MPT-76s, replacing the H&K G3 and G33.110 MKEK also made the cannon for the T-155 Firtina howitzer built under South Korean license; it is currently developing the gun for the Turkish Altay battle tank."[166].

ROKETSAN was established in 1988 for the purposes of "possessing a leading institution in the country for designing, developing and manufacturing rockets and

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[163] Company Profile (n.d.). Retrieved August 17, 2017, from https://www.fnss.com.tr/en/corporate/about-us/company-profile

[164] M. (2017, May 09). IDEF'te yeni bir tank doğdu! Retrieved August 17, 2017, from http://www.milliyet.com.tr/idef-te-yeni-bir-tank-dogdu--otomobil-2447133/

[165] MKEK (n.d.). Retrieved August 17, 2017, from http://www.mkek.gov.tr/en/page.aspx?id=121

[166] Slijper, F. (2017). Turkey's Military Build-Up: Arms Transfers and an Emerging Military Industry. Power Projection. p.7

missiles"[167]. Turkish Armed Forces Foundation owns 55% shares of ROKETSAN, 14% of the shares are owned by ASELSAN, another 15% of the shares belong to Machine and Chemical Industry Company, %10 of the shares belong to Vakıf Bank a partially state-owned bank, another 5% of the shares belong to HAVELSAN, and the shares left are divided between a few companies.[168] ROKETSAN's products range from, land systems, air defense systems, naval systems, precision guided missiles, precision guided munitions, ballistic protection solutions to turn key delivery facilities.

RMK Marine was bought by Koç Group in 1997 and since then it has been under the umbrella of Koç Group. The company started by building yachts and from there it moved into the arms industry. The company had already developed the prototype of the costal security search and rescue ship "TCSG Güven" in 2011.[169] The ship was served to the costal security in 2013 and its tests were completed in 2014. Currently the company is occupied on four naval projects; one of these projects is the Corvette project, which is a medium sized battle ship, another project is the coast guard ship multipurpose project, which is a project to develop a multipurpose ship for the coast guard from better efficiency. One other project that RMK Marine has been working is the fast attack craft project, which is to build a small ship for multipurpose but the aluminum structure of the ship makes it less detectable. The last project RMK Marine is working on is the landing platform dock project, which is to build a large ship for the landing of multiple helicopters.

There are many other companies such as BMC, Katmerciler and YDS which operate in the Turkish defense industry and focus on different products. However, many of these companies are young and recently developing, which does not give them the edge to compete with other major players around the world. The Turkish defense

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[167] About Us. (n.d.). Retrieved August 17, 2017, from http://www.roketsan.com.tr/en/kurumsal/hakkimizda/

[168] Participations. (n.d.). Retrieved August 17, 2017, from http://www.roketsan.com.tr/en/kurumsal/ortaklik-yapisi/

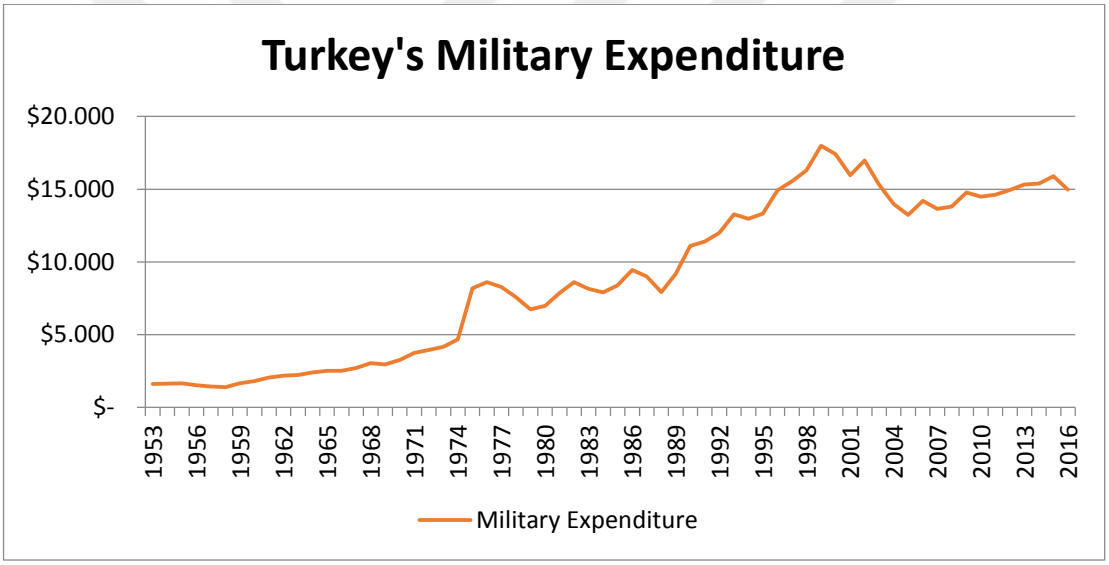
[169] RMK. (n.d.). Retrieved August 17, 2017, from http://www.rmkmarine.com.tr/tarihce.html

industry is developing very rapidly due to many factors; however, its success still remains a question.

4.5 Market Share

The Turkish Defense budget is the primary client of the Turkish arms industry. The Turkish arms industry has focused the majority of its potential on land vehicles. This shows that the need of the state and its security has great influence over the arms industry via the government.

Table 5: Turkey's Military Expenditure 1953-2016



Hundred Thousand U.S. Dollars

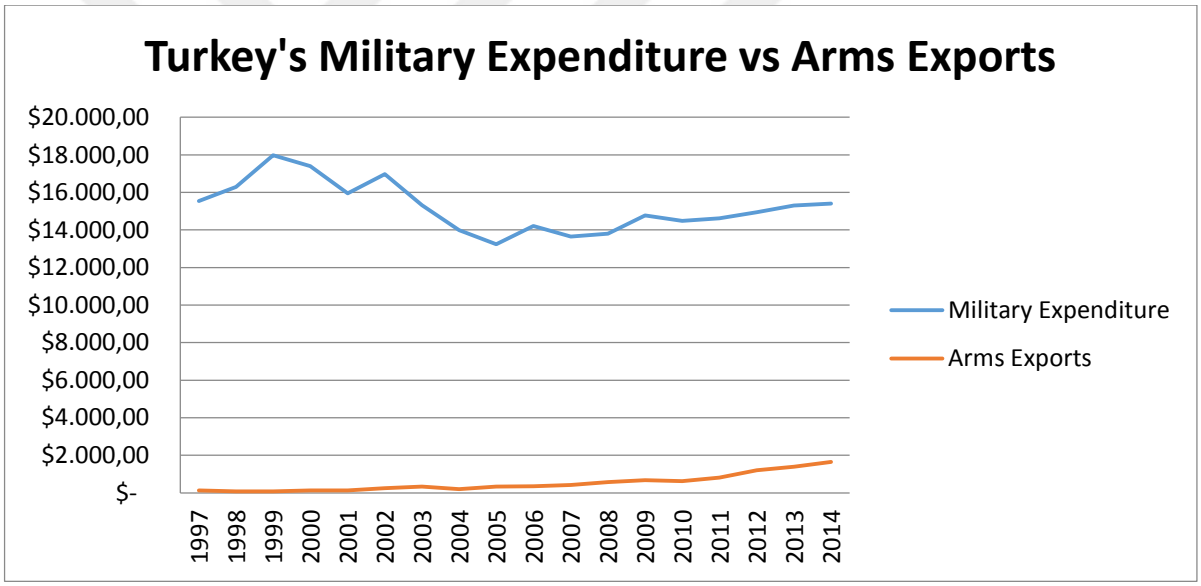
Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

The Turkish government has recognized that its potential threats could exist only on land, such as the PKK and ISIS in the southeast and that is the reason why the arms industry seems focusing more on land vehicles.

In 1988 the military expenditure started to increase incrementally because of the increase of PKK attacks in the southeast region of Turkey. This incremental increase halted in 1999 due to an economic crisis. In 2002 with the rise of JDP in the political

arena the trend of decrease continued for the military expenditure until 2007. Turkey had been struggling with military dominance over policies; with the military out of politics the government cut its military expenditure rapidly until 2011. The Turkish government began the Solution process in 2010 explicitly but the process ended in 2011 and the military expenditure started to increase due to the remerging terror attacks in the southeast of Turkey. Furthermore, with the beginning of the Syrian Civil War in 2011 the military expenditure was bound to increase. However, with the rise of ISIS in Syria and Iraq and ISIS terror attacks in Turkey, eventually led to an exponential increase of military expenditure in 2013. In 2016 the military expenditure of Turkey slightly decreased.

Table 6: Turkey's Military Expenditure vs Arms Exports 1997-2014



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

The arms exports have increased while the government expenditure decreased, which means that when the domestic market shrinks due to the decrease of military expenditure, the arms industry starts looking for other markets. This shows that the Turkish arms industry is developing and expanding its capabilities and finding new markets, but the market share of the Turkish arms industry in exports has globally increased from 0.3% between the years 2007-2011 to 0.7% between the years 2012-

2016.[170] In the upcoming years, if the Turkish arms industry develops as planned by the Turkish government, it will become an industry that could compete with its counterparts in the global market more efficiently. The 2023 goals of the Turkish government is to become fully independent in terms of arms procurement and technology.

4.6. Application of the Diamond Model

According to Gurtaş; "The report also said the defense industry employed more than 35,000 employees, including over 10,000 engineers in the year."[171]. The number of universities in Turkey has rapidly increased in the past ten years and more flow of recent graduates is expected join the defense industry work force in Turkey.

Unlike Russia and the United States, Turkey does not enjoy the properties of a mine and energy rich land. Majority of the parts and goods required in the defense industry is procured through foreign imports.

