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THESIS

**HOW CHINA COULD AFFECT THE FUTURE OF U.S.
DEFENSE CORPORATIONS**

by

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December 2010

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**HOW CHINA COULD AFFECT THE FUTURE OF U.S. DEFENSE
CORPORATIONS**

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Lieutenant, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

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ABSTRACT

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	PURPOSE AND IMPORTANCE	1
B.	PROBLEM AND HYPOTHESIS.....	2
C.	METHODOLOGY AND OVERVIEW	4
II.	DMNCS: SETTING THE STAGE.....	7
A.	SHAPING DMNCS OVER THE PAST TWO DECADES	8
1.	Mergers	10
2.	Civilian Sectors.....	12
3.	Internationalization	13
a.	Why Internationalize?.....	14
b.	Inherent Risks From Internationalizing.....	15
B.	OBSERVED BEHAVIORS.....	18
1.	Telling Tales of Waning Nationalism.....	18
2.	Arms as Political Influence	19
3.	Rebalancing of the Three Markets.....	21
4.	Boeing McDonnell Douglas Example.....	22
C.	CONCLUSION	24
III.	DANGEROUS DEPENDENCIES AND PRACTICES.....	25
A.	THE MUDDLED ART OF SUBCONTRACTING	25
1.	Why Subcontract	27
2.	Is Subcontracting a Common Practice?	29
3.	Subcontracting and the Problems With Regard to Data Collection	32
a.	HARM, ADCAP, VERDIN Report.....	33
4.	How Does This Apply to China?.....	35
a.	Profit Collapse.....	36
B.	DMNC CIVILIAN PRACTICES	37
1.	How Much Do DMNCs Depend on Their Civilian Sectors.....	39
2.	Exploitation by Use of Foreign Competitors.....	41
a.	Boeing Versus Airbus in China.....	43
C.	CONCLUDING ANALYSIS.....	46
IV.	FORMS OF PROTECTIONISM TOWARD DMNCS	49
A.	CAN THE WTO HELP PROTECT DMNCS.....	49
B.	ARE U.S. DEFENSE SECTORS VULNERABLE TO CHINA?	52
1.	Arms Export Controls	52
2.	Buy American.....	53
C.	CONCLUSION	54
V.	CONCLUSION	57
	LIST OF REFERENCES.....	61
	INITIAL DISTRIBUTION LIST	67

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LIST OF FIGURES

Figure 1.	Example of DMNC Mergers Over the Millennium.....	11
Figure 2.	Foreign Outsourcing by U.S. Manufacturing Corporations.....	30

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LIST OF TABLES

Table 1.	Number of Top DMNC Merger Announcements	12
Table 2.	Defense Revenue Versus Civilian Revenue (Figures in millions of U.S. dollars)	39

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LIST OF ACRONYMS AND ABBREVIATIONS

DMNC	Defense Multinational Corporations
DoD	Department of Defense
EU	European Union
GAO	General Accounting Office
GATT	General Agreements to Tariffs and Trade
MNC	Multinational Corporations
OTA	Office of Technology Assessment
PRC	People's Republic of China
UTC	United Technologies Corporation
WTO	World Trade Organization

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Finally, I would like to thank the great nations that were discussed in my thesis. The arguments presented herein are only analytical and serve to better illuminate the area of discussion. By no means does this thesis intend to justify or ridicule the decisions of any government; neither does it take any side in the great question of legality or righteousness in the sales themselves.

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I. INTRODUCTION

A. PURPOSE AND IMPORTANCE

In the past, defense corporations could have been labeled as autarkic or self-sufficient. Located solely within the United States, U.S. defense corporations hired mainly American workers and subcontracted within national borders. Held close and protected by the federal government, these national assets not only created defense products, but also developed technological advancements to further the security of the United States.¹

Over the past couple of decades, however, U.S. defense corporations have experienced the benefits of internationalizing certain components and sectors of their operations. While this creates many cost-optimization benefits and develops access to new markets, these defense multinational corporations (DMNCs) have begun to show signs of distorting the linkage of nationalism in the effort to further capitalistic gains.² This thesis addresses whether the United States has the appropriate regulations and oversight to protect these national assets from international pressure and politics, specifically in the area of subcontracting internationally and the operations of the respective civilian sectors of the U.S. DMNCs.

Countries like China appear to benefit the most from the internationalization of corporations. With the trade deficit between the United States and China growing every year, China stands poised to develop further relations with U.S. corporations as they continue to entangle their operations within the Chinese economy.³ U.S. defense corporations are no exception to this. To help buffer revenue in times of defense budget

1 Ann Markusen and Sean Costigan, eds., *Arming the Future: A Defense Industry for the 21st Century* Council on Foreign Relations Press, 1999), 442 (accessed September 8, 2010), 305.

2 This observation will be shown within subsequent sections.

3 Chad P. Bown and others, "The U.S. Trade Deficit: Made in China?" *Economic Perspectives* 29, no. 4 (2005, 2005), 2–18. <http://search.ebscohost.com.libproxy.nps.edu/login.aspx?direct=true&db=bth&AN=19121453&site=ehost-live&scope=site> (accessed October 27, 2010).

cutting, U.S. DMNCs have shifted certain assets to take part in the civilian market.⁴ Utilizing the benefits of international logistics and operational costs, DMNCs have continued to subcontract non-specialized tasks to foreign countries with low production costs such as China.⁵ This has created a dependency on certain foreign corporations to produce materials and items that will be used in highly sensitive and technologically advanced weaponry. While those products that are deemed highly sensitive by the U.S. government are regulated and protected, civilian operations and foreign non-specialized subcontracting appear are not even though the success of these operations are tied to the success of U.S. weapons development.⁶ With the highly sensitive nature of DMNCs and their close ties to U.S. politics, the issue arises of whether the civilian sectors and non-sensitive subcontracting of the DMNCs are regulated adequately to protect them from foreign conflict?

B. PROBLEM AND HYPOTHESIS

It appears that the People's Republic of China (PRC) is aware of such vulnerabilities. After the announcement from Washington concerning the sale of \$6.4 billion worth of weapons to Taiwan, Beijing responded for the first time by threatening to hold accountable the DMNCs involved in the trade, and reserved the right to place sanctions on their operations.⁷ Those corporations are Northrop Grumman, Boeing, United Technologies (UTC), Lockheed Martin, and Raytheon—all of which are defense corporations in the United States.⁸ Given the scale of China's economy, sanctions on these DMNCs could have a dramatic effect on their global competitiveness.

⁴ For the remainder of this thesis, all DMNCs mentioned are U.S. DMNCs unless otherwise stated.

⁵ Non-specialized subcontracting, as per this thesis, represents the hiring of other companies to develop components such as nails, screws, plastic molding, etc. They are generally considered components necessary to build specialized weapon systems but are not high tech and are therefore subcontracted to another company.

⁶ Later in this thesis, it will be shown how the success of the civilian sectors has a direct correlation to the success of the defense sector.

⁷ Cara Anna, "China: Taiwan Arms Sales Hurt National Interest," *Associated Press* (2010), <http://abcnews.go.com/International/wireStory?id=9709332> (accessed September 9, 2010).

⁸ Nick Zieminski, "UPDATE 1—United Technologies: No Slowdown in China Orders," *Reuters* (February 17, 2010), <http://in.reuters.com/article/idINN1712484420100217> (accessed September 9, 2010).

Because the United States does not sell arms to the PRC, these threatened sanctions must be aimed at another operation within U.S. DMNCs. Whether or not Beijing places sanctions on these corporations, the PRC must believe there is a targetable weakness in the operations of current U.S. defense corporations, otherwise the threat could call China's credibility into question. This, therefore, drives a necessity to evaluate exactly how vulnerable these DMNCs are to foreign sanctions and, therefore, Chinese pressure.

With the internationalization of certain components and operations overseas, this thesis therefore addresses whether DMNCs have over-extended themselves to a point they are now vulnerable to foreign pressure because of the political linkage to their U.S. weapons contracting.

To adequately answer this question, preliminary questions must also be addressed:

- What can be learned about past actions of MNCs and DMNCs over the years? Do DMNCs show a strong linkage to their host government, or are they becoming independent from national ties? Are DMNCs capable of bending to foreign pressure over the interests of their host nation?
- If Beijing cannot directly sanction U.S. weapons, then exactly what can be sanctioned that could cause great pressure on DMNC operations? How connected to the Chinese market are U.S. DMNCs, and are they vulnerable to Chinese pressure?
- What rules and regulations are in place to protect DMNCs from foreign pressure and attack? Are there adequate institutions and regulations in place to protect civilian operations, and is there control over the subcontracting of non-sensitive components to foreign corporations?
- Finally, what does this mean for the future of DMNCs and their future operations in China?

C. METHODOLOGY AND OVERVIEW

To best answer the questions at hand, this thesis starts by examining past research documenting the actions and observations of both MNCs and DMNCs. By their very nature, it can be seen how the internationalization of corporations has thinned the fabric of nationalistic allegiances and created a political melting pot for these corporations to operate in. This chapter highlights not only the reality of foreign pressures to DMNC operations but also the plausibility of DMNCs succumbing to foreign pressure over the interests of their host nation.

Two areas of concern arise in this research: foreign subcontracting and civilian sector operations. As to the time in which this thesis is being written, Beijing does not have the ability to buy or affect the sales of U.S. weaponry; however, it may have the capability to affect the logistics, operations, and revenue of the DMNCs. It will be shown in Chapter III that DMNCs have become dependent on cheap labor in China to subcontract non-specialized components. This dependence can lead to complications and rising in costs if the PRC intervenes. The other area is the respective civilian sectors of these DMNCs. It can be shown that all five of the DMNCs depend on civilian revenue in varying degrees. For some, civilian sales in China are of the utmost importance and any complications or hindrance in their civilian operations in China could be detrimental to their survival in the competitive world.

While Chapter III shows vulnerability in these two areas, it is important to analyze pertinent laws and regulations to understand whether or not there are adequate structures or barriers in place to protect them from such vulnerability. Therefore, Chapter IV analyzes whether China, as a members of the WTO, has the legal capability to levy sanctions on the DMNCs involved in the arms sales. This also calls into question exactly what types of protection the United States has in place to protect DMNCs. Investigating the nature and context of discussion from the PRC, it may be found that the type of sanction threatened by the Chinese may be aimed at a certain sector and, therefore, may shed light on exactly how the Chinese intend to effectively squeeze the DMNCs involved.

If the vulnerabilities can be shown to be significant, and no existing protection exists, then Beijing has the means, effectively and efficiently, to bring pressure on U.S. DMNCs. If this is true, then the threatened sanctions are not only credible but, if enacted, could be detrimental to the health of U.S. corporations and to American national security interests.

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II. DMNCS: SETTING THE STAGE

The outcome of success in modern warfare is no longer based upon the strategic calculation of sheer manpower, but a comparable power calculation in the effective use of weapons and technological advantages. Well-utilized weapons of today can tip the balance of war and decide the outcome of battles. According to Martin Van Creveld, “Where once war was waged by men employing machines, more and more war is seen as a contest between machines that are served, maintained and managed by men.”⁹ As man continues to rely increasingly upon advanced systems and weapons capability as a source of military strength, the sheer complexity of weapon systems has exponentially increased over the years. No longer are components of weapons able to operate independently but must instead be linked together with varying levels of system integration. In today’s modern weaponry, highly sophisticated computer chips now control even the most mundane system operations. In the 1960s and 70s, only 2 percent of the F-4 Phantom’s cost was designated for computer systems and software; however, decades later, the F-15 and the F-18 are over 26 percent and 40 percent, respectively.¹⁰ If cost increases due to component sophistications were not enough, the required amount spent on research and development has exponentially increased to further technological advancement. In the 1950s, research and development costs on average accounted for only 5 percent of the total cost of a project; however, by the late 1980s, costs toward research and development were 50 percent.¹¹

As with research and development, the overall cost of today’s weapons projects are extensive and growing exponentially. With fluctuations in defense budgeting and changing dynamics in weapons procurement, the U.S. defense industrial base has morphed over the years to accommodate such destabilizing effects on profit margins. To

⁹ Martin Van Creveld, *Technology and War: From 2000 BC to the Present* (New York: Free Press) (accessed November 8, 2010), 225.

¹⁰ Stephen G. Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict* (NJ: Princeton University Press, 2005) (accessed September 9, 2010), 77.

¹¹ *The USSR Confronts the Information Revolution* (Washington D.C.: Central Intelligence Agency, [1987]) (accessed November 15, 2010), 3.

best understand the U.S. DMNCs of today, this chapter will analyze the course of DMNC operations over the past couple of decades with specific attention to the new age dynamics that DMNCs face in their every day operations. These changes in dynamics can be attested to the internationalization process and the corresponding complications associated with it. It is the purpose of this chapter to highlight the very likely scenario that DMNCs face foreign pressure on multiple fronts and have in the past demonstrated an eagerness to please foreign markets over that of their domestic national interests.