Training employees for a skilled work force has become a recent trend in Turkey. The defense industry has also followed that trend. Istanbul Technical University has signed an agreement with the Undersecretariat of Defense Industries in 2015, for the training of 300 thousand individuals for the development of the Turkish defense industry.[172]

Without proper infrastructure, the defense industry is in need of huge capital. The fixed costs of manufacturing equipment are very high and the defense industry is in need for financing. The Undersecretariat of Defense Industries has signed a protocol

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[170] SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

[171] Gürtaş, M. A. (2017, June 14). Turkish defense industry sees over 20 percent growth. Retrieved September 15, 2017, from http://aa.com.tr/en/economy/turkish-defense-industry-sees-over-20-percent-growth/841471

[172] Istanbul Technical University. (2015, August 21). Savunma Sanayii Araştırmacıları İTÜ'de Yetişiyor. Retrieved September 15, 2017, from http://www.itu.edu.tr/haberler/2015/08/21/savunma-sanayii-ara%C5%9Ft%C4%B1rmac%C4%B1lar%C4%B1-i-t%C3%BC%27de-yeti%C5%9Fiyor

with EximBank to finance the infrastructure development of the defense industry. The "Defense Industry Export Support Credit" would be given to any company in need of it.[173]

In recent years the infrastructure has become an important issue in the defense industry. Since the government has begun to pursue indigenousness in the defense industry, the Undersecretariat of Defense Industries has pushed companies operating in the defense industry to build their own infrastructure.[174] Furthermore, the Undersecretariat of Defense Industries has seen this infrastructure development as a chance to pursue indigenous production.

The largest customer of the Turkish defense industry is the Turkish Armed Forces and gradually the Turkish government.[175] According to Bilgen; "There is very demanding local customer, Turkish Armed Forces and Security Directorate. Their needs are so complicated that they are mostly met in global market. Hence, it is vital essential to understand the needs and desires of the customers."[176]. Furthermore, there is also foreign demand to Turkish defense products. The Turkish arms exports have doubled since the last five years now it has become a 7,6 Billion US Dollar business.[177]

There are many industries related to the defense industry such as automotive, telecom and IT. These industries are currently present in Turkey. Moreover, the

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[173]Savunma Sanayii İhracatı Destek Kredisi (SSİDK) Protokol İmza Töreni. (2013, March 11). Retrieved September 15, 2017, from http://www.ssm.gov.tr/anasayfa/hizli/duyurular/etkinlikler/torenler/arsiv/2013/Sayfalar/11032013_Ssidk.aspx

[174] Tarihçe. (n.d.). Retrieved September 15, 2017, from http://www.ssm.gov.tr/anasayfa/savunmaSanayiimiz/Sayfalar/tarihce2.aspx

[175] Fcc Uluslararası Finans Yatırım Yönetim Danışmanlık A.Ş. (2012). Çorum Savunma Sanayi Sektörel Araştırma Raporu. p.16

[176] Bilgen, H. (2010). COMPETITIVENESS OF DEFENSE INDUSTRY IN TURKEY. INTERNATIONAL JOURNAL OF ECONOMICS AND FINANCE STUDIES, 2(1), p.68

[177] BloombergHT. (2017, January 04). Savunma sanayi ihracatı 5 yılda 2'ye katlandı - Bloomberg HT. Retrieved September 15, 2017, from http://www.bloomberght.com/haberler/haber/1969661-savunma-sanayi-ihracati-5-yilda-2ye-katlandi

Defense and Aerospace Industry Manufacturers Association has been established to bring together related and supporting industries that aid and operate in the defense industry.

There is competition between domestic rivals for the improvement of competitiveness, especially in the areas of UAVs and Armored Land Vehicles. Furthermore, equal opportunities are given to domestic and foreign companies but the domestic companies are not able to compete with global companies.

The most commonly known benefit to be given to a developing industry by the government is a tax exemption. Tax exemption does not only encourage production but also research and development and innovation. A tax exemption incentive has been taken by the government until 2023 for the development of the arms industry.[178] Another incentive taken by the government for the development of the defense industry is an "investment incentive"[179].

[178] T.C. Bilim, Sanayi ve Teknoloji Bakanlığı. (2016, August 10). Teknoloji Geliştirme Bölgeleri Uygulama Yönetmeliği. Retrieved September 15, 2017, from http://www.resmigazete.gov.tr/eskiler/2016/08/20160810-8.htm

[179] Akdeniz İhracatçı Birlikleri. (2015, February). Yeni Teşvik Sistemi & Yatırımlarda Devlet Yardımı. Retrieved September 15, 2017, from http://www.akib.org.tr/files/downloads/Ekler/Yeni_Tesvik_Sistemi.pdf

CHAPTER 5

SOUTH KOREA

In this chapter, this thesis will firstly examine the historical background of the South Korean defense industry. Furthermore, it will describe the characteristics of the industry and examine the largest companies in the defense industry. Lastly, this thesis will analyze the market share and certain patterns of market behavior. Afterwards, it will apply Porter's Diamond Model to assess the competitiveness of the country's defense industry.

5.1 Introduction

South Korea currently is the 13th largest arms exporter according to SIPRI and it holds 1% of the global arms market. South Korea, as a state under constant threat had to develop advanced military technology to sustain its security. As a new state South Korea has developed advanced military technology in a short period of time and started competing in the global arms market.

5.2 Historical Background

In 1953 the Korean War ended with the signing of an armistice agreement between the South and North. However, the tensions between both sides had not yet faded. In the upcoming years these tensions, had turned into military confrontations. Furthermore, after the 1960s North Korea started show its military hostility towards South Korea via provocations. In the aftermath of the war the South Korean economy was devastated and its means of production was cut because the majority of factories were damaged during the war. Moreover, the economy was so bad in South Korea that the government could not invest capital into creating an arms industry. According to Moon and Lee; "Despite the bitter experience of the Korean War, economic backwardness prevented the South Korean government from allocating a larger portion

of public expenditure to the defense sector."[180]. South Korea became more and more depended on U.S. weapons and logistic assistance.

Until the late 1960s, nearly all weapons and military equipment that was procured by the South Korean Armed Forces were provided by the United States under the United States Military Assistance Program. Moon and Lee argue that; "For example, U.S. military assistance reached $356 million in 1958, almost three times South Korea's total defense budget of $143 million."[181]. South Korea did not have capital, resources and the technology to start domestic production of arms. It was the United States commitment to secure the Korean peninsula that drove, South Korea to pursue an economic recovery policy rather than to establish a domestic defense industry. Towards the end of the Vietnam War, the U.S. policy towards the Korean peninsula changed dramatically, according to Lee; "This posture, conditioned no doubt by U.S. entanglement in an unpopular and unwinnable war in Vietnam, disappointed and worried the South Korean government. But the major shock was yet to come - the July 1969 declaration of the Nixon Doctrine ("Asian hands must shape the Asian future") with which the Nixon administration began to disengage from the Far East. Shaped by domestic budget politics, the doctrine provided, among other things, for the withdrawal of an entire combat division from Korea by March 21, 1971 (the Seventh Division, with a force of 24,000)."[182]. This created panic in South Korea and a suspicion towards the United States started to increase.

South Korea saw that the commitment of the United States to secure the Korean peninsula was slowly fading. However, the worst was yet to come. According to Lee, "The doubt grew stronger after the United States abandoned Vietnam in 1975. It was

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[180] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journa, 8(13), 2nd ser., p.2

[181] Ibid

[182] Lee, Y. H. (1992). Defense Industry And Its Impacts On Economıc Growth In Korea. Naval Postgraduate School, p.19

especially pronounced following Carter's announced intention to withdraw U.S. ground troops from Korea in 1977."[183]. These doubts and suspicions led the South Korean government to embrace a domestic military industrialization policy.

The unstable Korean peninsula enabled the path towards the establishment of a self-sufficient defense industry in South Korea during the early 1970s. To reach this goal, President Park Chung Hee initiated the Republic of Korea Armed Forces Improvement Plan. According to Lee; "In response to the Korean Improvement Plan, during the annual US-Korea Security Consultative Meeting in 1973, the United States formally pledged to assist Korea in developing its munitions industry. This was to be part of the compensation for reducing the US military presence."[184]. This was one of the turning points of the South Korean defense industry. According to Moon; President Park's long term objective was; "President Park's plan was based on five principles: 1) The incremental development of the industry for the sake of long-term efficiency, competitiveness and safety; 2) The Establishment of a long-term plan for defense demand and government support due to the role of the government as a singled-out buyer; 3) Promoting second-source firms among the civilian industry; 4) Matching the defense industry plan with the overall economic and heavy-industry development plan; and 5) Limiting the concentration of defense production to no more than thirty percent in any one firm."[185]

During that period the South Korean industry lacked certain elements that enabled the establishment of a defense industry. For that reason, President Park took incentives to establish the pillar heavy industries that would enable a defense industry. However, the South Korean administration asked for larger military aids and the United States was willing to give it. This gave the South Korean administration

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[183] Ibid

[184] Ibid

[185] Moon, H. (2010). The Diamond Approach To The Competitiveness Of Korea's Defense Industry: From The Park, Chung Hee To Lee, Myung Bak Era. Journal of International Business and Economy, 11(2), p.79

flexibility on allocating the budget on heavy industries rather than spending it on military equipment. Lee argues that; "the United States provided Korea with a wide range of defense related technology by means of technical data packages, manufacturing license agreements and coproduction in the framework of security technical assistance. The availability of defense technology through United States security assistance was one of the key factors enabling the Korean defense industry buildup."[186]. In 1977 the heavy industrial sector was supported by the South Korean administration, especially the industries related to the defense industry. The heavy industry received such high support that nearly 80% of manufacturing investments went to the heavy industry.[187] The South Korean administration was so focused on investing in the heavy industrial sector that the administration created the National Investment Fund.[188]

There are three important policies that have enabled the defense industry to develop in South Korea. According to Lee, these policies are; "The Force Modernization Plan (1971-75), the Force Improvement Plan (1976-80), and the Second Force Improvement Plan (1982-86)."[189]. The Force Modernization Plan was the first policy that allocated investments towards the research and development of defense related products in South Korea.[190] However, there was another major outcome of this policy, which was the establishment of the Agency of Defense Development in 1970. The role of this agency was to support the private sector with research and development in the areas of defense. The authority to procure defense technology was directly given to the Agency of Defense Development. The Force

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[186] Lee, Y. H. (1992). Defense Industry And Its Impacts On Economıc Growth In Korea. Naval Postgraduate School, p.20

[187]Ibid, p.31

[188] Ibid, p.31

[189] Ibid, p.32

[190] Ibid, p.32

Modernization Plan helped South Korea to build a solid infrastructure for the defense industry.

The Force Improvement Plan did not meet its goals but it was an important step towards building a defense industry. The South Korean administrations took better precautions, while they were advancing towards the second Force Improvement Plan which was initiated in 1981. The private sector was not enthusiastic to join defense related production because the risks of getting involved were high. The South Korean administration tried to ease this process by giving incentives to companies that got involved in defense related production. According to Lee; "In order to coopt them as agents of defense industrialization, the Korean government provided them with immense corporate-level incentives within the legal framework of the newly created "Special Law for the Promotion of Defense Supply." These incentives included: congressional financing to defense contractors four points below market rates; special provisions for excise and value-added tax credits; advance payment for up to 90 percent of sales contracts; exemption from import tariffs; concession of plant sites; and finally the military draft exemption for skilled employees in the defense industry."[191]. During this period the military-industrial complex of South Korea started to emerge. During the Force Improvement Plan the decisions and actions about the defense industry was given by three people; according to Lee; "These three people were President Park, Won Chul Oi (then economic secretary to the president in charge of heavy and defense industry) and Mun Taik Shim (then director of the ADD). All decisions on the defense industry were made by these three. Once decisions were made, they were implemented quickly. In fact, it was this highly centralized decision-making structure that was responsible for the rapid implementation of the defense industrialization plan."[192].

The incentives given by the government to defense suppliers were not enough;

[191] Ibid, p.34

[192] Ibid, p.36

to increase the financial assistance towards the defense industry the South Korean government imposed a National Defense Tax.[193] Furthermore, notion wide fund raising campaigns were launched to support the defense industry, and majority of these funds were allocated to the research and development projects in the defense industry.[194] According to Moon and Lee; "As part of the effort to modernize and upgrade its weapons and equipment, the Park Chung-Hee government initiated and implemented the first phase of the armed force modernization project (Yulgok Project) by imposing a new defense tax. Almost 30 percent of the defense budget was allocated to the Yulgok project, amounting to a cumulative total of 3.14 trillion won during 1974-1982."[195]. The South Korean government prohibited any kind of debate on these issues because they were matters of national security and defense.

The assassination of President Park in 1979 led to economic instability in South Korea. The funding and process of industrialization in South Korea was very successful but the agricultural sector was suffering, especially rice scarcity became an economic burden for the people and the government. The GNP of South Korea declined for the first time since the Korean War. After this economic trauma in 1980, the support towards the defense sector started to decrease. The President's decision making power in defense industry development shifted to the Ministry of National Defense and Ministry of Commerce and Industry.[196] The decision making process became less centralized in the area of defense industry and the budget allocated to research and development had depreciated. The new President Chun Doo Hwan, established the Korean Institute of Defense Analysis to aid the defense industry and

[193] Ibid, p.35

[194] Ibid, p.35

[195] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journa, 8(13), 2nd ser., p.3

[196] Lee, Y. H. (1992). Defense Industry And Its Impacts On Economıc Growth In Korea. Naval Postgraduate School, p.38

established communication between this agency and the Ministry of National Defense.

South Korea had already achieved self-sufficiency in producing conventional arms in the early 1980s and the domestic defense contract market started to shrink.[197] According to Lee; "Defense production capacity became underutilized. For example, the utilization rate of defense-industrial plants hovered below the 50-percent level in 1984. Moreover, nine defense contractors went bankrupt during the period 1980-84."[198]. This indicates that due to the economic trauma the defense sector began to suffer, because its primary customer "the South Korean government" decreased its defense contracts. The contract decrease is mainly because of the new allocation of the defense budget. During this period the South Korean offsets program was initiated. According to Han and Park; "South Korea began its offsets program in 1983 and formalized mandatory offsets in 1987. At present, mandatory offset arrangements are adopted for all defense purchases that exceed US$10 million with the level of offsets required at least 30 percent."[199].

5.3 Characteristics of the South Korean Defense Industry

There were two important events that occurred in the beginning of the 1990s that paved the way for the development of the South Korean defense industry. One of these events was the end of the Cold War and the second event was South Korea's democratic transition. According to Moon, "President Roh championed a self-reliant defense posture and had interested in the domestic development of military technology. For instance, the trend of the policy, defense-related R&D investment

[197] Ibid, p.39

[198] Ibid, p.39

[199] Han, N. S., & Park, J. S. (2004). The Defense Offset Policy in South Korea. The KIDA Papers, (4), p.5

increased from 1.4 percent in 1988 to 3 percent in 1993."[200] During this period the Korean defense industry began to change, the defense industry started to decrease the production of imported goods and started to produce indigenous products which were locally researched and developed. According to Moon and Paek; "procurement policy favoring domestic defense materiel, as opposed to foreign acquisition, has played an important role in boosting the ROK defense industry. The ratio of domestic to foreign procurement throughout the 1970s was 54 percent (domestic) versus 46 percent (foreign). In the 1990s, the figure changed to 77.5 percent (domestic) versus 22.5 percent (foreign). This trend continued between 2000 and 2007."[201].

During the Kim Young-Sam government between the years 1993 and 1997 the defense industry suffered because of the downsizing of the defense budget after the Cold War. According to Moon; "Since the end of the Cold War, however, most defense contractors have suffered severe financial difficulties due to defense budget reductions. Companies producing rifles and guns, for example, are operating at 40 percent of capacity, far short of the optimal rate for maintaining economic productivity."[202]. Furthermore; President Kim, wanted to depoliticize the military, unlike President Roh he did not prioritize on innovating military strategy, new weapons systems and force structure.

The Roh, Moo hyun administration served in South Korea between the years 2003 and 2008. The Roh administration reversed the trend of its predecessors, the share of the defense budget was increased and the administration wanted to reduce the dependency on U.S. advanced weapons and equipment. In June 2005, President Roh,

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[200] Moon, H. (2010). The Diamond Approach To The Competitiveness Of Korea's Defense Industry: From The Park, Chung Hee To Lee, Myung Bak Era. Journal of International Business and Economy, 11(2), p.86

[201] Moon, C., & Paek, J. (2010). Defense Innovation and Industrialization in South Korea. Policy Brief No. 14, p.4

[202] Moon, H. (2010). The Diamond Approach To The Competitiveness Of Korea's Defense Industry: From The Park, Chung Hee To Lee, Myung Bak Era. Journal of International Business and Economy, 11(2), p.88

established the Committee on Defense Reform, which drafted the "Defense Reform 2020" plan.[203] This reform aimed at establishing a self-sufficient national defense system through technology-intensive military structure and future-oriented defense capability.[204] According to Weitz; "Defense Reform Plan 2020, enacted in 2005, emphasized a self-reliant defense posture through increasing indigenous capabilities and defense R&D. The Plan aimed to grow the defense budget 11.1 percent annually through 2015 and 7.1 through 2020. Although defense spending has not grown as rapidly as planned, private defense R&D investment increased from $132.2 billion in 2005 to $410.7 billion in 2008."[205] President Roh, wanted to give more incentives to the defense contractors, to increase the research and development of defense technologies he enacted the Law of Defense Procurement in 2006.

President Lee was elected in 2008, he increased the defense budget but at the same time cut the government expenditure due to the financial crisis of 2008. According to Rim and Lee; "In the year of 2008, a newly launched government has chosen 'promoting defense industry as a new economic growth' among one of national agenda."[206]. This was the only way for the government to be able to invest in the defense industry during the 2008 financial crisis. However, it proved to be a good strategy because it facilitated economic growth. According to White Paper; "In 2009, defense industry exports amounted to USD 1.16 billion, increasing 16 percent from USD 1 billion in 2008. In addition, the export market has jumped from 59 in 2008 to 74 countries in 2009, with exports diversifying to include electronics, telecommunications and vessels rather than the ammunition and maneuver equipment

[203] Ibid, p.95

[204] Ibid, p.95

[205] Weitz, R. (2013). South Korea's Defense Industry: Increasing Domestic Capabilities and Global Opportunities. Korea Economic Institute of America : Academic Paper Series, p.4

[206] Rim, C., & Lee, H. (2010). The Effects Of Korean Government's Defense Industry Fostering Policy On The Performance Of Defense Industry Enterprises. International Public Procurement Conference, p.3

that were the main exports in the past."[207] In 2010 North Korea attacked the South Korean ship Cheonan and shelled the Yeonpyeongdo Island in 2010.[208] These events encouraged the Lee Myung-Bak administration to take precautions such as upgrading the missile defense systems in South Korea. Montague argues that; "South Korea's dedication to increasing its missile defense is shown through its defense budget. In the summer of 2013, Yonhap News reported that the ROK's Ministry of Defense proposed to spend 13.7% of its budget on missile defense for the 2014---2018 fiscal years, which is reportedly a 4.2% increase from the 2013 defense budget."[209].

During the Presidency of Park Geun-hye between the years 2013 and 2017 the South Korean government was willing to take precautions, so that the events which occurred in 2010 would never occur again. According to the Virgina Economic Development Partnership report; "the Ministry of National Defense (MND) has strived to reinforce the defense system by announcing 3 national defense policies in 2015; 1) establishing strong security through effective reaction capability, 2) developing various ways to promote trustworthy communication procedure, and 3) continuing intimate diplomatic relations between South and North Korea for peaceful unification and regional stability."[210]. Furthermore, the South Korean arms industry has strived under the South Korean government. Lee and Munroe argue that; "South Korea was the 13th biggest exporter of major arms in 2014, up from 30th eight years ago, according to IHS A&D Balance of Trade 2015."[211]. South Korea is looking forward to

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[207] Defense White Paper. (2011). Ministery of National Defense, Republic of Korea, p.228

[208] Korea Business Services. (2015). South Korea's Defense Market and the Procurement Procedure. Virginia Economic Development Partnership, p.4

[209] Montague, K. (2014). A Review of South Korean Missile Defense Programs. The Marshall Institute Policy Outlook, p.3

[210] Korea Business Services. (2015). South Korea's Defense Market and the Procurement Procedure. Virginia Economic Development Partnership, p.4

[211] Lee, J., & Munroe, T. (2015, April 22). South Korea seeks bigger role in global arms bazaar. Retrieved September 02, 2017, from http://www.reuters.com/article/us-southkorea-defence-exports/south-korea-seeks-bigger-role-in-global-arms-bazaar-idUSKBN0ND0TW20150422

enhance its domestic arms production capabilities and technology to get a larger share of the global arms trade. However, with the election of President Moon Jae-in and the turmoil rising in the Korean Peninsula and the North Korean nuclear threat accelerating, the future of the South Korean arms industry unpredictable.