A. SHAPING DMNCs OVER THE PAST TWO DECADES

Prior to the 1970s, with the struggle for power between the Soviet Union and America, U.S. DMNCs were at “a remarkable degree of autarky.”¹² However, since the decline in the Cold War, the strategic trajectory of U.S. DMNCs has altered vigorously over the years. Constricted and expanded by the many dynamics the U.S. government and other markets have presented, the focus and strategies of these corporations have changed to meet new needs. In the early periods of defense industrialization, corporations were riddled across the American continent competing for contracts and funding. In the 1970s, the defense corporations experienced their highest demand in U.S. weapons contracting during which was the height of the Cold War. After the fall of the Berlin wall, these corporations witnessed large cuts in defense spending in what was known as “peace dividends.”¹³ The U.S. defense budget declined 28% in the 1990s, causing a large-scale decline in U.S. DMNC production. Not only did the United States experience defense budget cuts, but also the worldwide per capita spending on defense articles dropped from \$254 to \$142.¹⁴ Declining from 431 billion to 322 billion over the

¹² Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 81

¹³ Terrance R. Guay, “Globalization and its Implications for the Defense Industrial Base,” *Strategic Studies Institute* (February, 2007), <http://www.strategicstudiesinstitute.army.mil/pdffiles/PUB756.pdf> (accessed August 2, 2010), 6

¹⁴ Richard Bitzinger, “Globalization in the Post-Cold War Defense Industry: Challenges and Opportunities,” in *Arming the Future: A Defense Industry for the 21st Century*, eds. Ann Markusen and Sean Costigan (New York: Council on Foreign Relations Press, 1999), 305 (accessed September 20, 2010), 3.

course of the 1990s, U.S. DMNCs quickly searched for new ways to procure revenue to continue the funding of research and development.

In the 1990s, three large effects occurred as a result of the large budget cuts.¹⁵ In an attempt to find new markets, DMNCs started looking more heavily overseas to establish new sources of revenue and develop more cost effective supply chains.¹⁶ Through internationalization, DMNCs found that supply chains could be moved and altered to best utilize the various incentives in certain locations.¹⁷ Second, DMNCs, realizing the decline in revenue from defense sales, starting selling portions of their business or conducting mergers. Over the next decade or so the number of DMNCs quickly dwindled and became a larger select few as the existing DMNCs purchased military assets of those firms leaving the defense market. Finally, to stabilize balance sheets, most DMNCs quickly invested in civilian sectors. In most cases, DMNCs looked for markets in which they could use their previous skill sets and strengths to find new revenue in the civilian market. Whether or not dual-use technology was engaged, DMNCs quickly searched for civilian sources of revenue to help balance and stabilize revenue input during times of low defense spending.

The U.S. government has been proactive this time around. Seeing declining defense spending as the War on Terror starts to wind down, the Under Secretary of Defense, Acquisition, Technology, and Logistics tasked the Defense Business Board to “identify the potential implications for the industrial base of downward pressure on the defense budget.”¹⁸ Again, as in the 1990s, the task group found that within the industrial base, the “downward pressure” would cause corporations to shift towards commercial marketing, increasing amounts of mergers, and continual internationalization of supply

¹⁵ In most cases, the DMNCs anticipated such up and coming effects and in varying degrees actually started to engage in these activities in the 1970s and on.

¹⁶ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 92.

¹⁷ Guay, *Globalization and its Implications for the Defense Industrial Base*, 37.

¹⁸ Michael Bohn and others, *Task Group on Assessing the Defense Industrial Base* (Washington D.C.: Defense Business Board, [2010]), <http://handle.dtic.mil/100.2/ADA519057> (accessed November 11, 2010), 3.

chain logistics.¹⁹ They concluded that these three factors not only had a large affect on the DMNCs but that the amount of defense funding reductions would determine the “aggressiveness” of the DMNCs to pursue such alternatives.²⁰

1. Mergers

As the Cold War was coming to an end, most could see that the defense budget was about to shrink. After years of highly profitable defense contracting, the market was bloated with numerous players holding high stakes with large infrastructure and numerous capable employees. Understanding the possibility of collapse and future repercussions, then-Deputy Secretary of Defense William Perry called together the executives of the top DMNCs and held what is now known as the “last supper.” In this meeting he told the corporations that, in the coming years, most of them would not survive and, therefore, no longer succeed in the defense sector. Fearing an uncontrollable affect from such news, he urged the industry to downsize and combine so as to help maintain some resemblance of the defense industrial base.²¹

Quickly seeing the writing on the wall, defense corporations realized that they could no longer depend on defense contracting as before. Instead, the lucrative market had cooled down and, with no apparent enemy looming over the horizon, most corporations believed that there was no quick reprieve and so saw no future for the types of defense spending seen in the past. Coupled with the direct statement of William Perry, DMNCs quickly re-evaluated their business strategy. Some decided to sell their defense sectors and focus more on civilian sectors whereas others saw this as a prime opportunity to capitalize on the remaining market share. Defense spending had decreased but was still present. Companies like Boeing, Raytheon, Lockheed Martin and Northrop

¹⁹ Michael Bohn and others, *Task Group on Assessing the Defense Industrial Base*, 3.

²⁰ Michael Bohn and others, *Task Group on Assessing the Defense Industrial Base*, 4.

²¹ Joe Conley, “Impacts of Declining Budgets and Defense Mergers on the Department of Defense,” *Army War College* (April 9, 2002), <http://handle.dtic.mil/100.2/ADA404275> (accessed November 15, 2010), 9.

Grumman took this as an opportunity to invest in multiple different types of sectors along with buying up their competitors. Figure 1 highlights the multitude of mergers that have occurred over the past millennium.

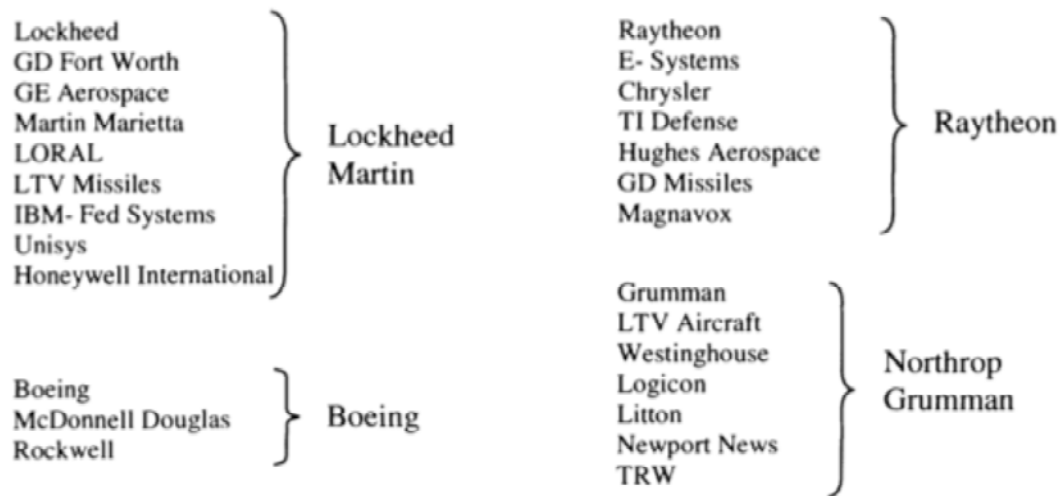


Figure 1. Example of DMNC Mergers Over the Millennium²²

As was the conclusion from a congressional report, the occurrence of mergers and acquisitions was a direct response to the 61-percent decline in defense spending.²³ Those who decided to stay in the business set forth in attempts to buy up the remaining share of the market. Table 1 highlights exactly how many transactions occurred over the time period of ten years. Over the span of two decades starting in the 1980s, 50 of the largest DMNCs had since become the top five.²⁴

The understanding of the merger process between DMNCs highlights how the overall look and feel of the U.S. defense industrial base changed rapidly to meet new pressures. Today there are fewer defense corporations; however, they are not only larger

²² Saar Golde and Asher Tishler, "Security Needs, Arms Export, and the Structure of the Defense Industry: Determining the Security Level of Countries," *The Journal of Conflict Resolution* 48, no. 5 (Oct, 2004, 2004), 762 (accessed October 30, 2010), 680.

²³ *Report on the Effect of Mergers in the Defense Industry* (Washington D.C.: Office of the Secretary of Defense, [1997]), <http://handle.dtic.mil/100.2/ADA323934> (accessed November 13, 2010), 7.

²⁴ Greg Schneider and Renae Merle, "Reagan's Defense Buildup Bridged Military Eras," *Washington Post* June 9, 2004, <http://www.washingtonpost.com/wp-dyn/articles/A26273-2004Jun8.html> (accessed November 15, 2010).

in magnitude, but also excel in multiple sectors. The conglomeration of defense science amongst the DMNCs allows them to more effectively system integrate their weapons and to be able to tackle almost all types of weapons categories. This information highlights how quickly DMNCs can respond to new pressures and forecasts, reorganize their strategies, and structure and move into a new era of defense contracting.

Contractor	Number of Announcements
Boeing	19
Lockheed Martin	25
General Dynamics	36
Raytheon	18
Northrop Grumman	27
Totals	125

Table 1. Number of Top DMNC Merger Announcements²⁵

2. Civilian Sectors

With defense spending graphics looking more like a roller-coaster trajectory, it only seemed natural that DMNCs would look for sources of revenue that would be somewhat stable and help mitigate the peaks and valleys of defense budgeting. For those DMNCs that were not involved in the civilian sectors prior to the “last supper,” it only became evident that they should diversify their portfolio and investigate other avenues of revenue. Some DMNCs sold off their defense sectors as discussed above and solely relied on their civilian sectors. However, those who kept their defense sectors realized

²⁵ Jennifer Grant, “Market Perception of Defense Mergers in the United States: 1990–2006, A Case of Event Studies” (MBA, Naval Postgraduate School), 1, <http://handle.dtic.mil/100.2/ADA475824> (accessed November 11, 2010), 2.

the benefits that civilian sectors could offer. With continual work and revenue from their civilian sectors, DMNCs are able to keep their specialized labor force and reduce the possibility of atrophic effects on the skills or their work force during an absence of defense contracting. This allowed them to invest in research and development therefore maintaining their ability to be on the leading edge of technology. Corporations not only shifted to civilian sectors but also focused on what is deemed “dual-use” technology. This type of technology, such as specialized processors or display screens, can be sold in the civilian sector and also used in defense projects. Such capabilities allowed DMNCs to continue their operations and specialization even when defense spending was cut. It has been found that, with such a shift in strategies, the defense sector is now becoming less defense intensive in nature and looking for commercial applications at a greater rate than before.²⁶

3. Internationalization

Defense Secretary Robert Gates stated, “Defense manufacturing is a global business.”²⁷ To a certain extent this is true; however, as the world continues to globalize and foreign competitors enter new markets, it is becoming almost impossible for even the once autarkic U.S. DMNCs not to internationalize. Stephen Brooks states that, “no state, including the great powers, can now effectively remain on the cutting edge in military technology if it does not pursue significant internationalization in the production of weaponry.”²⁸ It is the general agreement from both economists and security analysts that this statement is true; however, what does this mean, exactly? How will internationalization affect the operations of DMNCs and precisely what risks arise from such endeavors?

²⁶ Philip A. Bennett, “Globalization; U.S. Export Control Policy and Implications for U.S. Military Dominance,” *USAWC Strategy Research Project* (April 7, 2003), <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA415479&Location=U2&doc=GetTRDoc.pdf> (accessed August 2, 2010), 2.

²⁷ Nayantara Hensel, “The Impact of Globalization and Shifting Defense Priorities on the Defense Industrial Base,” *Office of the Deputy Assistant Secretary of the Navy* (May, 2010), <http://handle.dtic.mil/100.2/ADA530665> (accessed November 11, 2010), 11.

²⁸ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 6.

a. Why Internationalize?

The benefits to internationalization are numerous and affect just about every facet of operation within a corporation. It not only helps to streamline supply chains and logistics, but also presents opportunities to excel and compete in multiple areas. With corporations looking outside their national borders for new sources of ideas and revenue, the U.S. government in turn hopes to reap the benefits of the cost optimization through internationalization.²⁹ To best understand the opportunities that internationalization of DMNCs provide, this section will analyze a selective amount of critical areas that have been known to drive DMNCs outside of their host national borders and into foreign territory. While there are a plethora of reasons as to why DMNCs internationalize, these were chosen due to their applicability to the argument of this thesis and that they are well within the scope of this research.

- New Markets: With globalization comes the development of new markets. While most countries cannot compete with the defense spending of the United States, this still present opportunities to increase revenue sales and also attain increased economies of scale through larger production runs. This not only creates benefits to the corporation but also reduces the overall cost of defense articles for the United States. In so, DMNCs can expand every part of their operations from defense articles to their civilian products.³⁰
- Streamlined Logistics: The Chief Economist of the Department of the Navy stated “The defense industrial base is global in scope and there is an increasing trend toward global supply chains to share innovation and risk, and to develop interoperable equipment.”³¹ By expanding their logistics chain, DMNCs are able to locate within key areas to improve their production lines. By analyzing the costs of operations in different locations, DMNCs can choose to either subcontract or develop infrastructure in foreign territories to

²⁹ Markusen and Costigan, *Arming the Future: A Defense Industry for the 21st Century*, 442: 310.