5.4. Defense Companies in South Korea

In South Korea there are many companies operating in the area of defense. Due to the use of a dual-strategy approach, the government has enabled the application of technology for both the civil and the military sector. According to Moon and Paek; "Although defense production was embedded in the commercial and industrial sectors, synergy effects from both sectors were insignificant. It was only after the introduction of laws concerning the promotion of civil–military dual use in 1999 that more systematic attention was given to the promotion of dual use technology."[212]. As a result of these policies, commercially known brands such as Samsung and KIA are also operating in the South Korean defense industry, using the same technology for both sectors. Moreover, Lee argues that; "The fusion of the defense and commercial industries in the hands of these big conglomerates resulted from the political process. There is no competition in defense contracts."[213].

Doosan Group was established in 1896 as a conglomerate. It operates in many areas but also in the defense industry. The company produces tanks, armed vehicles, and hydraulic systems for stationed armed missile systems, naval weapons and radars. Its current projects are the Electric Direct Drive System for mounted turrets and the Variable Suspension and Wheel Drive System for the Quadruped Legged Robot for

[212] Moon, C., & Paek, J. (2010). Defense Innovation and Industrialization in South Korea. Policy Brief No. 14, p.5

[213] Lee, Y. H. (1992). Defense Industry And Its Impacts On Economic Growth In Korea. Naval Postgraduate School, p.97

UMVs.

Hanwha Corporation was established in 1952 as an explosives company in South Korea. It is the current market leader in the explosives industry in South Korea. Hanwha's defense division which was established in 1974 and is equipped with the largest defense capabilities in South Korea.[214] The company's web site indicates that; "In 2015, we conducted large-scale mergers and acquisitions, expanding our businesses that had been previously focused on ammunition and guided munitions to include self-propelled guns and engines for aircraft and fleet, as well as defense electronics such as radar and combat systems. We have been selected as the developer of the Long-Range Surface-to-Air Missile (L-SAM) system, the key to the Korea Air and Missile Defense (KAMD) system."[215]Under the Hanwha Corporation there are many affiliated sub-companies; one of these companies is Hanwha Techwin. Hanwha Techwin is a company that produces, aircraft engines for the civil and defense sector, core manufacturing arms, CCTV and surveillance products. Furthermore, Hanwha Techwin has become South Korea's first company to develop a collaborative robot, called "HCR-5", which made its debut on the market in April 2017.[216] Another three of these companies are Hanwha Systems, Hanwha Land Systems and Hanwha Defense Systems. Hanwha Land Systems is producing solutions for firepower, unmanned/robot systems and energy storing systems.[217] Hanwha Defense Systems is producing infantry fighting vehicles, air defense weapons, guided weapons, launching systems,

[214] Hanwha Corporation | Hanwha. (n.d.). Retrieved September 15, 2017, from http://www.hanwha.com/en/products_and_services/affiliates/hanwha_corporation.html

[215] Hanwha Techwin | Hanwha. (n.d.). Retrieved September 15, 2017, from http://www.hanwha.com/en/products_and_services/affiliates/hanwha-techwin.html

[216] Ibid

[217] Hanwha Land Systems | Hanwha. (n.d.). Retrieved September 15, 2017, from http://www.hanwha.com/en/products_and_services/affiliates/hanwha-land-systems.html

high-precision navigation, and laser weapons.[218] Hanwha Systems is developing weapon, integrated logistics, post production support (ILS, PPS).[219] Furthermore, Hanwha Systems offer solutions to ground, naval, air command, control, communication, computer, and intelligence (C4I), guided weapons, electronic warfare (EW), and future combat systems.[220]

Another major company operating in the South Korean defense industry is KIA Motors established in 1973. KIA Motors is producing armored land vehicles and it currently has five lines of vehicles, the KLTV series, KM450 series, KM250 series, KM500 series and lastly the KM1500 series. All of these series can be adjusted into multi-purpose vehicles according to needs. One of the company's latest products is the KLTV Shelter cargo truck, which is a small armored vehicle which has a tactical communication systems mounted on it.

LIG Nex1 is another major company operating in the South Korean defense industry. LIG Nex1 was established in 1976 as Goldstar Percision, a company which was producing weapon systems. Furthermore, currently the company's products range from precision guided munitions, intelligence, surveillance, and reconnaissance systems, command, control and communication systems, avionics, electronic warfare products, unmanned/robotics, cyber warfare to high-energy weapons.

Another major company operating in the South Korean defense industry is Korean Aerospace Industries. Korean Aerospace Industries was established in 1999 and its focus in the defense industry is avionics. Currently it produces three lines of planes, the T-50 supersonic advanced trainer and light attack jet, the KT-1 basic trainer plane and the KC-100 single-piston 4 personal transport and training plane. The

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[218]Hanwha Defense Systems | Hanwha. (n.d.). Retrieved September 15, 2017, from http://www.hanwha.com/en/products_and_services/affiliates/hanwha-defense-systems.aerospace-mechatronics.html

[219] Hanwha Systems | Hanwha. (n.d.). Retrieved September 15, 2017, from http://www.hanwha.com/en/products_and_services/affiliates/hanwha-systems.html

[220] Ibid

company is currently developing a new line named the KF-X which is an advanced jet fighter.[221] Korean Aerospace Industries produces one line of helicopter the KUH-1 and its currently developing a light armed helicopter. Furthermore, Korean Aerospace Industries also produce and focus on UAVs, airframes, aircraft modifications and upgrades, maintenance, repair and overhaul, training system development and space programs.

One other major company operating in the South Korean defense industry is S&T Dynamics. S&T Dynamics is established in 1959 and is an usher in the precision machinery industry in South Korea. Currently its products range from mobile equipment, gun and cannon systems, protection weapons to aviation. S&T Motiv is another company operating in the South Korean defense industry. Its production is focused on rifles, squad automatic weapons, crew served weapons, sub-machine guns and pistols.

5.5 Market Share

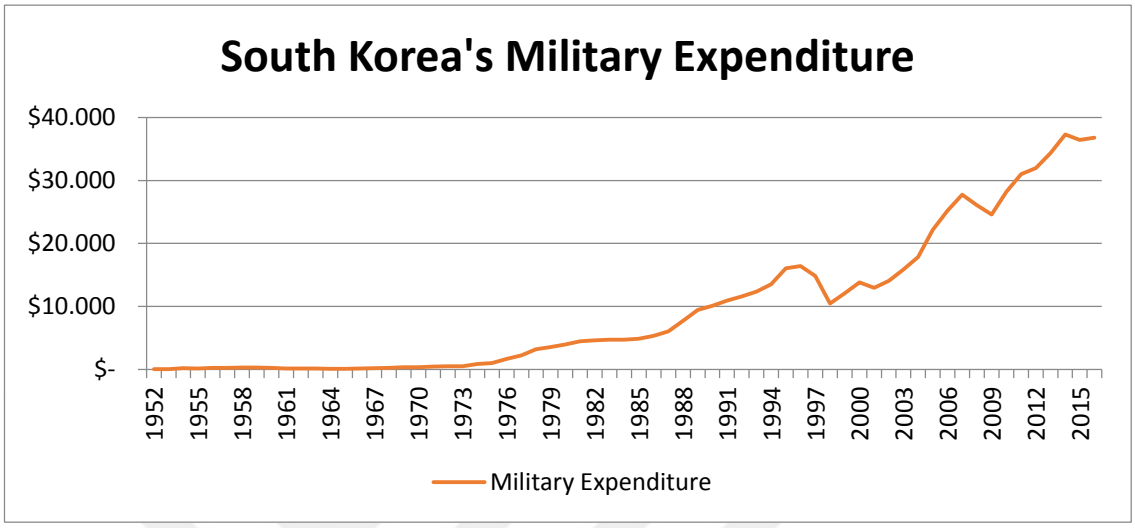
South Korea's military expenditure has not experienced any significant increase until the mid-1970s due to its economic condition after the Korean War. Lee and Moon argue that; "Despite the bitter experience of the Korean War, economic backwardness prevented the South Korean government from allocating a larger portion of public expenditure to the defense sector."[222]. The military expenditure increase in the mid-1970s was due to the increasing provocations of North Korea in the Korean Peninsula and the U.S. backing from its commitment of regional security

[221] KAI Korea Aerospace Industries, LTD. (n.d.). Retrieved September 15, 2017, from http://www.koreaaero.com/english/product/productAll.asp

[222] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journal, 8(13), p.2

during the Nixon administration.[223]

Table 7: South Korea's Military Expenditure 1952-2015



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

Industrialization became a top priority for the South Korean government; the industry lacked the basic components, to form a fully functioning defense industry during the 1970s. Until 1998, the military expenditure just faced a few adjustments, especially defense spending was cut from 4.8 billion U.S. dollars in 1983 to 4.1 billion U.S. dollars in 1984.[224] Until 1997 the growth trend of the military expenditure continued. However, in 1997 and 1998 the military expenditure faced a significant decrease due to the economic crisis. According to Moon and Lee; "The immediate cause of the downturn was the acute financial crisis in 1997-98, which necessitated a severe fiscal contraction as well as the diversion of government budget to the welfare sector in order to expand the social safety net for victims of the crisis."[225]. The military expenditure could not recover to its former status until 2003. In 2009 the military

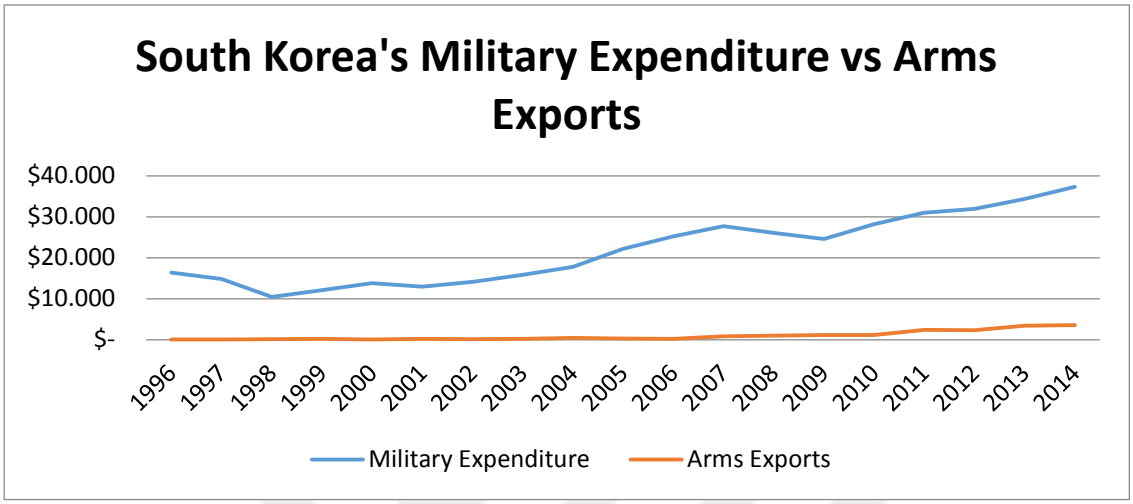
[223] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journal, 8(13), p.2

[224] Ibid, p.3

[225] Ibid, p.3

expenditure decreased again due to the 2008 economic crisis. However, the increasing trend continued afterwards.

Table 8: South Korea's Military Expenditure vs Arms Exports 1996-2014



Hundred Thousand U.S. Dollars

Source: SIPRI, https://www.sipri.org/databases, (accessed 20 June 2017)

The South Korean arms exports have been very stable until the mid-2000s. However, after 2016 the South Korean arms exports started to increase incrementally. This was clearly a sign that the competitiveness of the South Korean arms industry was increasing. According to Lee and Lee; "Exports of defense materials were USD 250 million in 2006, but steadily increased to USD 1.031 billion in 2008, USD 1.19 billion in 2010, and USD 2.35 billion in 2012, a 940 % rise over 2006. The main export items formerly were ammunition and parts, but have recently diversified into more value-added, high-tech weapon systems such as ships and aircrafts thanks to increased competitiveness. This is attributed to an increase in the capability of manufacturing Korean T-50 advanced trainers, patrol frigates, and mine sweepers."[226]. The South Korean arms industry is one of the most prominent defense industries in the world. The South Korean defense industry is becoming more and more competitive.

[226] Lee, H., & Lee, J. (2013). Korean Offset Trade Model in Defense Industry. Advanced Science and Technology Letters, p.59

5.6 Application of the Diamond Model

Korean Times argue that; "According to the defense ministry, the country's defense industry output totaled $6.5 billion as of 2008 and employed 24,000 workers."[227] However, the South Korean government is planning that; in 2020 the number of employees serving in the South Korean defense industry will be 50 thousand.

South Korea like Russia has many physical resources. South Korea is a leading global producer of cadmium, slab zinc, and steel and a leading regional producer of refined copper, pyrophyllite, cement, zeolites, and talc.[228].

Unlike Turkey, South Korea had realized the importance of sectoral training long years ago. They had already been training their work force for the development of their defense industry and also for the development of any other industry. According to an article released by Mckinsey & Company; "To instill this confidence, South Korea will need to invest more in its workers. This means establishing incentives so companies invest in helping employees develop new skills. It also means more support for lifelong learning programs, including vocational training. Currently, South Korea spends less than 1 percent of its total education budget on such programs."[229]. These efforts of the South Korean government have paid off in the long run.

Mainly the defense sector is dominated by the conglomerates of South Korea. These companies have already access to capital for defensive investments. However, the government also uses incentives and low interest rate credits to support the capital

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[227] Jeong-ju, N. (2010, October 19). Korea seeks to become major arms exporter. Retrieved June 01, 2017, from http://www.koreatimes.co.kr/www/news/nation/2010/10/116_74835.html

[228] Thomas, G. (2013, December 12). South Korea: Mining, Minerals and Fuel Resources. Retrieved September 15, 2017, from https://www.azomining.com/Article.aspx?ArticleID=60

[229] Mckinsey & Company. (2010, April). South Korea: Finding its place on the world stage. Retrieved September 15, 2017, from http://www.mckinsey.com/global-themes/asia-pacific/south-korea-finding-its-place-on-the-world-stage

needs of companies operating in the South Korean defense industry.

Like the United States, South Korea has built state-of-art infrastructure into its new industry. Due to the dual-use of technology, both military and civil industries have developed infrastructures that enable them to develop advanced machinery and weaponry. Again due to the dual-use of technology both the military and the civil sectors have enjoyed the benefits of advanced technology, the mutual infrastructure allowed both parties to share technological advancements with each other.

Currently the South Korean government is the largest client the South Korean defense industry has. Furthermore, the South Korean government and army is a very demanding customer, which eventually increase the rate of innovation in the South Korean defense industry due to competition.

There are many related and supporting industries such as aviation, automotive, machinery, chemical production, telecom, IT, robotics. Since, the majority of the defense companies operating in the South Korean defense industry are conglomerates. Some of these industries become complimentary to the other. For example, Samsung is a mobile and IT technology developer but at the same time Samsung Techwin develops aircraft engines and robotics for manufacturing.

The defense industry is structured majorly as conglomerates and other smaller firms. However, smaller firms are generally get acquired or merged with large conglomerates. There is strong competition between arms manufacturing conglomerates, to get the government contracts all sides rival with each other. However, South Korean defense industry also sees itself as a global competitor. According to Lee and Munroe; “The industry, developed mostly with American technology during a decades-long standoff with North Korea, is hoping to sustain that growth by selling beyond its main export markets in Southeast Asia into Latin America, Europe and the United States…"They've got a strong combination of technology, skills, reasonable costs, an export-driven economy, and a domestic defense market that's large enough to justify home-grown products," said Richard

Aboulafia, vice president at the Virginia-based Teal Group."[230].

The government has taken many measures over the years towards industrial succession. From enacting laws to promote the defense industry, to giving tax exemptions the government has prepared the defense industry to the point it is today. According to Moon and Lee; "As part of the effort to modernize and upgrade its weapons and equipment, the Park Chung-hee government initiated and implemented the first phase of the armed force modernization project (Yulgok Project) by imposing a new defense tax. Almost 30 percent of the defense budget was allocated to the Yulgok project, amounting to a cumulative total of 3.14 trillion won during 1974-1982."[231]

[230] Lee, J., & Munroe, T. (2015, April 22). South Korea seeks bigger role in global arms bazaar. Retrieved September 15, 2017, from http://www.reuters.com/article/us-southkorea-defence-exports/south-korea-seeks-bigger-role-in-global-arms-bazaar-idUSKBN0ND0TW20150422

[231] Moon, C., & Lee, S. (2010). Military Spending and the Arms Race on the Korean Peninsula. The Asia-Pacific Journa, 8(13), 2nd ser., p.3

CHAPTER 6

CONCLUSION

This thesis has analyzed the competiveness of the defense industries of the four countries stated above. The United States holds the competitive advantage over all the countries this thesis has analyzed. However, this does not mean that the United States will keep being advantageous, if it does nothing. The United States defense industry is decreasing its work force, this means that the sector is shrinking. Defense firms should innovate for the development of new products to keep the sector stable. Furthermore, the defense industry suffers from the shortage of skilled labor; to prevent this industry based training should be offered to defense industry workers. The United States defense industry has enjoyed the benefits of immense capital and developed infrastructure. The sophisticated and demanding government has pressured the industry to innovate and improve. Larger firms have benefited more from the structure of the defense industry, where small and medium enterprises were left with small profits. In the global market the United States could face an overall decline in the future because of the increase in the currency rates; this will also affect the competitiveness of the firms. The government should continue to aid the industry with its "political jockeying" and incentivize the defense industry for incremental growth.

The Russia is less advantageous and competitive than the United States. There are already many workers in the defense industry but the ratio of skilled workers is low due to the lack of sectoral training. The defense industry of Russia is less innovative than most, it is true that there are ongoing projects but still Russian defense technology is in decline due to the lack of competition in the defense industry. Furthermore, the Russian defense industry has to upgrade its infrastructure if it wants to keep competing with the United States. The Russian government is not very demanding but it wants to increase its production capabilities to modernize the Russian army rather than to focus on technology and innovation. It is nearly certain that the

Russian arms exports will decline in the future because of the increasing global competition. The Russian government should pressure and motivate its defense industry to innovate if it wants to protect its place as the second largest arms exporter in the world.

Turkey has been building up its pillars for quite some time to advance its defense industry. However, the lack of infrastructure and physical resources, forces Turkey to become dependent on other states. The best strategy for the Turkish government is to diversify its imported arsenal, which will relieve the Turkish government from monopolistic dependency. The adoption of sectoral training is a milestone for the defense industry. The industry will enjoy the benefits of a skilled work force. The Turkish government is a very demanding customer; this embarks competition in the industry. Currently, three companies in Turkey have been producing UAV's; this is a result of competition. The structure of the industry is not as good as expected because the majority of the large companies belong to the Turkish Armed Forces Development Foundation, this creates less competition and projects take more time finish. On the other hand, private-owned companies in the Turkish arms industry can deliver government demands faster.

South Korea has come a long way since the Korean War. Its defense industry enjoys the benefits of an effective and well skilled work force. Moreover, its defense industry has very advanced infrastructure and is able to supply the demands of the industry with its physical resources. The South Korean government is already trying to diversify its foreign suppliers and tries to end its United States dependency. Furthermore, the South Korean government is very demanding and sophisticated, which increases competitiveness and innovation in the defense industry. Large conglomerates in the industry enjoy the dual-use of technology and innovation because it gives them technological edge in other industries.

To conclude, this thesis will be an example for future research. When analyzing total industries it is beneficial to use Porter's Diamond Model. However, it is also important to use other models for an effective comparison. If both of the models align then this will strengthen this model's approach.

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equipped-with-locally-made-missiles.aspx?pageID=23
8&nID=106468&NewsCatID=344.

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APPENDICES

A. TURKISH SUMMARY/TÜRKÇE ÖZET

Türkiye son yıllarda savunma sanayisinin rekabetini artırmak için insiyatifler almıştır. Birden fazla method kullanarak savunma sanayisinin performansını artırmaya çalışmıştır. Türkiye soğuk savaş sonrası savunma sanayisinin, Amerika Birleşik Devletleri, Rusya ve Güney Kore ile karşılaştırarak global savunma pazarındaki rekabetçiliğini bulmaktır. Bu karşılaştırmayı yapmak ve Türkiye'nin rekabetçiliğini bulmak için bu tezin kullanacağı araç Porter'ın elmas modelidir. Bu tez aynı zamanda Türkiye savunma sanayisinin global savunma pazarında rekabetçiliğini artırmak için ne yapabileceğini ortaya koymaya çalışmaktadır.