³⁰ Guay, *Globalization and its Implications for the Defense Industrial Base*, 37.

³¹ Hensel, *The Impact of Globalization and Shifting Defense Priorities on the Defense Industrial Base*, 13.

reduce operational costs. Perhaps this is in the of building components in one country and assembling them in another. Either way, corporations look for opportunities to exploit various incentives in certain locations so as to reduce cost and improve future operations.³²

- Access to New Technology: By delving into new nations, DMNCs open their operations to work with and develop new technology with foreign corporations. Through this type of strategy, DMNCs can help to mitigate cost and risk and create symbiotic relationships with foreign corporations therefore developing many unseen benefits.³³ This might not have major applicability to the defense sectors of DMNCs considering collaboration projects are highly politicized decisions by governments; however, the civilian sectors of these DMNCs can truly enjoy the benefits of collaboration.

b. *Inherent Risks From Internationalizing*

The 2002 National Security Strategy states “Today, the distinction between domestic and foreign affairs is diminishing. In a globalized world, events beyond America’s borders have a greater impact than inside them.”³⁴ While internationalization appears to present many opportunities, it also causes more pressure and dynamics that increase the complexity of every day operations. With the expansion of internationalization, multiple dynamics and challenges are created for DMNCs to deal with. A sample of some of the most critical pressures that DMNCs are exposed to is listed below.

- Displacement of Technology to Foreign Soil: While there are many protective measures within the United States to forbid the transfer of sensitive material, there are still types of technology that is not covered by these forms of

³² Guay, *Globalization and its Implications for the Defense Industrial Base*, 37.

³³ Theodore H. Moran, “The Globalization of America’s Defense Industries: Managing the Threat of Foreign Dependence,” *International Security* 15, no. 1 (Summer, 1990), 57–99, <http://www.jstor.org.libproxy.nps.edu/stable/2538982> (accessed August 3, 2010), 68.

³⁴ Bennett, *Globalization; U.S. Export Control Policy and Implications for U.S. Military Dominance*, 2.

protection that give foreign countries an advantage.³⁵ As foreign technology continues to flow across the borders, foreign corporations and, therefore, future competitors gain access to not only the technology but also the skilled work force that U.S. DMNCs train and supply.³⁶ This notion can also be extrapolated to incorporate the vast amounts of infrastructure that DMNCs provide in foreign nations.

- Foreign Political Pressure: By shifting production into foreign lands, DMNCs lend themselves to the decisions of foreign governments in which they must abide. Theodore Moran writes “The contemporary movement toward globalization opens the door in peacetime to foreign influence, foreign control, and foreign domination.”³⁷ In some cases, DMNCs may have to shift production or information to foreign countries to gain political favor and possibly win contracts with foreign nationals.³⁸ U.S. DMNCs are at a slight disadvantage when operating in a foreign country considering that they are not a part of the host national scheme. This may cause DMNCs to have to work harder to gain favor from foreign countries so as to gain the trust and commerce of the foreign government. Analysis shows that policy conflicts can develop between the corporation and the nations in which they deal.³⁹ Therefore the continual operation of corporations in multiple nations raises the likelihood that political confrontation between the host nation, the foreign nation and the corporation may occur.⁴⁰

³⁵ More about the forms of protection will be covered in Chapter IV.

³⁶ Ibid., 1.

³⁷ Moran, *The Globalization of America's Defense Industries: Managing the Threat of Foreign Dependence*, 57–99: 58.

³⁸ Guay, *Globalization and its Implications for the Defense Industrial Base*, 37.

³⁹ Detlev F. Vagts, “The Multinational Enterprise: A New Challenge for Transnational Law,” *Harvard Law Review* 83, no. 4 (Feb., 1970), 739–792, <http://www.jstor.org.libproxy.nps.edu/stable/1339838> (accessed August 3, 2010).

⁴⁰ Peter J. Buckley and Pervez N. Ghauri, “Globalisation, Economic Geography and the Strategy of Multinational Enterprises,” *Journal of International Business Studies* 35, no. 2 (Mar., 2004), 81–98, <http://www.jstor.org.libproxy.nps.edu/stable/3875244> (accessed August 24, 2010).

- Dependency on International Sources: As DMNCs continue to branch out into foreign nations, they develop a level of dependency on that nation and its resources. In 1991 the Office of Technology Assessment concluded: “almost all US weapons systems contained component parts from foreign sources, predominantly incorporating dual-use technologies with both military and civilian applications, such as micro electronic chips, composite materials, and flat-panel displays.”⁴¹ A Department of Defense (DoD) analysis in 1988 concluded that “foreign dependencies in technologies essential to defense production are inherently risky, and minimizing them should be a Department of Defense and national priority.”⁴² Whether or not this dependency is through subcontracting or production in a foreign nation, defense articles to a certain degree are dependent on parts of a production chain residing within foreign nations.

The effect from dependence on a foreign nations’ procurement of specialized items can be crippling. The French witnessed such agony due to their reliance on foreign technology during their development nuclear weapons. From 1964 to 1966, the United States refused to allow IBM to export “high performance” computers to the French Atomic Energy Commission. Due to such resistance from the Americans, this caused the Hydrogen Bomb program to cease its progress.⁴³ The technology held by the United States caused the French to be incapable at the time to produce the weapon of desire. Their progress was hindered not by their government or a lack of desire, but by a foreign government. Because of their dependence, the United States had direct control on the progress of France’s nuclear weapons development. The French therefore had to wait until their own technological base caught up and was able to produce capable means of developing the weapon at hand. While a couple of years may not seem like much, in a

⁴¹ *Redesigning Defense: Planning the Transition to the Future U.S. Defense Industrial Base* (Washington D.C.: Office of Technology Assessment, [1991]) (accessed November 8, 2010), 69.

⁴² *Bolstering Defense Industrial Competitiveness: Preserving our Heritage, the Industrial Base Securing our Future* (Washington D.C.: Office of the Under Secretary of Defense (Acquisition), [1988]), <http://handle.dtic.mil/100.2/ADA202840> (accessed November 14, 2010), 47.

⁴³ Moran, *The Globalization of America's Defense Industries: Managing the Threat of Foreign Dependence*, 57–99: 60.

race for security and competitive edge, a couple years could be the difference between success and failure. Therein lies the problem of depending on foreign technology procurement. This was not just a lesson for the French, but a beacon of truth to all nations that the continual reliance or over-dependence on a single source of critical components outside of national boundaries could be detrimental to the overall success of national interests.

B. OBSERVED BEHAVIORS

In the previous sections, we saw the dynamics that DMNCs have faced and the effects from internationalization. To extrapolate from the list of inherent risks due to internationalization, we will now turn to previous research by other political scientists. Three key understanding have been found that not only highlight possible dangers but also emphasize the reality of DMNC vulnerability to foreign pressure.

1. Telling Tales of Waning Nationalism

As has been previously discussed, with the ever-growing expansion of internationalization, it is becoming more important for DMNCs to diversify and reach new markets.⁴⁴ As corporations continue to internationalize, many authors have questioned whether or not MNCs regard nation-states as obstacles in their path for market dominance. There is an ever-growing fear that while defense corporations have host nations, their allegiance to their host nation may weaken due to political constrictions. An analysis performed by the Office of Technology Assessment (OTA) quotes a top defense executive as say “the best thing the government could do for our international business would be to get out of the way.”⁴⁵ Analysts generally agree that due to their

⁴⁴ Joseph S. Nye, “Multinational Corporations in World Politics,” *Foreign Affairs* 53, no. 1 (Oct., 1974), 153–175, <http://www.jstor.org.libproxy.nps.edu/stable/20039497> (accessed August 3, 2010), 153.

⁴⁵ *Arming our Allies: Cooperation and Competition in Defense Technology* (Washington D.C.: Office of Technology Assessment, [1990]) (accessed November 8, 2010), 10–11.

dispersed productions and competitive international nature, corporations will fight any restriction on their ability to globalize and reap benefits even if this is to the chagrin of the host nation.⁴⁶

These notions and observations serve to highlight the fact that the ties between DMNCs and their host nation have in fact thinned as they continue to globalize. Dealing with new governments, pressures and international competition, DMNCs are more likely today to act against host national interests than when they were autarkic and located solely within national borders. This only gives a sense of reality in that DMNCs under the right conditions may acquiesce to foreign national interests in hopes to increase benefits and profits.

2. Arms as Political Influence

DMNCs by their very nature, directly control the technological capabilities of the United States' forces. Due to their constant funding and unswerving aptitude in research and advancement they have been able to provide the United States with state of the art warfare components. Leading the industry in military weapons and procurement, U.S. DMNCs have been the pinnacle of defense institutions across the globe and have in most every sector lead the industry in technological advancements.⁴⁷ The ability to not only supply but directly affect the technological aptitude of the most powerful country in the world calls upon a true understanding of their influence and power. In the 1980s, due to the very nature and structure of the U.S. defense industrial base, it became evident that the industry and not the state had control on the output of weapons technology and sophistication.⁴⁸ Left to corporate decisions, DMNCs directly control the output of military research and capability.

⁴⁶ Helen Milner, *Resisting Protectionism: Global Industries and the Politics of International Trade* (Princeton: Princeton University Press, 1989) (accessed November 8, 2010); Helen Milner, "Trading Places: Industries for Free Trade," *World Politics* 40, no. 3 (Apr., 1988), 350–376, <http://www.jstor.org/stable/2010217>.

⁴⁷ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 80.

⁴⁸ Markusen and Costigan, *Arming the Future: A Defense Industry for the 21st Century*, 442, 316.

Such a well-established institution, like that of the U.S. industrial base is highly sought after by other nations. To develop and maintain a highly advanced military industrial complex a country must continually provide funding to support highly specialized labor, advanced machinery and capable institutions to further research and development. For those countries who began such costly endeavors years ago, stand today as the top defense complexes in the world to include the United States, the European Union, and Russia, to a certain extent. For others, the high entry cost into such a market remains almost impossible for new and developing countries to catch up or even produce capable means of supplying their own military. Thus, these three complexes stand as monopolistic corporations in the international market.

It therefore stands to reason that those nations with such highly developed military industrial complexes have greater capability of supplying and producing highly effective weapons of war over those nations that do not. For those nations that lack the means to create and maintain such a capability, they become indebted and dependent on foreign nations to provide such weapons and articles as needed.⁴⁹ In so lies the problem that war and security are never in short supply and, therefore, the means to protect and advance ones national interests are ever present. With the continual demand for weapons throughout the world, the international market provides avenues for increased markets and vast possibilities for profit.

Considering that the export of weapons and munitions is a highly politicized and in most cases controlled by the host nation, it can be seen how the comparative advantage of weapons procurement can provide countries with political leverage over another. Thomas Wheelock defines this type of leverage as the “manipulation of the arms transfer relationship in order to coerce or induce a recipient-state to conform its policy or actions to the desires of the supplier-state.”⁵⁰ In John Sislin’s research of such effects, he found

⁴⁹ John Sislin, “Arms as Influence: The Determinants of Successful Influence,” *The Journal of Conflict Resolution* 38, no. 4 (Dec., 1994), 665–689, <http://www.jstor.org/stable/174334> (accessed August 5, 2010), 672.

⁵⁰ Thomas R. Wheelock, “Arms for Israel: The Limit of Leverage,” *International Security* 3, no. 2 (Autumn, 1978), 123–137, <http://www.jstor.org.libproxy.nps.edu/stable/2626686> (accessed November 11, 2010), 123.

that the United States attempted to use weapons as a source of leverage 191 times.⁵¹ He goes on to show that certain characteristics and situations provide a higher probability of success over others; however, it is important to note that the use of arms as influence is ever present and a highly profitable source of leverage for the United States over other nations that do not possess the level of technological capability as the U.S. defense industrial base.

This use of defense aid as manipulation or “leverage” can be in the form of positive or punitive measures. In 1986, President Reagan proposed to the Philippines that if the elections were fair and reforms were made, then he would propose to Congress additional military aid to reward the country. While this was a form of positive reinforcement, that same year, President Reagan threatened to cut off all aid to the Philippines if violence broke out over the election of President Marcos.⁵² In the case of the 1989 Tiananmen Square incident the United States enacted an arms embargo on the PRC as a direct form of punishment for what was perceived by the United States as acts against humanity.⁵³ Some forms of leverage are more effective than others, but this only highlights the fact that the every day operations of DMNCs are highly politicized due to their powerful products and the world’s desire for them.

3. Rebalancing of the Three Markets

An important observation in assessing the true intentions of DMNCs is of Jonathan Galloway, who addresses among many things, the global implications of DMNCs by differentiating the driving mechanisms for these corporations.⁵⁴ He explains that the basic needs and interactions between DMNCs are different based on their level of dependency on foreign sales and operations. DMNCs that depend more on foreign sales

⁵¹ Sislin, *Arms as Influence: The Determinants of Successful Influence*, 665–689: 681.

⁵² Sislin, *Arms as Influence: The Determinants of Successful Influence*, 668.

⁵³ Ibid.

⁵⁴ Jonathan F. Galloway, “The Military-Industrial Linkages of U.S.-Based Multinational Corporations,” *International Studies Quarterly* 16, no. 4, Multinational Corporations and World Order (Dec., 1972), 491–510, <http://www.jstor.org.libproxy.nps.edu/stable/3013611> (accessed August 3, 2010).

than military sales are more apt to react to foreign market pressures.⁵⁵ However, while this is true, he highlights that even if military contracting is only a fifth of a corporation's revenue, the DMNC cannot stand to lose that income and is more likely to work harder to maintain it despite it being a smaller part of the corporation's overall revenue. Therefore he concludes that all DMNCs are dependent to some extent, on the three markets: governmental, foreign and domestic civilian. He argues that these DMNCs will take any action necessary to preserve the balance among these markets regardless their individual percentages.⁵⁶ Galloway states "it stands to reason that their managements will be interested in preserving the dynamic equilibrium between these markets. If the equilibrium between these markets is upset, then the consequences for the firm may become unacceptable."⁵⁷

4. Boeing McDonnell Douglas Example

Coupling the arguments of Galloway with the arguments that MNCs are becoming stateless as they internationalize, one can start to see the plausibility in DMNCs acting to mitigate sanctions from a foreign country like China. This sort of situation is not an unlikely scenario considering that DMNCs in the past have been caught between their host nation and foreign national interests. The well-documented Boeing McDonnell Douglas merger highlights this very argument.

In 1997, Boeing made a bold move to buy and merge with their long-standing U.S. rival, McDonnell Douglas, another U.S. DMNC that specialized in aerospace manufacturing and defense contracting. Although the U.S. authorities had approved the merger, the European Union (EU) ruled that the merger was not in the EU's best interests and demanded that Boeing make changes. Both Boeing and McDonnell Douglas are based out of the United States; however, the EU was concerned that the combined power

⁵⁵ Ibid., 493. By military sales, in this case, he is referring to military sales to the host nation and to other nations deemed by the host nation as allowable.

⁵⁶ Jonathan F. Galloway, "The Military-Industrial Linkages of U.S.-Based Multinational Corporations," *International Studies Quarterly* 16, no. 4, Multinational Corporations and World Order (Dec., 1972), 495.

⁵⁷ Ibid.

of the two companies would hinder the European aeronautics corporation, Airbus. Since Airbus is 80% owned by EADS and BAE with the other 20% (both of which are DMNCs of the EU) it was speculated that such a merger would cause Boeing to gain a larger competitive edge and would hurt their own DMNCs in the long run.⁵⁸ Boeing first argued that the U.S. Federal Trade Commission, not the EU, should take the lead in investigating the deal and its legitimacy. The EU went forward with its own commission and unanimously voted that the merger be blocked by any means necessary. Faced with the threat of EU pressure to band together and only buy planes from Airbus, Boeing acquiesced to the concerns of the EU and changed the conditions of the merger so as to satisfy the EU.⁵⁹ Even though the United States demanded that Boeing maintain its original deals and had a legitimate reason for stating that the original terms were fair, Boeing feared the loss of market share in Europe and, therefore, believed the foreign government's interests were in their own best interests.

This incident is significant for several reasons. This showcases how an international organization was able to pressure two U.S. corporations to conform to their interests and not act solely on the interests of the corporation. They were able to create enough pressure on Boeing and ensure that Boeing conceded to their desires. Second, political leaders ranging from President Bill Clinton and Vice President Al Gore to France's President Jacques Chirac, strongly advocated the position of their respective companies and regulatory authorities. This only highlights exactly how political the process is and that it was not left solely in the hands of the DMNCs to decipher. Third, as mentioned above, the rest of the world perceived this move by the EU as a way to protect the European corporation Airbus. This was not because Boeing did not make a good product. It was because of nationalistic reasons that differentiated Airbus from Boeing, which is a dynamic that foreign DMNCs must fight hard to resolve and overcome.

Still, the largest point is that the deepening of integration into other parts of the world over the years has transferred more regulatory powers from host authorities to

⁵⁸ Guay, *Globalization and its Implications for the Defense Industrial Base*.

⁵⁹ Ibid.

foreign nations. Companies like Boeing, Lockheed Martin, Raytheon, Northrop Grumman and UTC will find that their civilian actions, regardless of how small, will invite the attention of the international world.

C. CONCLUSION

As defense spending has augmented and diminished over the years, DMNCs have shifted focus and attention to different methods of maintaining profit and competitive edge. Whether this is through mergers, civilian operations or internationalization, the dynamics that face DMNCs have altered the way the U.S. industrial complex operates today. While there are significant benefits to such actions, the existence of inherent risks provides grave concerns for the future. It is through these inherent risks that China may attempt to exploit DMNCs through the actions of sanctions. As can be seen, DMNCs have opened themselves to foreign influence through their internationalization and have become more entwined with foreign operations than before. It is apparent that DMNCs are more vulnerable to foreign pressure than in the past.

Past research shows that not only are DMNCs highly politicized, but also play an important role in international politics. No longer are their operations regarded or controlled by just their host nation, but are now a part of international debate and review. What is most alarming is that the multifaceted operations of the DMNCs drive many different interests and priorities. As Galloway discussed, it is likely that DMNCs will take every action possible to maintain and preserve the equilibrium or balance between the three markets: “Governmental, foreign, and domestic civilian.”⁶⁰ If a country like China were to engage and or hinder one of these three markets, it is likely that the DMNCs would respond to mitigate or compensate for such actions.

⁶⁰ Galloway, *The Military-Industrial Linkages of U.S.-Based Multinational Corporations*, 491–510: 493.

III. DANGEROUS DEPENDENCIES AND PRACTICES

As was discussed previously, DMNCs have opened themselves to foreign pressure and control. While there are various ways in which internationalization affects the U.S. defense industrial base, there are two areas in which DMNCs could be most vulnerable to Chinese sanctions and pressure: foreign subcontracting and the respective civilian sectors of the DMNCs.⁶¹ After chasing cheaper logistics routes and developing a global civilian sector, DMNCs have become entwined with foreign markets and governments. In the following sections this chapter will analyze these two areas and decipher whether or not they pose a threat or could be used against the United States.

A. THE MUDDLED ART OF SUBCONTRACTING

Subcontracting or otherwise known as outsourcing by some is defined by John Holmes as a strategy in which “the firm offering the subcontract requests another **independent** enterprise to undertake the production or carry out the processing of the material, component, part or assembly for it.”⁶² This strategy is not new since it has been performed for over three decades; however, it has become ever more vital for MNCs to employ such techniques with the increasing challenges from internationalization.⁶³

Subcontracting is a multilevel operation that ranges from software, materials to concepts and designs. In the case of the U.S. defense industry, the overall project or product is a highly sophisticated system that composes of many different subsystems and parts. In this case, the U.S. government may contract a specific DMNC to develop and or

⁶¹ Most likely, there are many other ways in which DMNCs could be vulnerable; however, it was the findings of the author that these two areas are the most likely and easiest targets, based on the data collected.

⁶² John Holmes, “The Organization and Locational Structure of Production Subcontracting,” in *Production, Work, and Territory: The Geographical Anatomy of Industrial Capitalism*, eds. A. J. Scott and M. Storper (Boston: Allen and Unwin, 1986) (accessed November 8, 2010), 84. The author added emphasis on the word “independent.” There are subtle differences between subcontracting and outsourcing however within the scope of this research they are synonymous and will, therefore, be deemed as just “subcontracting.”

⁶³ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 34.

orchestrate that particular weapon or product. Taking the lead in the project, this DMNC is known as the prime contractor and will set forth developing an operational structure that will best employ the requirements of the U.S. government while maximizing overall profit. Even though U.S. DMNCs are extensive, in today's weapon systems they can ill afford to develop the entire system on their own. Instead these DMNCs will look to subcontract key portions to other corporations. This form of subcontracting is known as second-tier contracting. If that second-tier subcontractor then turns and subcontracts a portion of their task to someone else, the new corporation introduced to the project is known as a third tier subcontractor and so on.

To help illustrate the use of this terminology, we will briefly analyze the scale of operations and contracting in an example aircraft jet production. The U.S. government gives a contract to a company like Boeing, now the prime contractor, to develop a new jet fighter with certain specifications.⁶⁴ Boeing then develops a plan and subcontracts to companies in Japan, England, Canada, and others who specialize in their respective areas and who provide the most incentives to receive the contract. Usually this subcontracting is a task to develop a certain component or set of software. In this example Boeing subcontracts to a company in Japan to develop the wing for the jet.⁶⁵ This contract is known as a second-tier contract and the Japanese company now reports to Boeing to ensure the wings are completed to specifications as described by Boeing. The Japanese company then subcontracts a third-tier contract to a company in India to help develop retracting motors for the wing flaps. This Indian company now reports to the Japanese company and their agreement is known as a third tier contract. The Indian company may need a certain type of semiconductor to develop the motor within specification and will

⁶⁴ Prior to the allotment of a contract to a prime contractor, the DMNCs will compete for this contract. This is not discussed in detail here because it is not within the scope of this research. It is also important to note that sometimes these prime contractors will already have a design, production strategy and cost figures and use this information to persuade the government to choose them as the prime contractor.

⁶⁵ While this is an example made by the author, Boeing has been involved with Japanese companies in the development of wings. This only serves to illustrate the high probability of this example being close to real-life cases.

subcontract a company in China now a fourth tier contract. This sort of evolution can continue to almost incalculable levels with varying degrees of foreign assistance in the project.

1. Why Subcontract

The art of subcontracting seems difficult in that the prime contractor has to orchestrate thousands of tasks of which many are outside of their organization. In foreign subcontracting, not only does the prime contractor have to deal with different business styles and organizations, but they also have to face time zone differences, cultural differences, currency exchange rate differences and many more. This not only requires the utmost attention by the prime contractor but if not maintained can cause extended timelines and or complete project failure. With so many added dynamics in foreign subcontracting, why then do DMNCs subcontract?

Through advancements in science, technological capability has allotted firms a profitable opportunity in which to explore the globe for cost optimization in supply chains. Through the development of super freighters and containerization, costs in shipments overseas decreased 70 percent from 1980s to 1996.⁶⁶ Advancements in communications have exponentially increased corporate integration through the use of cell phones and web conferencing. The cost to make a phone call from New York to London in 1930 has since decreased by a factor of 1500.⁶⁷ While these are only a couple of examples where technology has lowered the cost to operations internationally, it is unfathomable to comprehend complete corporate integration or international supply chains without lower costs in global connectivity. Therefore due to these types of advancements, corporations are now able to viably look beyond their national borders and compare foreign corporations with that of domestic corporations.

Because the global market is larger than that of a domestic market, corporations now have more to choose from. Because of the larger pool of potential corporations to

⁶⁶ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 27.

⁶⁷ Ibid.

subcontract with, corporations have access to larger pools of technology, quality of production, costs optimization, and others. No longer are corporations limited to the technological capability of their respective country but can now access varying degrees of sophistication across the globe. Stephen Kobrin states that:

“In industries such as telecommunications, pharmaceuticals, semiconductors, and aerospace...States are now faced with a discrete decision rather than a marginal trade-offs: participate in the world economy or forgo technological development...The choices are to compete transnationally or forgo the next generation of microprocessors, pharmaceuticals or telecommunications technology entirely.”⁶⁸

In the defense sectors, these advancements are instrumental and cannot be overlooked. Their success in being a part of the top of the line technology has a direct affect on the capability and relative power of their respective nation, in this case the United States.

Along with technological advancement, corporations also seek cost optimization. Corporations increasingly search for locations in which to reduce the overall costs of operations and logistics. Strategically, corporations will choose locations best suited to enable the area's greatest advantages. This could be in the form of technology, taxes, labor costs, or political incentives. According to Stephen Brooks:

“Firms increasingly seek locations where they can combine their own mobile assets most efficiently with an immobile resources they need to produce goods and services for the markets they want to serve. As a consequence, firm split up the production process into very specific activities (such as finance, research and development, accounting, training, parts production, distribution), or segments of these activities, with each of them carried out by affiliates in locations best suited to the particular activity. This process creates an international interim firm division of labor and the growing integration of international production that works.”⁶⁹

⁶⁸ Stephen Kobrin, “The Architecture of Globalization: State Sovereignty in a Networked Global Economy,” in *Governments, Globalization, and International Business*, ed. J. Dunning (Oxford: Oxford University Press, 1997) (accessed November 8, 2010), 156.

⁶⁹ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 26.

Whether or not it is for cost optimization incentives or for technological access, corporations are continually seeking the outside world in subcontracting. Even with all the dynamics involved in international supply chains and the dependence of foreign corporations, it appears as though the benefits outweigh the risks. In conclusion to a United Nations report it was found that “in today’s global rising world economy, the increasing competitive pressures faced by firms of all sizes impel more and more of them to establish an international portfolio of locational assets to remain competitive.”⁷⁰

2. Is Subcontracting a Common Practice?

While we have seen the advantages to international subcontracting, one of the more important questions in this research is whether or not international subcontracting is significant in modern operations and more importantly in defense operations. It was found in a World Bank survey that international outsourcing increased about 30% between 1987 and 1995 due to growing international competition and restructuring of corporate strategic growth.⁷¹ Continually corporations are utilizing the benefits of international subcontracting as a source to gain advantages over other competitors. Figure 2 shows exactly how much has been invested in foreign outsourcing over the span of 15 years. It is easy to see that foreign subcontracting has become a general strategy in business and has increased at an exponential rate.