Herhangi bir ülkenin savunma sanayisini incelemek için ilk olarak o ülkenin savunma sanayisinin tarihi gelişimini izlemek gerekir. Bu tarihi gelişimi izlerken, en çok dikkat edilmesi gereken konu ise rekabetçi bir savunma sanayinin oluşumuna sebep olan güçlerdir. Ülkelerin rekabetçi bir savunma sanayi oluştururken kullandıkları stratejilerin derin bir şekilde incelenmesi gerekir.

Türkiye savunma sanayisi Cumhuriyetin başından beri çok değişime uğramış ve gelişmiştir. Türkiye'nin son zamanlarda "milli" ve "yerli" bir savunma sanayi arayışına girmesinin altında yatan sebeplerin bilinmesi çok önemlidir. Türkiye savunma sanayisinin gelişim ve satın alma metodlarının incelenmesi, bu stratejilerin oluşumunda ne kadar rol oynadığını bilmemiz gerekir. Bu tez aynı perspektiften bu dört devletin savunma sanayisini inceleyecek ve Türkiye savunma sanayisinin kendini geliştirebilmesi için ne yapılması gerektiğini bulmaya çalışacaktır.

Bu konuda bir tez yazmanın en zor yanı, kaynak eksikliğidir. Zor bir konu olduğundan bir çok akademisyen bu konuda çalışma yapmakta zorlanmaktadır. Devletler savunma ticareti bakımından şeffaflık göstermek istememişlerdir, bu

nedenle kaynak ve veri açısından bir kıtlık meydana gelmiştir. Bir takım akademisyen bu konuda detaylı çalışmalar yürütmektedirler.

Rekabetçiliğin incelenmesi konusunda iki dominant görüş vardır. Bu görüşlerden ilki Porter'ın Rekabetçilik Teorisidir, ikincisi ise Krugman'ın Rekabetçilik Konseptidir. Porter'a göre rekabete bir kişi kazanabilir çünkü pazar bellidir ve payı en yüksek olan ülke diğer ülkelerin paylarını kendilerine çekerek kazanırlar. Porter'a göre rekabet bütünsel olarak incelenebilir, bir ülke veya ülkenin bir sektörünün rekabetçiliği incelenebilir. Krugman ise rekabetin sadece ve sadece bölgesel olarak incelenebileceğini ve bütüsel bir bakış açısının gerçeği yansıtmayacağını ileri sürmektedir. Bu görüşler değerlendirildiğinde bu tez için en uygun araç Porter'ın Rekabetçilik Teorisidir.

Porter 10 ülke üzerinde yaptığı bir çalışma ile ülkelerin rekabetçiliklerini ortaya çıkaran bir model geliştimiştir. Bu modeli oluşturmak için 100'ün üzerinde vaka çalışması yapmıştır. Bu yaptığı modelin adınada elmas modeli demiştir çünkü bütün faktörler ile bir şekil yaratılmak istediğinde elmas şekli oluşmaktadır. Elmas modeli, 4 ana faktör ve 2 yan faktörün birleşiminden oluşmaktadır. İlk ana faktör ise durum faktörüdür. Durum faktörleri rekabetçiliği oluşturan ana girdilerden oluşur. Bu girdiler insan kaynakları, semaye kaynakları, fiziki kaynaklar, altyapı kaynakları ve bilgi kaynaklarıdır. İnsan kaynakları, o sektörde çalışan ve çalışabilen insanlar bütünüdür. Sermaye kaynakları ise belirli bir sektörün kendi finansmanı sağlayıp sağlayamaması ile alakalıdır. Fiziki kaynaklar ise madenler gibi sektör için gerekli fiziki kaynakların ulaşılabilirliği ile ilgilidir. Altyapı kaynakları ise o sektörün altyapısının eski, yeni, yeterli veya yetersiz olması ile ilgilidir.

Elmas Model'inin bir başka faktörü ise talep durumudur. Talep durumu üçe ayrılmaktadır, talebin kompoziyonu, talebin büyüklüğü ve yerli talebin içselleştirilmesidir. Porter'a göre fimalar yerli taleplere daha hızlı cevap verirler, bu sebeple yerli müşteri ne kadar talepkar ise üründe okadar iyi olmak zorundadır. Yerli talebe cevap verirken, firmaların inovasyonlar yapmaları gerekir ve bu geliştirmeler onalara uluslararası pazarlarda rekabet avantajı sağlar. Talebin büyüklüğü, firmaların

üretim hatlarını geliştirmelerine sebep olur ve artan bir üretim yapısı oluşur, bu artan üretim rekabetçiliği geliştirir.

Bu modelin başka bir faktörü ise ilgili ve destekleyici endistürilerdir. Destekleyici endistürilerin varlığı inovasyon ve gelişimi hızlandırır, yeni fırsatların ortaya çıkmasını sağlayarak rekabetçiliği artırır. Bir başka faktör ise firma strategileri, yapısı ve rekabettir. Rekabet firmalar arası rekabetçiliği artıran en büyük faktördür çünkü firmalar rekabet etmek için inovasyon yapmak zorundadırlar. Eğerki firmalar birbirlerine yakın ise birbirlerini izleyip, farklı stratejiler edinebilirler ve bu rekabetçiliği artırır. Bir sektörde firma sayısı artıkça birbirlerini taklit etmeye başlarlar ve rekabetle başa çıkabilmek için en iyi stratejileri kullanmaya başlarlar.

Bu faktörleri etkileyen iki tane element vardır bunlardan biri devlettir bir diğeri ise şanstır. Bazen şirketlerin kontrolünde olmayan gelişmeler yaşanır, bu gelişmeler firmalara bir yük veya rekabet avantajı olarak geri dönebilir, bazen de endistüriyi baştan değiştirebilir. Bu tür gelişmeleri şans olarak adlandırmaktadır Porter. Sektörlerde ve rekabetçiliklerinde devletin etkisi çok fazladır. Bir sektörde innovasyon ve ihraç artışı, devletin o sektör ile ilgilenmesinden kaynaklıdır. Bundan farklı olarak o sektörde girişimciliğin desteklenmesi de devletin elinde olan bir araçtır. Aynı zamanda devlet vergi imtiyazları vererek sektörlerin gelişimine katkı sağlayabilirler. Bu tez yukarıda belirtilen faktörleri, seçilen dört ülkenin savunma sanayilerini ayrı ayrı inceleyerek, Türkiye savunma sanayisinin nasıl rekabetçi olabileceğini bulmaya çalışacaktır.

Daha önce yukarıda belirtildiği üzere bu konuda kaynaklar çok limitlidir. Birincil bir kaynağa erişilebilmesi bile çok zordur, çünkü savunma sanayi ile ilgili konularda çalışanlar belirli konuları açıkça söylemekten çekinmektedirler. Aynı zamanda ikincil kaynakların azlığı bu konudaki çalışmaları yavaşlatmaktadır.

Amerika Birleşik Devletleri dünyanın en büyük silah ihracatçısıdır. 2012 ve 2016 yılları arasında toplam global savunma pazarının 33%'nü temsil etmektedir ve pazar lideridir. Ameirka Birleşik Devletleri'nin savunma sanayi arayışı 1775'lerde ortaya çıkmaya başlamıştır. Kıtalar arası açılımın yapılabilmesi adına 1775

yılında Kıtasal Kongre'nin Deniz Komitesi, kıtasal bir donanma kurma kararı almıştır ve o dönemde kurulan tersaneler Amerika savunma sanayisinin temel taşlarının oluşumunu başlamıştır.

George Washington'un felsefesi olan "yabancılar ile çekişmeden kaçınılması", 1914'e kadar devam etmiştir. Bu döneme kadar Amerikan ekonomisi endistüriyel ve tüketici ürünleri bakımından refah bir noktaya taşımıştı kendini. Teknolojik gelişmeler o döneme kadar sadece endistüriyel ve tüketici ürünlerinin üretim hatlarını geliştirmek için kullanılıyordu. Birinci Dünya Savaşı'nda Amerika savunma sanayinde toplu üretimin önünün açılmasının en büyük sebebi, üretim hatlarının belirli sektörlerde hali hazırda kullanılıyor olmasıydı.

Özellikle o dönemde Fordist üretimin yaygınlaşması ve üretim hatlarının var olması, savunma sanayi üretimini kolaylaştırdı. Birinci Dünya Savaşı'nda Amerika Birleşik Devletleri genel olarak bir savunma tedarikçisi gibi davrandı. Satışlarının çoğunu Fransa ve İngiltereye yaptı. Sonunda sadece bir tedarikçi değil kendide savaşa katılmaya karar verdi. Avrupa'ya askeri birlikler gönderdi ve neredeyse bütün silah üretim tesislerine toplu üretim hatları kurdu.

Birinci Dünya Savaşı'ndan sonra Amerika savunma politikası birden "kendi çıkarlarını korumak" olarak değişti ve bu doğrultuda Milletler Cemiyeti'ni kurdu. 1929'da Büyük Buhran'ın ortaya çıkması ile Amerika ekonomisi krize girdi. Bankalar birden Avrupadaki ülkelere verilen kısa vadeli borçların geri verilmesini talep etti. Bu kısa vadeli borçlardan en çok yararlanan ülke Almanya'ydı. Alman bankaları Alman ekonomisi ile beraber hızlı bir şekilde batmaya başladı. Nasyonel Sosyalist ve Komünist akımlar bu dönemde ortaya başgöstermeye başladı.

İkinci Dünya Savaşı'ndan önce Amerika silah üretimini kendi sahip olduğu tesislerde devam etti, ama silah üretimine destek olan endistüriler özel olup Amerikan ordusu tarafından işletiliyordu. 1940'ta Amerika silah üretimini özelleştirmeye başlamıştı artık özel firmalara kiralanan tesisler hızlı bir şekilde yaygınlaşmaya başladı. Amerika'nın savunma sanayi yolculuğu bu şekilde başladı.