⁷⁰ *World Investment Report: Foreign Direct Investment and the Challenge of Development* (Geneva: United Nations: United Nations Conference on Trade and Development (UNCTAD), [1999]) (accessed November 8, 2010), 4.

⁷¹ *Global Economic Prospects and the Developing Countries* (Washington D.C.: World Bank, [1997]), http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1997/09/01/000009265_3980429111300/Rendered/PDF/multi0page.pdf (accessed November 28, 2010): 43–44.

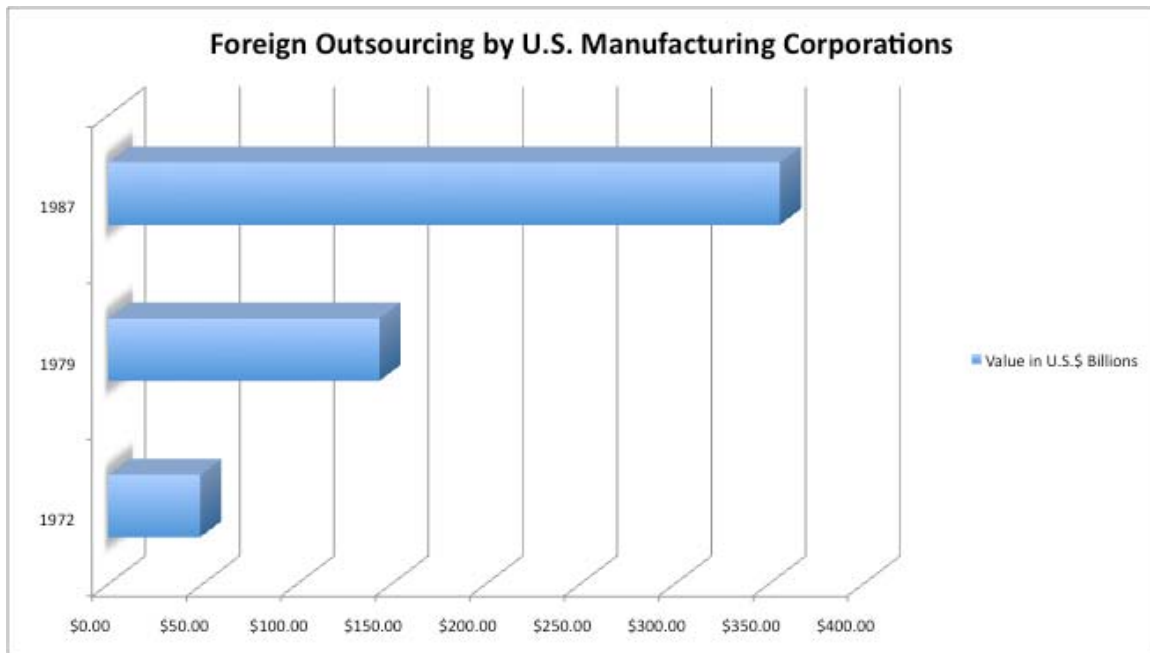


Figure 2. Foreign Outsourcing by U.S. Manufacturing Corporations⁷²

Defense corporations in particular have become accustomed to such foreign endeavors. Michael Wynne, the Undersecretary of Defense Acquisitions stated “about 40% of machine tools used on U.S. weapons systems come from foreign suppliers.”⁷³ Concerns have arisen over the past couple decades as to whether or not the growing amount of foreign subcontracting within the defense sector is healthy. Beginning in the 1980s the Department of Defense (DoD) conducted an extensive amount of studies to answer that exact question. Roderick Vawter, in 1986, analyzed 10 of these reports and concluded that:

Significant foreign dependencies exist in major weapons systems. The phenomenon is widespread and probably exists in most defense systems. This conclusion is the consensus of a number of studies, which, directly or indirectly, addressed the question of foreign source dependencies as they relate to national defense in the production of military hardware. The dependencies spread across a wide range of production inputs. They

⁷² *Global Economic Prospects and the Developing Countries* (Washington D.C.: World Bank, [1997]), 45.

⁷³ Brooks, *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*, 126.

include a few instances of total systems purchased offshore, such as chemical protective suits purchased from England. They progressed down the production chain to include major subsystems such as heads up displays, electronic assemblies, and electronic components including semiconductors and ceramic packages.⁷⁴

Since 1986, it appears as though this consensus has not changed. In 1991 an Office of Technology Assessment (OTA) report concluded that “almost all U.S. weapons systems contained component parts from foreign sources, predominantly incorporating dual use technologies with both military and civilian applications, such as micro electronic chips, composite materials, and flat-panel displays.”⁷⁵ Analyzing the M1 Abrams tank, a General Accounting Office (GAO) report concluded that “foreign sources of supply, manufacturing, and technology were abound in both the commercial and defense sectors.” That same report went on to show that significant foreign subcontracting could be found on multiple items within the M1 Abrams tank ranging from highly sophisticated ballistic computer software systems to lower end seals.⁷⁶

From the information above it can be clearly stated that DMNCs do, to varying degrees, depend on foreign subcontracting as a common practice. It might not be the sophisticated equipment or the highly specialized and “sensitive materials” that one would be inclined to believe but is instead the general components that are typically civilian in nature. This is to include bolts, screens, displays, microprocessors, etc... While these are not detrimental to the overall capability of the platform in production, they do play a large role in the production cost, and timing. These labor intensive, technically minimal tasks were subcontracted most likely for their lower cost guarantee from the subcontractor, thus reducing the overall cost of the project. Therefore they play a large part in the efficiency of the project and the margin of profit.

⁷⁴ Roderick Vawter, *U.S. Industrial Base Dependence/Vulnerability, Phase I: Survey of Literature* (Washington D.C.: National Defense University, 1986) (accessed November 8, 2010), 4.

⁷⁵ *Redesigning Defense: Planning the Transition to the Future U.S. Defense Industrial Base*, 69.

⁷⁶ *Ibid.*, 18–21.

3. Subcontracting and the Problems With Regard to Data Collection

It is not so much a risk that defense corporations are subcontracting highly sensitive material or transferring secret information through their foreign interaction, but that the second and third tier subcontracting levels are creating dependencies on foreign nations that could be a source of vulnerability.⁷⁷ The prime contractors involved in American defense procurement are still national characters consisting usually of corporations like the five DMNCs involved in the Taiwan arms sales. At this level they are given the overall project of developing the weapon at hand. These prime contractors in turn look to trusted corporations to develop certain large-scale components. These second-tier contractors are usually of no concern, considering that they are under the scrutiny of the prime contractor and must report to that DMNC; however, what happens in the next tiers of subcontracting?

It is extremely difficult to ascertain the exact extent of international subcontracting when analyzing further tiers of subcontracting. It was concluded by the Information Technologies Association of America in 2003 that it is virtually impossible for U.S. DMNCs “to create, much less certify, an authoritative list of countries of origin of the hundreds or sometimes thousands of discrete components in a particular computer or telecommunications switch or radar control unit.”⁷⁸ There are two general reasons why this is true. First, there are thousands of different companies involved in subcontracting, as will be shown in the next section. More importantly, it is not the second tier that is hard to track and authorize but the third, fourth, fifth, etc. This spider web of subcontractors is not the direct choice of the prime contractor. Instead, like my example before, the second-tier contractor looks for someone else and that corporation in

⁷⁷ In the next chapter, we will analyze the rules and regulations in place that prohibit such actions when working with what is deemed “sensitive material.” It is important to note though that foreign subcontracting has caused the transfer of highly sensitive material to unauthorized nations. As an example, in 1988 Toshiba, a Japanese corporation that worked with U.S. Defense corporations was found guilty for sharing sensitive information with the USSR. There are many more examples of such occurrences however they are not of concern for this research. There are many forms of regulations and institutions in place to monitor and mitigate such actions. Therefore, it is highly unlikely that the Chinese would be able to exploit such things in an efficient and effective manner.

⁷⁸ *The Unintended Consequences of “Buy American”: How HR 1588 could Stall Commercial Procurement at DoD* (Arlington, VA , [2003]) (accessed November 8, 2010), 3–4.

turn looks for another and so on. The second reason is the inability to access foreign databases. In most reports the limiting factor was not the cooperation of the U.S. corporations but the international corporations. United States rules, regulations and insight are not applicable when dealing with foreign companies. This will be highlighted further in the next section.

a. HARM, ADCAP, VERDIN Report

As was discussed previously, in the early 1980s the Department of Defense (DOD) undertook multiple studies aimed at determining the degree of foreign sourcing. Continually, the reports pointed out that there were significant foreign dependencies through foreign subcontracting; however, none of the reports directly ascertained the exact level.⁷⁹ After intense criticism from both Congress and the GAO, the Commerce Department in 1988 responded by conducting, “the first known comprehensive analysis of sourcing by weapons system at lower tier subcontractor levels, both domestic and foreign.”⁸⁰ The study’s primary focus was to identify foreign sourced items, which were defined as “materials, parts, components, or cell assemblies manufactured, assembled, or otherwise processed outside of the United States.”⁸¹ In this assessment, being published in 1992, the Commerce Department analyzed three U.S. Naval defense systems to ascertain the exact amount of foreign subcontracting utilized in the production. These weapons were the HARM missile, the Verdin communication system and the Mk 48 ADCAP Torpedo. They were chosen due to their varying level of sophistication to ensure that all aspects of the value chain could be monitored and determined.

⁷⁹ Vawter, *U.S. Industrial Base Dependence/Vulnerability, Phase I: Survey of Literature*, 4

⁸⁰ *National Security Assessment of the Domestic and Foreign Subcontractor Base: A Study of Three U.S. Navy Weapons Systems* (Washington, D.C.: U.S. Department of Commerce, [1992]), <http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBMQFjAA&url=http%3A%2F%2Fwww.bis.doc.gov%2Fdefenseindustrialbaseprograms%2Fosies%2Fdefmarketresearchrpts%2Fnationalsecurityassessmentfordomandsubcontractorbasefinal.pdf&rct=j&q=National%20Security%20Assessment%20of%20the%20Domestic%20and%20Foreign%20Subcontractor%20Base%3A%20A%20Study%20of%20Three%20U.S.%20Navy%20Weapons%20Systems&ei=4kfzTOPuJoaisQOrwZjzCw&usg=AFQjCNG47BPwn0YM8tRTEwVusAlK-vZBQ&sig2=bj3A0hUATJjGezuGav32Wg> (accessed November 8, 2010): 8.

⁸¹ *Ibid.*, 4.

After all surveys were accounted for, it was found that over 15,000 corporations were identified at the subcontractor level, with 11,638 corporations still actively supplying the prime contractor in production of the finalized product.⁸² The fact that these weapon systems took 15,000 different corporations to create the final product only highlights the level of complexity and scope in producing modern weapons of today. It was also found that the Mk 48 Torpedo was the least globalized system, with only 5% coming from foreign subcontractors at both the second-tier and third-tier levels. The second most globalized system was the HARM missile with 4.7% coming from second-tier contracting and 17.6% coming from third tier subcontractors. Finally, it was the electronic intensive Verdin communication system that was most globalized. This system had 40% coming for foreign second-tier subcontracting.⁸³ In total, the Verdin system drew on 163 foreign subcontractors from 26 different countries including the PRC, Hong Kong, and Taiwan.⁸⁴

There were many problems with the assessment in that the surveys that were sent to corporations were not mandatory and, therefore, not required to be filled out. Although there were thousands that responded, 27% did not.⁸⁵ This included second, third and fourth tier subcontractors. This, therefore, produced incomplete data across the analysis. The second problem with the assessment was that once the survey reached a foreign subcontractor, further research was ceased.⁸⁶ Most likely, those foreign subcontractors subcontracted; however, the report does not show this and, therefore, it can be concluded that it is highly probable that more foreign dependencies exist than was showcased in the report. To further this, this study did not look at launch computers or software systems associated to the weapons systems in the project and did not analyze any other support systems that are associated with the overall project.

⁸² *National Security Assessment of the Domestic and Foreign Subcontractor Base: A Study of Three U.S. Navy Weapons Systems*, 6–16.

⁸³ *Ibid.*, 31–41.

⁸⁴ *Ibid.*, 53–63.

⁸⁵ *Ibid.*, 8.

⁸⁶ *Ibid.*, 16.

Therefore, in the end, it is impossible to know the full extent of third tier foreign subcontracting and due to the complexity of the supply chain logistics of modern technology it is almost impossible to adequately identify all parties taking part in the development and procurement of U.S. weapons. This fact alone should underscore how vulnerable U.S. DMNCs are to foreign subcontracting. Do these corporations actually know who makes their parts and components? According to U.S. Official reports, it is impossible to actually ascertain such information. Even with the concerted efforts of the Commerce Department, this endeavor fell short and could only point out and verify previous reports that U.S. defense subcontracting is dependent on foreign supply.