Amerika özelleştirilmiş bir savunma sanayinin gelişim ve inovasyondan ziyade başka sonuçları olacağını tahmin etmişti. Amerika savunma sanayi zamanla lobileşerek, siyasi baskı yapmaya başladı. Bugün Amerika Dünya üzerindeki en güçlü savunma sanayiye sahip ülke oldu. Başkanlarına kendi silah satışlarını yaptırmak için Suudi Arabistan gibi savunma ithalatı yüksek ülkelere politik jokeylik yapmak için gönderebilecek güce geldi.

Amerika Birleşik Devletleri yerli üreticilerden silah tedarik ederken kullandığı belirli metrikleri 2007'de değiştirmiştir. Eskiden devlet maliyet bazlı bir satın alma politikası ile en düşük maliyeti öneren üreticiyle ihaleleri veriliyordu ama küçük ve orta ölçekli şirketler büyük ihallerin maliyetlerini düşüremiyorlardı çünkü ölçek ekonomisine sahip değillerdi. Amerika savunma sanayi hızlı bir şekilde monopolleşmeye başlıyordu ve sadece büyük şirketler devlet ihalelerini kazanabiliyordu. Devlet ihale metriğini zaman olarak değiştirdikten sonra, hem monopolleşmeyi engellemiş oldu hem de en hızlı talep ettiği ürünü üretene ihalelerini veriyordu. Bu savunma sanayinde monopolleşmeyi durdurdu ve rekabeti canlandırdı.

Sovyetler Birliği'nin kurulmasından sonra, 1920'de Sovyetler Birliği savaş hazırlıklarına başlamıştı. Sadece güçlü bir silahlı kuvvetler yaratmak değil ama aynı zamanda güçlü bir silahlı kuvvetlere silah tedarik edebilecek tesisler inşaa etmeye başlamıştı. Sovyetler Birliği bütçesinin büyük bir kısmını savnma sanayine aktarıyordu ama firmalar devlete ait oluğu için firmalar kendi başlarına hareket edemiyorlardı. Tek başına hareket edemediklerinden dolayı araştırma ve geliştirme konusunda geri kalıyorlardı.

Sovyetler Birliği savuma sanayinde iki çeşit fabrika vardı, ilki "cadre", yani sürekli üretim ve geliştirme yapan fabrikalar ve ikinci olarak "reserve", yani yarı zamanlı savunma sanayi üretimi yapan fabrikalardı ve savaş durumunda atıl duruma getirilirlerdi. Ama zaman içinde güvenlik kaygısının artması nedeniyle bütün "reserve" fabrikalar dönüştürülmüş ve "cadre" olarak çalıştırılmaya başlanmıştı.

Sovyetler Birliği'nde bütün üretim planlaması devlete bağlıydı ve çok merkeziyetçi bir yapıya sahipti. Lakin savunma sanayinin gelişiminde başka faktörler

rol oynadı. Sovyetler Birliği'nde araştırma ve geliştirme çalışmaları sadece merkezi hükümetin projelere oney vermesi ile mümkündü. Onay verilmeyen projeler finanse edilmiyor ve rafa kaldırılıyorlardı. Bu sebepten dolayı devlet içinde firmalar birbirleri ile fonlanmak için yarışır hale geldi.

İkinci Dünya Savaşı Sovyetler Birliği ekonomisini çok etkiledi, Almanya ile savaş sırasında silah tedariğinin kesilmemesi için üretimin büyük bir kısmı savunma sanayine kaydırıldı. Savaş zamanında bireysel olarak insifatif kullanan liderler ortaya çıkmaya başladı ve bu kişiler olağanüstü yetkiler ile donatıldı. Üretim planlaması bakanlıklardan bu liderlere aktarıldı ve 1942'ye kadar güç bu liderlerin elinde kaldı.

İkinci Dünya Savaşı'ından sonra Sovyetler Birliği dünya çapında bir odak haline geldi. Bu savaştan Sovyetler Birliği bir ders çıkardı bu ders her zaman savaşa hazırlıklı olmaları gerektiğiydi. Sovyetler Birliği savunma sanayisi bir merkezileşme hareketine girdi ve çoğu fabrika doğuya taşıdı. Savaş sonrası ilgileri üzerine çeken Sovyetler Birliği, Amerika Birleşik Devletleri ile çıkarları birbirlerine ters düştüğü için iki taraf birbirleri ile çatışmaya başlamıştı.

Amerika Birleşik Devletleri'nin İkinci Dünya Savaşı sonunda kullandığı atom bombaları bütün dünyada yankı bulmuştu. Sovyetler Birliği, Amerika Birleşik Devletleri'nin kullandığı atom bombasında çok etkilenmişti ve aciz durumda olmaktansa aynı silahı kendi elde edip, durumları dengelemek istemişti. Korku iki ülke arasında bir silahlanma yarışı başlatmıştı.Sovyetler Birliği çok kısa bir zaman içerisinde atom bombasını üretmiş ve atom bombasından dört yıl sonra ise hidrojen bombasını geliştirmişti. Silahlanma yarışı Sovyet ekonomisinin çökmeye başlaması ile yavaşlamış ve 1990'da Sovyetler Birliği'nin çöküşü ile durmuştu.

Sovyetler Birliği'nin kalıntılarından Rusya Federasyon'u doğdu. Rejim değişikliğinin getirdiği bir çok sorun ile başbaşa kalmıştı federasyon. Sağlık ve emeklilik gibi sosyal haklar tamamiyle kaybedilmişti ve ekonomi durma noktasına gelmişti. Federasyın ilk yıllarında, ekonomik güçlükleri ortadan kaldırmak ve ekonomiyi yeniden toparlamak için uğraşı. 1994'teki Birinci Çeçen Savaşı'na kadar

askeri olarak zayıfladığının farkına varmamıştı. 1996'da federasyon savaşı kaybetti ama çok önemli bir ders çıkardı, taktikleri ve teknolojileri zayıflıyordu. Savunma sanayi altyapısı eskiyor ve çalışanlar yaşlanıyorlardı. O dönemde sadece silahların yüzde yirmisi güncel silahlardı. 2000 yılında Vladimir Putin'in başkan seçilmesi ile savunma bütçesi artırıldı ve askeri yatırımlara önem arttı. Putin'in aklında tek bir düşünce vardı o da Rus Ordusu'nun yenilenmesiydi.

Osmanlı İmparatorluğu'nun yılıması ile, 1923'te Türkiye Cumhuriyeti kuruldu. Devletçilik politikasının etkisiyle yerli sanayinin inşaasını devlet destekledi. Özel sektörün yerli sanayiyi inşaa edebilecek kadar sermayesi yoktu, bu nedenle devlet eli ile bu sanayilerin oluşumu desteklendi. Savunma sanayini destekleyen sanayiler, Makine Kimya Endistürisi Kurumu'nun altında birleştirildi. Sanayiye nitelikli işçi yetiştirmek için teknik okullar açıldı.

Adnen Menderes'in 1950'de Başbakan seçilmesi ile beraber 1952'de Türkiye NATO'ya katıldı. Savunma tedariği batı odaklı olmaya başladı. Bu nedenle o dönemde Türkiye'de savunma sanayi gelişemedi. Marshall Plan'ının derveye girmesi ile fabrikalar kapatılmaya başlandı. 1974'e kadar savunma tedariği batılı ülkelerden yapıldı ama Kıbrıs Çıkarmasını takiben Türkiye'ye konulan abargo ile milli savunma sanayiye yatırımlar devlet eli ile yapılmaya başlandı. İşte bu dönemde Türk Silahlı Kuvvetleri Geliştirme Vakfı kuruldu, bu vakfın amacı milli savunma sanayiyi kalkındırmak ve Türk Silahlı Kuvvetlerine silah tedarik etmekti.

Devlet, milli bir savunma sanayi oluşturmak amacından vazgeçip, yerli savunma sanayiyi destekleme amacını edindi. ASELSAN ve TUSAŞ bu dönemde kuruldu. Ama Devlet umduğu gibi bir savunma sanayi yaratamadı, bunun nedeni ise tasarım ve teknolojik gerilikti. Bu sorunu çözmek için yabancı sermaye ve teknolojinin Türkiye'ye getirilmesi için çalışıldı ve yabancı ortaklıklarla yerli savunma sanayi desteklenmek istendi. Lakin 1990lara kadar dışa bağımlılığı azaltacak gelişmeler yaşanmadı. Özellikle Güney Doğu'da PKK gibi terrör örgütlerinin oluşumu, Suriye İç Savaşı ve İŞİD'in Suriye ve Irak'ta güçlenmesi Türkiye Cumhuriyetin'de güvenlik

konusunda kaygılara yol açmıştır. Bu gelişmelerdne dolayı savunma sanayi önem kazanmıştır.

Güngör Uras'a göre Türkiye 1990ların başından 2000lerin başına kadar, devlet ortak üretim politikasını benimsemişti savunma sanayide. Yabancı firmalar ile yerli firmaların işbirlikleri ile oluşturulan konsorsiyumlar ile ortak üretim benimsetilmek istenmişti savunma sanayide. En azından yerli bir katkının varlığı bile o dönemde çok önemliydi.2001 ile 2011 yılları arasında ise yerli tasarım politkası ile en azından üretilen ürünün tasarımın yerli olması konusuda adımlar atıldı, bu yerli tasarımın ilk örnekleri, Altay, Milgem ve Anka projeleriydi. 2011 ile 2020 yılları arasında ise yerli üretim politikası ile yerli jet, uydu ve helikopter üretilmeye çalışılıyor.

Türkiye'nin savunma sanayisini etkileyen en büyük dezavantaj, Amerika Birleşik Devletleri ve Rusya kadar doğal kaynağa sahip olamamasıdır. Son zamanlarda sektörel eğitim bütün Dünya'da ve Türkiye'de güçlü bir trend haline geldi. İstanbul Üniversitesi 2015'te savunma sanayiyi kalkındırma amacı güderek 300000 kişiye savunma sanayiye yönelik sektörel eğitim vermek ve savunma sanayiye kazandırmak için Savunma Sanayi Müsteşarlığı ile bir protokol izmalamıştır. Bu da savunma sanayiye verilen önemi kanıtlar niteliktedir.