4. How Does This Apply to China?

While there is no modern day information or complete analysis that dictates the amount of defense subcontracting to China specifically, the Commerce Report did highlight their involvement in the three systems. The PRC contributed \$8 million, or 11% of the fourth tier subcontracting in the Mk 48 ADCAP torpedo, standing as the third largest foreign contributor at this level.⁸⁷ This included the supply of lead frames and resistors for the HARM missile and the ADCAP torpedo.⁸⁸ Hong Kong provided assembly, headers, ceramic pieces, and parts packages for the HARM missile and electronic components and tantalum bearing ore for the Verdin communication system.⁸⁹

In this instance, we see that the PRC was a part of production of three prominent and still used weapons of the U.S. Navy. This was at a time when relations were still strained with Beijing over the Tiananmen Incident of 1989 and the Chinese market was no where near as strong as it is today, now boasting a second place in overall GDP. Considering that China's economy has exponentially increased since 1992, it can be conceived that China has become a larger part in foreign sourcing and subcontracting.

⁸⁷ *National Security Assessment of the Domestic and Foreign Subcontractor Base: A Study of Three U.S. Navy Weapons Systems*, 34.

⁸⁸ *Ibid.*, 59, 70.

⁸⁹ *Ibid.*, 55, 60. In 1992, Hong Kong was not a part of the PRC; however, that is no longer true. While the information presented in this separates the figures of Hong Kong from that of the PRC, it should be noted that in today's production, Hong Kong, while maintaining its own governmental system, is a part of the PRC.

While there is no specific data to numerically prove this, logically it can be understood that China has become a more integral part of supply chains around the world to include third, fourth and fifth tier subcontracting for defense articles.

While it becomes clear that China is a part of U.S. defense subcontracting, the important question in this equation is how can China effectively use this to place pressure on U.S. DMNCs? It is not so much a matter of foreign involvement that affect the security of these corporations, but how foreign influence can affect these corporations in their endeavors. For the threatened sanctions and pressure to be effective, they must have a viable means in which to present major concerns for these DMNCs.

a. Profit Collapse

The third, fourth and fifth tier subcontracting tasks are usually low scale productions, and resource procurement. They are not highly sophisticated or technological in nature. Therefore, the type of aid that Chinese corporations add to the value chain is not in the realm of scientific advancement. The U.S. projects do not rely on Chinese state-of-the-art capabilities but instead rely on their cheap labor and low production costs. It is assumed that corporations chose Chinese subcontractors because they offered the specified product at a cheaper cost than other corporations. Therefore, the withholding of Chinese products could in effect raise costs and expand production times for U.S. DMNCs. This does not assume that the United States would now be unable to replicate all of the technologies, parts, and components used in defense-related production by Chinese subcontractors, but that the U.S. corporations would have to find other means and methods in which to procure these products and would therefore have to raise production costs, and expand the production timeline.

Even though this connection seems simple, it can lead to other effects further down the supply chain. We cannot take the Chinese market for granted and ask “how much would it cost to replicate what comes from China?” but instead try to understand how the exclusion of an entire market, especially as large as China would have on all facets of production. Many have studied the options of complete domestic production for U.S. defense articles. As will be discussed later, the Buy American

movement was such a response by congress; however, most in the DoD have vehemently fought against such acts. Defense Secretary Donald Rumsfeld was quoted saying that such actions, “would deny to U.S. forces critical technologies and capabilities available only, or most economically, from non-U.S. sources.”⁹⁰

It is not just a matter of sheer profit calculation, but with defense budgets shrinking, these added costs to projects could ultimately affect the level of output and the overall amount of projects contracted by the U.S. government. It is somewhat far fetched to believe that the overall refusal of Chinese subcontractors would lead to fewer projects by the U.S. government; however, it is undeniable in arguing that it would overall increase costs and, therefore, cause a reduction in profit margins for U.S. corporations. The affect of Chinese refusals to subcontract would lead all the way from fourth tier contractors straight to the U.S. government.

A counterargument to this is that such a cutback by the PRC would cause a large loss of revenue within the country. It can be assumed that if China were to conduct such an action, they would be hurting many of their corporations and could in effect hurt their own economic gains. This action could be considered “biting the nose in spite of the face.” Whether or not this option is sufficient for China to enact, this option is viable and could be utilized to not only to hinder production efficiency but also cut into the profit margin of DMNCs thus creating pressure on the corporations. While this could be an effective means, it appears to be inefficient.

B. DMNC CIVILIAN PRACTICES

As was discussed in a previous section, U.S. defense expenditures have fluctuated over the years, therefore creating instable revenue projections.⁹¹ To help mitigate such effects, most defense corporations have relied on their civilian sectors as an alternative source of revenue. The civilian practices give the defense corporations the ability to expand and thrive even in times when defense spending is low. With a constant source of

⁹⁰ Mark McLean, “Defense Procurement Strategy for a Globalized Industry,” *U.S. Army War College* (March 18, 2005), <http://handle.dtic.mil/100.2/ADA431944> (accessed November 14, 2010), 15.

⁹¹ Guay, *Globalization and its Implications for the Defense Industrial Base*, 6.

funding from the civilian revenue, DMNCs are able to keep their highly trained labor force and ensure production lines are maintained. The existence of a strong civilian sector not only gives defense corporations increased revenue during times of low defense spending but also in turn affords defense corporations the ability to fund continued research thus improving their competitive edge and technological capability.

Unlike defense articles, products from civilian sectors are able to flow across borders relatively unchecked. The freedom of commerce allows civilian sectors of the defense corporations to extend their supply chain logistics across oceans without the prior approval of the U.S. president as it is with the defense articles. The internationalization of these products allows for the civilian sectors of the defense corporations to create efficiencies in production, increase economies of scale, and access to new markets.⁹² Because of such opportunities, it has almost become a necessity for corporations to internationalize to maintain their competitive edge.

While opportunities do exist from internationalization, so does risk. The continued operations in foreign countries create new pressures and difficulties for these corporations.⁹³ It is not that they are just American companies, but that their operations are tied to the political ramifications of being a defense corporation and a national asset to their host nation. Therefore, the continual operation of these corporations in multiple nations raises the likelihood that political confrontation between the foreign nations and the corporation may occur.⁹⁴ The response from the PRC over the sales to Taiwan highlights that exact problem.

⁹² Markusen and Costigan, *Arming the Future: A Defense Industry for the 21st Century*, 442: 310.

⁹³ Thomas P. Murtha and Stefanie Ann Lenway, "Country Capabilities and the Strategic State: How National Political Institutions Affect Multinational Corporations' Strategies," *Strategic Management Journal* 15, no., Special Issue: Strategy: Search for New Paradigms (Summer, 1994), 113–129, <http://www.jstor.org.libproxy.nps.edu/stable/2486879> (accessed September 8, 2010).; Julian Birkinshaw and others, "Why do some Multinational Corporations Relocate their Headquarters Overseas," *Strategic Management Journal* 27, no. 7 (Jul., 2006), 681–700, <http://www.jstor.org/stable/20142366> (accessed September 8, 2010).; Israel Shaked, "Are Multinational Corporations Safer?" *Journal of International Business Studies* 17, no. 1 (Spring, 1986), 83–106, <http://www.jstor.org/stable/154751> (accessed September 8, 2010).; Tony W. Tong and Jeffrey J. Reuer, "Real Options in Multinational Corporations: Organizational Challenges and Risk Implications," *Journal of International Business Studies* 38, no. 2 (Mar., 2007), pp. 215–230, <http://www.jstor.org.libproxy.nps.edu/stable/4540417> (accessed August 24, 2010).

⁹⁴ Buckley and Ghauri, *Globalisation, Economic Geography and the Strategy of Multinational Enterprises*, 81–98.

Considering that all the defense corporations from the Taiwan arms sale are multinational in their operations and have civilian sectors that extend the globe, China has an ability to sanction portions of the exposed civilian sectors of the defense corporations.⁹⁵ Unlike the defense sectors, civilian sectors look at foreign areas as a new market in which to gain new customers.⁹⁶ Therefore, to be able to understand the effectiveness of sanctions against the civilian sectors, it is important to register how much these defense corporations rely on their civilian sectors and how much of a role China plays in the calculus of their future prospect.

1. How Much Do DMNCs Depend on Their Civilian Sectors

World Rank	Company	2008 DEFENSE REVENUE*	2008 CIVILIAN REVENUE*	2008 TOTAL REVENUE*	% OF REVENUE FROM DFENSE	% OF REVENUE FROM CIVILIAN
1	Lockheed Martin	39550	3181	42731	92.5%	7.5%
3	Boeing	31082	29827	60909	51%	49%
4	Northrop Grumman	26579	7308	33887	78.4%	21.6%
6	Raytheon	21552	1622	23174	93%	7%
10	UTC	9976	48705	58681	17%	83%

Table 2. Defense Revenue Versus Civilian Revenue
(Figures in millions of U.S. dollars) ⁹⁷

In analyzing Table 2, one can see that both Boeing and UTC show a large reliance on their civilian sector. According to their financial data, both companies rely heavily upon their civilian sectors' total revenue to maintain operations. Lockheed Martin, Northrop Grumman, and Raytheon have a significant amount of civilian revenue;

⁹⁵ "Top 100 Defense Corporations of 2000–2008," *Defense News*, http://www.defensenews.com/static/features/top100/charts/rank_2008.php?c=FEA&s=T1C

⁹⁶ While there are Foreign Military Sales that do occur, China is not an approved country and therefore within the scope of this research, it cannot be expected that DMNCs perceive the PRC as possible market for weapons sales.

⁹⁷ "Top 100 Defense Corporations of 2000–2008," *Defense News*.

however, their business structure does not rely as heavily on civilian revenue and would therefore not be in as much jeopardy if sanctions were imposed on their civilian sectors. For Boeing and UTC, 49% and 83% are sufficiently significant that they require their civilian sectors' revenue and would, therefore, be extremely vulnerable to the Chinese sanctions.

Boeing sells commercial aircraft to the Chinese Airlines and UTC sells Otis elevators and Carrier brand heating and air-conditioning in China.⁹⁸ For Boeing, a complication in the Chinese market would severely hurt their civilian revenue. Over the next two decades, Boeing expects China to spend \$400 billion to purchase around 3,770 planes from certain manufacturers, therefore making China the second largest commercial aircraft market in the world.⁹⁹ According to UTC's CEO, Louis Chenevert, "[China's market] feels really good right now," adding that he sees no evidence of China's market slowing down and noted that the company's Otis elevators were up by double digits, and orders for its Carrier air conditioning systems were "starting to come up." For UTC, the revenue from Otis Corporation accounted for the bulk of the \$3.1 billion in sales in China last year, and it is estimated that China's economy will grow 9.9 percent this year.¹⁰⁰ With results and high expectations for both companies, and a large reliance on their civilian sector's total revenue to maintain operations, it appears as though these two defense corporations have a large reliance on the civilian Chinese market and would, therefore, be highly vulnerable to Chinese sanctions.

This is not to say that effective sanctions on the civilian sectors of Northrop Grumman, Raytheon and Lockheed Martin would not have a profound affect on these corporations. Referring back to the findings of Jonathan Galloway, these corporations regardless of percentage, will take the necessary actions to rebalance the equilibrium

⁹⁸ Ralph Jennings and Jim Wolf, "Factbox-US. Companies Involved in Taiwan Arms Sales," *Reuters* (January 30, 2010), <http://www.reuters.com/article/idUSN3015293920100130> (accessed September 9, 2010).

⁹⁹ Bruce Einhorn, "Airbus may Beat Boeing in China's Aviation Market," *Business Week* (February 2, 2010), http://www.businessweek.com/globalbiz/content/feb2010/gb2010022_703055.htm (accessed July 20, 2010).

¹⁰⁰ Ziemiński, *UPDATE 1- United Technologies: No Slowdown in China Orders*.

between the three markets: Governmental, Domestic Civilian, and Foreign.¹⁰¹ It is hard to fathom any corporation willingly taking hits on their overall revenue. While Raytheon only receives 7% of their total revenue from their civilian sector, this still amounts to \$1.6 billion, which is no small amount.

While civilian revenue for these three corporations is significant, their overall civilian operations in China are minimal as compared to UTC and Boeing. In this case, both UTC and Boeing depend on the Chinese market to make sales and purchases. Their dependence on the Chinese economy goes beyond that of supply chains and logistics, but also depends on consumer buying and open markets. This dependence separates them from the others in that they have become more vulnerable to the PRC.

If China does impose the threatened sanctions against these DMNCs it could prove to be detrimental to their international operations. While the military sectors of these defense corporations would not be affected by sanctions from China, considering that China does not buy U.S. weapons, the civilian sectors are left relatively unprotected. The combined dynamics of a large reliance on civilian revenue and pressure from a government that has a lucrative market for their civilian sectors to operate in, only demonstrates a larger possibility that certain defense corporations will be more likely to adhere to the foreign government's will over that of their host national government's desires.