Güney Kore, 1953'te Kore Savaşı'nın sonunda kurulmuştur. Savaş bitmiş olsa bile iki taraf içinde tansiyonlar zaman zaman yükselmeye devam ediyordu. 1960lara doğru Kuzey Kore, saldırganlığını göstermeye başladı. Kore Savaşı'ndan sonra Güney Kore'nin ekonomisi yerle bir olmuştu, üretim durma noktasına gelmişti, çünkü fabrikaların çoğu savaş sırasında zarar görmüştü. Güney Kore'nin durumu okadar kötüydü ki, devletin sanayileri yeniden canladırmak için kullanabileceği bir sermaye yoktu. Güney Kore her geçen gün Amerika Birleşik Devletleri silah ve lojistik desteğine daha fazla ihtiyaç duyuyordu.

1960'a kadar neredeyse tedarik edilen bütün silah ve mühimmatlar Amerika Birleşik Devletleri tarafından tedarik ediliyordu ve buna Askeri Destek Programı adı verilmişti. 1958'de Amerika Birleşik Devletleri tarafından verilen mühimmatların değeri, o yılki savunma bütçesinin üç katıydı. Güney Kore, yerli bir

savunma sanayiye yatırım yapmaktansa, kendi ekonomik iyileşmesini odak olarak aldı. Vietnam Savaşı'nın sonlarına doğru Amerika Birleşik Devletleri, Güney Kore'ye yardımlarını kesmeye başladı ve 1971'de tümüyle yardım programını sonlandırdı.

1970lerde Güney Kore kendi kendine yetebilen bir savunma sanayi için yatırınmlarını yapmaya başladı. O dönem, Başkan Hee Güney Kore Silahlı Kuvvetleri geliştirme programını açıkladı. 1973'te Amerika Birleşik Devletleri, Güney Kore'nin muhabere mühimmatı endistürisine yardım etmeye söz verdi. Bu gelişmeler Güney Kore için bir dönüm noktası olacaktı. Güney Kore sanayisi, sağlıklı bir savunma sanayi kurulması için yeterli altyapıya sahip değildi. Başkan Park, savunma sanayinin destekleyici bir sanayisi olan ağır sanayileri inşaa etmeye beşladı. Amerika Birleşik Devletleri tarafından ücretsiz tedarik edilen silahlar ve mühimmatlar sayesinde, savunma bütçesinin büyük bir bölümünü ağır sanayinin gelişimi için kullanıldı.Amerika Birleşik Devletleri, Güney Kore'ye savunma teknolojisi, üretim lisansları ve ortak üretim ile kendi savunma sanayisini geliştirmesi konusunda yardımcı oldu. 1977'de ağır sanayi devlet tarafından desteklenmeye başladı, üretim yatırımlarının 80%'i ağır sanayiye ayrıldı. Devlet ağır sanayiye okadar odaklanmıştı ki Ulusal Yatırım Fonu'nu ağır sanayiyi desteklemek için kurdu.

Silahlı Kuvvetler Geliştirme Plan'ı istenilen sonucu vermemiş olsada, yerli bir savunma sanayinin ilk adımları atılmış oldu. İkinci Silahlı Kuvvetler Geliştirme Plan'ı 1981'de devreye alındı. Özel sektör savunma sanayi ile ilişkili üretim yapmak konusunda pek istekli değildi, bunun üstesinden gelmek için devlet savunma sanayi ile ilgili üretim yapan firmalara belirli imtiyazlar tanıdı. İşte tam bu dönemde Güney Kore savunma sanayisi ortaya çıkmaya başladı. O dönemde, savunma sanayi ile ilgili kararlar merkeziyetçi bir şekilde veriliyordu. Karar merkezi olduğundan çabucak uygulanıyordu.

Devletin savunma sanayiye ile ilişkili üretim yapan firmalara verdiği imtiyazlar yeterli olmadı. Devlet, şirketlere finansal olarak destek olabilmek için Ulusal Savunma Vergisi'ni çıkardı. Aynı zamanda savunma sanayinin kalkınabilmesi için ulusal kampanyalar başlatıldı. 1979'da Başkan Park'a düzenlenen suikasttan

sonra, tarım sektörü çok büyük bir darbe aldı ve ülkede pirinç kıtlığı baş gösterdi, devlet sanayiyi desteklemek için fonlar oluşturuken, tarım sektörü kendi haline bırakıldı. Bu ekonomik travma, savunma sanayiye verilen desteklerin azalmasına sebep oldu.

Bu tez yukarıda belirtilen dört ülkenin savunma sanayisinin rekabetçiliklerini incelemiştir. Ameirka Birleşik Devletleri rekabetçilik açısından en güçlü konumdadır ama bu uzun vadede değişebilir. Amerikan savunma sanayisinde çalışan insanların sayısı her geçen yıl azalmaktadır, bu sektörün yavaş yavaş daraldığına işaret etmektedir. Amerikan savunma sanayi, büyük sermaye ve gelişmiş altyapının pozitif etkilerini görmüştür. Amerikan Devleti Amerika savunma sanayinin en büyük müşterisidir ve çok talepkar bir müşteridir. Bu zor talepler Amerika savunma sanayisinin gelişiminde büyük rol oynamıştır, çünkü yerel pazarda rekabet yaratmıştır. Firmalar inovasyon ve sürekli geliştirmeler ile kendilerini en büyük müşterileri için hazırlamışlardır. Amerika savunma sanayisindeki büyük firmalar gelirin büyük bir kısmını paylaşırken, orta ve küçük ölçekli işletmelere çok ufak bir pay kalmıştır. Global pazarda Amerika rekabet avantajını yavaş yavaş kaybetmeye başlamıştır. Bunun en büyük nedeni ise parite farkları ve NATO içerisinde bulunmayan devletlerin satın almada farklılaştırmaya gitmesidir. Silah ithal eden ülkeler Amerikan savunma sanayisine bağımlı kalmak istememişlerdir. Lakin politik jokeylerin(siyasilerin) yardımları ile Amerikan savunma sanayisinin global pazarda büyümesi devam etmektedir.

Rusya savunma sanayisi, Amerika Birleşik Devletleri'ninki kadar rekabetçi değildir. Rusya savunma sanayisinde çalışanların sayısı fazla olmasına rağmen, sektörel eğitimin yaygın olmamasından dolayı çalışan kalitesi düşüktür. Rusya'nın ileri teknoloji barındıran bir çok projesi olmasından ziyade, teknolojisi gerilemektedir çünkü savunma sanayisinde yerel rekabet çok azdır. Eğer Rusya, Amerika ile yarışmak istiyorsa eskiyen altyapısını en kısa vadede yenilemelidir. Rusya savunma sanayisinin en büyük müşterisi Rus Devleti'dir. Rus Devleti çok talepkar değildir, odağı inovasyon ve geliştimelerden ziyade, üretim kapasitesinin artırmı ve Rus ordusunun yenilenmesidir. Rusya savunma sanayisi pazarda sahip olduğu payı

zamanla kaybetmeye başlayacaktır çünkü global rekabet artmaktadır. Rusya global silah pazarında yerini kaybetmek istemiyor ise, inovasyon için kendi savunma sanayisini motive etmelidir. Savunma sanayisi içinde rekabeti canlandırmalıdır, çünkü rekabet olmadan inovasyon ve gelişemelerin oluşması mümkün ama zordur.

Uzun zamandır Türkiye, savunma sanayisinin altyapısını oluşturmaya çalışmaktadır. Ama altyapı eksikliği, fiziksel kaynakların yoksunluğu, Türkiyeyi savunma açısından dışa bağımlı hale getirmiştir. Türkiye'nin uygulayabileceği en iyi strateji, ithal ettiği ürünleri farklılaştırarak, Amerika dışında başka ülkelerden satın alma gerçekleştirerek, tek bir ülkeye olan bağımlık oranını düşürmesidir. Türkiye savunma sanayinde sektörel eğitimler başlamış olup kaliteli çalışanlar yetiştirilmesi hedeflenmiştir. Devlet, Türkiye savunma sanayinin en büyük müşterisidir ve çok talepkardır, bu savunma sanayinde rekabeti canlandırmıştır. Türkiye savunma sanayinde, üç şirket insansız hava aracı üretmektedir bunun en büyük sebebi sektör içi rekabettir. Savunma sanayindeki büyük şirketlerin çoğu Türk Silahlı Kuvvetleri Geliştirme Vakfı'na aittir, bu şirketler arası rekabeti engelemektedir ve rekabet olmadığından projelerin bitiş süreleri uzamıştır. Savunma sanayide bulunan diğer firmalar ise rekabetçi olmak istediklerinden, devletin onlara ihale ettiği projeleri daha hızlı bitirmektedirler. Buna örnek olarak Ototkar'ın ürettiği milli Altay tankı da dahildir, çok kısa bir sürede tasarlamış ve yakın bir zamanda toplu üretime geçmesi planlanmaktadır.

Güney Kore'nin savunma sanayi iyi bir iş gücünün faydasını görmektedir. Güney Kore savunma sanayi altyapısı oldukça ileridir, sahip olduğu fiziki kaynaklar sayesinde endistürinin ihtiyaçlarını karşılayabilmektedir. Güney Kore Hükümeti, dışarıdan satın aldığı ürünlerin tedarikçilerini farklılaştırma yoluna çoktan girmiştir. Güney Kore devleti, çok talepkar bir müşteridir, bu savunma sanayisini rekabetçi bir konuma taşımıştır. Savunma sanayinde yer alan büyük firmaların teknolojinin hem sivil hem de askeri alanda kullanılmasından dolayı bu firmalar kendilerini ürettikleri sivil ürünler ile askeri yatırımlarını finanse edebilmiştir. Aynı

zamanda Güney Kore Hükümeti, savunma sanayinin gelişimi için bir çok imtiyaz vermiştir.

B. TEZ FOTOKOPİSİ İZİN FORMU

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YAZARIN

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Bölümü : Uluslararası İlişkiler

TEZİN ADI (İngilizce) : COMPETITIVENESS OF DEFENSE INDUSTRIES: A COMPARATIVE ANALYSIS OF THE UNITED STATES, RUSSIA, SOUTH KOREA AND TURKEY

TEZİN TÜRÜ : Yüksek Lisans [x] Doktora [ ]

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