2. Exploitation by Use of Foreign Competitors

Another way in which China can exploit a major weakness in certain civilian sectors of the defense corporations is through pre-existing competitive rivalries. In most cases, Lockheed Martin, Boeing, Raytheon, UTC, Northrop Grumman and other defense corporations are in tight contention for defense contracts relating in their respective fields, however, as was discussed, China does not have an ability to affect this. There are pre-existing rivalries in the civilian sectors that can be exploited to create even more pressure on the defense corporations involved in the Taiwan arms sale.

¹⁰¹ Galloway, *The Military-Industrial Linkages of U.S.-Based Multinational Corporations*, 491–510: 495.

The targeting of corporations with strong rivals can serve two purposes: it can cause civilian revenue of the defense corporations to decrease, and increase the competitive gain of their key competitor. Not only do they lose that part of the market, but their competitor also ends up gaining from it, therefore delivering a double blow to the defense corporation under fire. In tight competition for new markets like China, this sort of altercation can result in a major setback to the defense corporation's civilian revenue and could become a crippling long-term effect. Not only does the rival gain from a sanction in China, but also, due to the increased capital, the rival will have the ability to use this gain in other competitive areas to help increase funding in their global market.

There are many different types of rivalries that exist in the market. Raytheon, Lockheed Martin, and Northrop Grumman mainly compete with each other for defense contracts and their civilian revenue is relatively low as compared to others. This, therefore, indicates that they are somewhat protected from a Chinese exploitation of the key rivalries between them.

Conglomerate corporations might have several different rivals by the existence of multiple sectors and markets under which they operate. Therefore no one company is completely identical to that of another conglomerate corporation and the existence of a specific rivalry is rare. UTC is a conglomerate that has different civilian sectors like Otis elevators and Carrier air-conditioners.¹⁰² The sanctions against UTC would result in fewer Otis elevators and Carrier products; however, there are many different elevator and air-conditioner companies operating in China and, therefore, no specific competitor would gain from such sanctions. This therefore does not affect the global competitiveness of the civilian sector of UTC but only local competitiveness in the Chinese market. Therefore, the sanctions will not make UTC as vulnerable.

¹⁰² Ralph Jennings and Jim Wolf, "Factbox-US. Companies Involved in Taiwan Arms Sales," *Reuters* (January 30, 2010), <http://www.reuters.com/article/idUSN3015293920100130> (accessed September 9, 2010).

Boeing on the other hand has one major rival, Airbus. As most would claim, the rivalry between Boeing and Airbus is the largest international rivalry in the world.¹⁰³ Both companies are identical in that their civilian sectors develop comparable commercial aircrafts that are competitive on the global market. Foreign corporations that choose to buy a commercial jet are usually considering whether or not they choose Airbus or Boeing and at times will use the two corporations to play off each other in a bidding war. The stakes are extremely high for each corporation being that a single deal with an airline could be a deciding factor between success and failure over a multibillion-dollar investment.¹⁰⁴ Therefore, one of the best strategies for both Boeing and Airbus is that of persuading prospective buyers such as nationally owned airlines (as is the case in China), to purchase their planes over the others.¹⁰⁵

a. Boeing Versus Airbus in China

The competition between Boeing and Airbus has been extremely tight over the years. Neither company has been able to pull away from the other, so the slightest change in their global market share gives each company a comparable advantage over the other. For such a close race, it can be seen how important the Chinese market is to both companies. According to China's own projections, they believe they will quadruple their aircraft fleet to 3,900 by 2025, which will create a large amount of potential revenue for either Boeing or Airbus.¹⁰⁶ To further this, Boeing expects China to spend over \$400 billion to purchase planes over the next couple of years, thus making

¹⁰³ "Boeing v. Airbus: Nose to Nose," *Economist* (2005), <http://www.economist.com/node/4102185> (accessed September 8, 2010).

¹⁰⁴ Ibid.

¹⁰⁵ Andrew Yeh and Doug Cameron, "Airbus Studies Plans for Assembly in China," *Financial Times* (2006), <http://www.ft.com/cms/70cf1ffa-f754-11da-a566-0000779e2340.html> (accessed September 8, 2010).

¹⁰⁶ "Global Market Brief: China's Aviation Plans," *Stratfor Global Intelligence* (March 22, 2007), http://www.stratfor.com/global_market_brief_chinas_aviation_plans (accessed September 9, 2010).

China the second largest aeronautics market in the world.¹⁰⁷ China “probably has the most potential of any significant market in the world,” said the Airbus China President Laurence Barron.¹⁰⁸

However, with such a tight contention, is Boeing at a point that they can handle a head-to-head challenge with Airbus in China, especially if sanctions are involved? With airlines in other markets struggling, and Boeing itself still trying to recover from its much-delayed Dreamliner 787 project, Boeing seems to be on shaky ground and stands to lose more than Airbus.¹⁰⁹ Along with this, before the arms sales to Taiwan, Airbus was already winning more orders from China than Boeing.¹¹⁰

While Boeing currently has 736 Boeing planes operating in China (and another 30 from McDonnell-Douglas, which Boeing-acquired in 1997), Airbus only has 547. However, over the past couple of years, Airbus’s orders from China have dramatically shifted to give Airbus the advantage. As of February 2010, Chinese airlines have placed orders for 358 Airbus planes and have options for another 14, while they have only ordered 244 new planes from Boeing and have placed no options for further units. Airbus has also acquired letters of intent towards future sales of 60 planes, compared to 40 for Boeing.¹¹¹

Because the three largest airline companies (China Southern, China Eastern, and Air China) are still controlled by the Chinese government, the purchasing of commercial airliners is highly politicized where government officials have the ability to reward foreign governments with airplane sales that meet the interests of China.¹¹² In

¹⁰⁷ Eric Feters-Walp, “Boeing in China,” *Boeing Frontiers*, October, 2009, 12, www.boeing.com/news/frontiers/archive/2009/october/oct09frontiers.pdf (accessed September 9, 2010), 13.

¹⁰⁸ *Global Market Brief: China’s Aviation Plans*.

¹⁰⁹ Christopher Drew and Nicola Clark, “Engine Problem Delays Delivery of Boeing’s Dreamliner,” *New York Times*, August 27, 2010, <http://www.nytimes.com/2010/08/28/business/global/28boeing.html> (accessed September 8, 2010).

¹¹⁰ Bruce Einhorn, “Airbus may Beat Boeing in China’s Aviation Market,” *Business Week* (February 2, 2010), http://www.businessweek.com/globalbiz/content/feb2010/gb2010022_703055.htm (accessed July 20, 2010).

¹¹¹ *Ibid.*

¹¹² Yeh and Cameron, *Airbus Studies Plans for Assembly in China*.

response to such a system, Airbus, in June 2008, built an assembly base in Tianjin.¹¹³ By developing an assembly factory in Tianjin, Airbus is hoping that building aircraft in China (and the corresponding transfer of technology) will strengthen its position with the Chinese government to a better one than that of Boeing. To further this, Airbus has also developed an engineering center in Beijing that will train up to 200 local engineers to assist in the plant operations in Tianjin.¹¹⁴ In China, “if you allow for more local production and information-sharing, the purchaser is going to be a lot more willing to accept your aircraft,” says Peter Harbison, executive chairman of the Center for Asia Pacific Aviation in Sydney.¹¹⁵

Boeing on the other hand is at a disadvantage. Hindered by unions and concerns of the company shifting jobs overseas, Boeing has had to maintain production in the United States. However, Boeing has argued that their presence in China is significant because Boeing buys parts from seven local manufacturers in China. Boeing spokesman, Yukui Wang, stated that Boeing is the Chinese aviation industry’s largest foreign customer. He stresses that Boeing, over the years, has bought \$1.5 billion in aircraft parts and services from China and that this figure “will double in the next few years... Chinese suppliers now have a role in all of Boeing airplanes.”¹¹⁶ To emphasize their commitment to China, Boeing ramped up its efforts and sent a sales director to Beijing to become the company’s first China-based sales executive—which is something that is not normally practiced by Boeing.¹¹⁷

Even with the past level of competition between Boeing and Airbus, Boeing is now at a large disadvantage because of their defense sector’s sales of the Harpoon missiles to Taiwan. If China enacts the sanctions against Boeing, Boeing will have to face a strong rival who just became stronger, while they lost major ground in the

¹¹³ Wu Qiong, Xiong Zhengyan and Zou Lan, “Airbus A320 Final Assembly Line in Tianjin Goes into Operation,” *Xinhuanet News* September 28, 2008, http://news.xinhuanet.com/english/2008-09/28/content_10128558.htm (accessed September 8, 2010).

¹¹⁴ Yeh and Cameron, *Airbus Studies Plans for Assembly in China*.

¹¹⁵ Einhorn, *Airbus may Beat Boeing in China’s Aviation Market*.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

battle over the Chinese market. Even if China does not impose the sanctions, the Chinese government will probably be more likely to purchase planes from, and therefore support a company that does not sell weapons to areas of concern and complies with their national interests.

The defense corporations that are more reliant on their defense sales and, therefore, are not as competitive in the civilian sectors, such as Raytheon, Northrop Grumman, and Lockheed Martin, are not under the same kind of pressure to expand their international production base and depend on foreign markets as is Boeing (due to their competitive nature with Airbus). If China were to take sanctions against Boeing, they would be able to meet their aeronautical needs by buying planes from Airbus, who is Boeing's tight competitor. Therefore not only is Boeing losing the revenue, but their main competitor is gaining from the sanctions. This double-edged sword would increase pressure on Boeing to try and mitigate the sanctions and adhere to the Chinese request, thereby restoring their share of the world market and their political favor in the eyes of the Chinese government.

C. CONCLUDING ANALYSIS

In this section, we have explored the possible vulnerabilities due to foreign subcontracting, and civilian operations internationally. It was shown that foreign subcontracting is not only prevalent in defense operations but that there is no clear way of demarking and tracking exactly where all parts and pieces are made and assembled. This is alarming in that it opens opportunities for foreign meddling and highlights a lack of understanding on how truly the defense sector depends on foreign supplies and assistance. It is only clear that levels of dependency do exist and that the controls in place are inadequate to exactly track such vulnerabilities.

However, while foreign subcontracting does exist at alarming rates, it appears to be an inefficient means for the PRC to exploit. To attack this, the PRC would have to hinder their own economic success by hindering their own domestic corporations' production. This might have a profound effect on U.S. DMNCs revenue and time scales;

however, the consequences to the PRC would appear to be too great. It was shown that DMNCs are vulnerable to foreign subcontracting, but this does not appear to be a useful method of retaliation for the PRC to employ.

The attack on civilian sectors, however, appears to be a very viable means to place pressure on the defense corporations. To varying degrees, DMNCs depend on this revenue and cannot sit idly by while an economic behemoth like China takes action against them. The level of pressure increases on corporations like Boeing who depend on China as a source of revenue and are in high contention with a competing company. With the stakes so high and the potential so great in China, Boeing stands to lose a great deal if China does place sanctions on their aircraft. Also, being that the sales of aircraft are highly politicized, the decisions of the U.S. government to sell weapons to Taiwan, appears to not be in the best interest of Boeing. Their connection to the United States through their defense sector will cause them political battles in the future and could cause major hardship for the corporation.

Therefore, sanctions on civilian corporations appear to be a highly effective and efficient means in which the PRC can place great pressure and hardship on the U.S. defense corporations. This, therefore, requires further research to ensure that the PRC has a legitimate means in which to place sanctions on the U.S. corporations. In the next section, we will analyze whether or not the PRC can legally place sanction on U.S. DMNCs and whether the United States has any rules or regulations that can mitigate such transgressions.

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IV. FORMS OF PROTECTIONISM TOWARD DMNCS

A. CAN THE WTO HELP PROTECT DMNCS

In response to the recent U.S. sales to Taiwan, the PRC has utilized the tool of sanctions as a form of coercion. They have not only challenged the decision of the United States to sell weapons to Taiwan, but have also challenged the corporations involved in the decision of the U.S. government. For the sanctions to have any teeth against these corporations, they must have a viable means of being legally employed against the U.S. corporations involved. Their validity must be unhindered by global institutions and unchallengeable by the international community. This, therefore, calls into questions whether or not the international norms and regulations could allow China to invoke such a serious action against U.S. corporations.

The unifying organization in international economics is the World Trade Organization (WTO). Adopting the provisions of the General Agreements to Tariffs and Trade (GATT), the WTO strives to facilitate and foster liberalized trade amongst its members. This international organization not only establishes a framework for negotiations, but also provides a dispute resolution process to ensure participants adhere to the WTO rules and regulations. Considering that China and the United States are both members of the WTO, it would be through this organization in which China would operate under in placing sanctions against another country.

While sanctions by their very nature are counter-intuitive to the overarching goal of the WTO, they are still legal. Article XXI of the GATT states:

Nothing in this Agreement shall be construed

(a) to require any contracting party to furnish any information the disclosure of which it considers contrary to its essential security interests; or

(b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests

(i) relating to fissionable materials or the materials from which they are derived

(ii) relating to the traffic in arms, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment;

(iii) taken in time of war or other emergency in international relations; or

(c) to prevent any contracting party from taking any action in pursuance of its obligations under the United Nations Charter for the maintenance of international peace and security.¹¹⁸

As can be seen, Article XXI not only gives nations the clearance to immediately interrupt trade relations but also allows the sanctions to occur without being bogged down with the WTO dispute resolution process.¹¹⁹ Therefore, China has the ability to levee sanctions on U.S. corporations if it is deemed necessary under the auspice of “essential security interests.”

As officially published on the embassy website of the PRC in the United States, Zhang Hanlin, director of the WTO Institute of the University of International Business and Economics stated, “As the sales to Taiwan poses a threat to China’s national security, China has the right to penalize the companies.”¹²⁰ Considering that the sovereignty of Taiwan is not officially recognized by the WTO, it would appear as though China has a valid point in perceiving the sales to Taiwan as an illegal transport or trafficking of arms into their own territory and, therefore, can be considered a security concern for the PRC.

¹¹⁸ *The General Agreement on Tariffs and Trade (GATT 1947) (Article XVIII — XXXVIII)*, World Trade Organization (1947), http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm (accessed September 22, 2010).

¹¹⁹ Maarten Smeets, “Conflicting Goals: Economic Sanctions and the WTO,” *Global Dialogue* 2, no. 3 (2000), <http://www.worlddialogue.org/content.php?id=100> (accessed September 23, 2010).

¹²⁰ “Sanctions Against U.S. Firms Selling Arms to Taiwan Not Violating WTO Rules: Chinese Experts,” Embassy of the People’s Republic of China in the United States of America, <http://www.china-embassy.org/eng/xw/t656463.htm> (accessed September 23, 2010).

Therefore under the guidance of Article XXI, China has a legitimate reason to believe the arms sales are contrary to the “essential security interests” of the PRC. While this reasoning stands, the United States cannot use the legal framework of the WTO to intervene or mitigate such sanctions by the PRC.

Along with the provisions of Article XXI, Zhang also stated that China had never signed the Agreement on Trade in Civil Aircraft and, therefore, has the right to decide whether or not they purchase U.S. civilian aircraft from certain corporations.¹²¹ The Agreement on Trade in Civil Aircraft is a WTO agreement entered into force in 1980 that attempts to mitigate import duties on all aircraft with the exception of those purchased for military use.¹²² This agreement also extends to aircraft parts, components and flight simulators. Because China refused to sign this agreement, they are therefore free to place import duties on all foreign civilian aircraft and components thus allowing them to affect the cost and competitiveness of certain foreign corporations that are involved in the sector. While Lockheed Martin, and Raytheon take part in certain components involved civilian aircraft, they are small compared to the level of investment that Boeing has in this sector. This, therefore, appears to be a direct threat against a certain sector, and, therefore, a certain defense corporation.

After analysis of the WTO provisions and, therefore, Article XXI, it appears as though China has a legitimate means on which to launch sanctions against the corporations of the United States. Seeing that Taiwan is not recognized as a sovereign state by most of the international community, it can be seen that the sales are, therefore, against the “essential security interests” of the PRC. What is most striking though, is the official remark against civilian aircraft, which appears to have a specific target in mind.

¹²¹ Sanctions Against U.S. Firms Selling Arms to Taiwan Not Violating WTO Rules: Chinese Experts,” Embassy of the People's Republic of China in the United States of America.

¹²² *Agreement on Trade in Civilian Aircraft*, World Trade Organization (1980), http://www.wto.org/english/tratop_e/civair_e/civair_e.htm (accessed September 20, 2010).

B. ARE U.S. DEFENSE SECTORS VULNERABLE TO CHINA?

By their very nature, defense corporations are intertwined with their host nations especially for those in the United States. Unlike civilian corporations, because of the sensitivity of their products to U.S. security, they are under high supervision and are highly scrutinized by the government. Over the years, the United States has installed many programs, regulations, laws and supervisory boards to help control export of U.S. defense articles to foreign countries and protect their overall national assets.

1. Arms Export Controls

One of the most significant defining measures to ensure such actions take place is the U.S. code Title 22 Chapter 39, which outlines the arms export controls.¹²³ According to Subchapter III, § 2778 of Chapter 39, the U.S. president has direct control on all exports and imports of defense articles and can provide foreign policy guidance to those designated to receive U.S. weapons or defense services. The president is also authorized to determine that which is designated as defense article and defense services therefore controlling the export of that which is deemed as U.S. weapons.¹²⁴ It is under this chapter that U.S. defense corporations must receive the approval and guidance from the U.S. government before they can work with and or sell weapons to other countries.

China, albeit a robust militarized nation, does not receive weapons from the United States. Following the Tiananmen Square Incident of 1989, the U.S. president under the provisions of the Arms Export Control Act placed embargoes on military articles and services to the PRC. A mere 20 days later the European Union enacted the same embargoes on the PRC and neither has lifted them since.¹²⁵ Therefore China has no part in the market of the defense sectors of the U.S. defense corporations.

¹²³ *Arms Exports Control*, Public Law Title 22, *Cornell University Law School* (2010): Chapter 39, <http://frwebgate.access.gpo.gov/cgi-bin/usc.cgi?ACTION=BROWSE&TITLE=22USCC39&PDFS=YES>.

¹²⁴ *Ibid.*

¹²⁵ Rachel Stohl, "Wrangling Over Arms Sales to China," *Foreign Policy in Focus* (November 21, 2006), http://www.fpif.org/articles/wrangling_over_arms_sales_to_china (accessed September 13, 2010).

Considering that the PRC is not an authorized nation to currently receive any weapons from the United States, it appears as though the Chinese do not have a direct ability to place sanctions on U.S. defense articles. They, therefore, have no means to attack these defense articles considering they are not a part of the U.S. weapons market and can therefore not affect their pricing or their marketability. From this information it can be seen that the threatened sanctions by the PRC appear to not be aimed at the defense sectors of these corporations. If this is truly the case, then what part of these corporations does China have the power to affect by sanctions?

2. Buy American

Because of the rapid increase of foreign sourcing by DMNCs in the 1980s, domestic corporations were left to the wayside seeing their revenue decrease. These uncompetitive corporations called upon Congress to act to protect the U.S. corporations and maintain U.S. investment within national borders. Answering to their pleas, Congress added 18 restrictions deemed the “Buy American” acts.¹²⁶ Their overall objectives were to require prime contractors to subcontract within the United States to ensure that outsourcing was mitigated and to help maintain revenue within the economy.

As can be seen, the objectives of the Buy American restrictions sounded good on paper, but caused real hardship on both the DoD and prime contractor DMNCs. In 1986, the DoD published two reports that highlighted the effects of these restrictions. They argued that Buy American restrictions caused significant unfavorable effects on both the cost and quality of weapons systems and caused major delays in weapons procurement.¹²⁷ In 1989, the DoD conducted an extensive analysis of the Buy American restrictions recommending “that most congressionally mandated Buy American restrictions be abolished” and that “Congress should avoid future use of Buy American

¹²⁶ *The Impact of Buy-American Restrictions Affecting Defense Procurement* (Washington D.C.: Report to the United States Congress by the Secretary of Defense, July (accessed November 8, 2010), 15–22. There were already eight restrictions in place prior to 1980.

¹²⁷ Vawter, *U.S. Industrial Base Dependence/Vulnerability, Phase I: Survey of Literature* pg. 16–17, 22–24.

restrictions in procurement.”¹²⁸ In response to the concerns of the DoD, Congress authorized the Secretary of Defense the authority to issue waivers in situations he deemed necessary. This allowed the Secretary of Defense to grant DMNCs the ability to subcontract operation internationally whenever deemed necessary.

With this waiver capability, DMNCs quickly maneuvered to use the newfound loophole and continue international subcontracting. A GAO report in 1991 found that the Buy American restrictions were of “limited impact because of the many exceptions allowed.”¹²⁹ The extensive use of these loopholes were so great that in 1988 a corporation proposed a lawsuit against the DoD claiming that the waivers granted were not within the Buy American Act.¹³⁰

With the DoD vehement arguments and lobbying from DMNCs, the Buy American restriction lost power and effectiveness. Their existence, although inefficient on the industry, would have been a starting point for mitigating certain levels of foreign dependencies

C. CONCLUSION

As can be seen, there is a significant amount of protection towards “sensitive information.” The advancements and capabilities of the defense sectors are worth protecting and have adequate oversight and regulations. However, does this protect all facets of DMNCs operations?

China has a viable argument in that the arms sales can logically be seen as a threat to their national security. The provisions in the WTO therefore allows China to sanction corresponding corporations of the country in challenge, in this case the United States. China not only has an ability to reject U.S. goods, but can also target specific corporations. This leaves the DMNCs at the discretion of the PRC.

¹²⁸ *The Impact of Buy-American Restrictions Affecting Defense Procurement*, 12.

¹²⁹ *Industrial Base: Significance of DOD's Foreign Dependence* (Washington D.C.: General Accounting Office, <http://handle.dtic.mil/100.2/ADA267730> (accessed November 8, 2010), 6.

¹³⁰ *Arming our Allies: Cooperation and Competition in Defense Technology*, 84.

While the defense sectors of the corporations appear to be adequately protected, the civilian sectors are not. They are susceptible to Chinese sanctions and are open to attack. While the “Buy American” policies appear to have great intention in maintaining a subcontracting base domestically, as has been shown, DMNCs have continually found ways around this to make these regulations and laws useless to a certain degree.

Therefore, it is the conclusion of this section that there are no adequate regulations or laws in place to protect the civilian sectors of the DMNCs and DMNCs are free to subcontract internationally with little oversight. While the foreign subcontracting appears to be an inefficient opportunity for China to attack, the civilian sectors appear to be a prime target. Not only can China affectively employ sanctions hindering U.S. DMNCs, they also have no laws, regulations or red tape that would hinder their move against the civilian sectors of these DMNCs. Neither the WTO nor the U.S. government would be able to mitigate Chinese sanctions.

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V. CONCLUSION

To date, the PRC has yet to make any significant steps toward the threatened sanctions. In almost a year, nothing has actually occurred; however, this does not mean that such steps will not be taken at some point in the future. The January 2010 announcement over the sales of weapons to Taiwan was exactly that, an announcement. Technically, there is still time for the DMNCs to change their role in the process and adhere to the coercive threats of the PRC. This thesis does not try to answer whether or not the PRC will enact sanctions as proposed. Instead it only tries to establish a framework in which the Chinese government could effectively and efficiently enact strong pressure on these corporations.

This thesis began with an analysis of past behaviors and observations and found that it was not beyond comprehension that DMNCs would buckle to foreign pressure over the interests of their host nation. Instead, DMNCs would take necessary actions to ensure they rebalanced their three markets and repaired any damages that occurred. Understanding that DMNCs are capable of such actions, this thesis then provided an in-depth analysis of two possible areas of DMNC vulnerabilities: foreign subcontracting and the respective civilian sectors of the DMNCs. It concluded that DMNCs depend significantly on foreign subcontracting and that it is near impossible for DMNCs to know exactly who makes every component in their weapon systems. The existence of ambiguity in the level of foreign involvement in U.S. weapons development is unnerving and highly problematic. However, further analysis showcased that the exploitation of foreign subcontractors in China could be detrimental to the overall health of the Chinese economy and would therefore offer an inefficient means to pressure American DMNCs.

The next area of focus was on civilian components of the DMNCs. All five DMNCs have varying dependencies on their civilian sector revenue, and so sanctions aimed at these sectors could have profound effects. It was also noted that Boeing, due to the existence of an international competitor, was at most risk of such sanctions because it could ill afford a setback in such a lucrative market as China's. Due to the highly

politicized nature of aircraft contracts, it would be relatively easy for China to shift favor to Airbus, thus delivering a double blow to the already troubled Boeing Corporation.

The only saving grace to such a situation is if legal platforms or institutions had legitimate means of stopping such pressures. However, caveats in the WTO guidelines permit the PRC to impose sanctions on these DMNCs, and there appears to be no U.S. law or regulation that could mitigate such an attack on the civilian sectors of these corporations. To further this, it appears that Beijing is aware of such open capability and was resolute in reminding Washington of their rights in the WTO and that they had not signed the Agreement on Trade in Civil Aircraft. In pointing out this fact Beijing appears to be specifically targeting Boeing. This makes sense insofar as this research has concluded that sanctions on civilian sectors would have a more profound affect on Boeing than any other DMNC. Beijing currently stands in a position from which it could either:

- a. Covertly ensure Chinese airlines buy more Airbus than Boeing.¹³¹
This gives Beijing the added benefit of not alarming foreign countries, while still making its case clear to the corporation the result of not yielding to the interests of the PRC. If this were the case, one should not expect a large statement being made by either corporation or government, and could already be in progress.
- b. Overtly placing sanctions on these DMNCs thus hindering their civilian sectors and costing the corporations millions if not billions in the process. This would have political and economical ramifications, but would also serve as a direct hit on the U.S. government and be an open message that continued sales of weapons to Taiwan will trigger drastic steps in response. This would also be a clear message that the threats by the PRC are real and that the Chinese Government did exactly what it threatened to do.

¹³¹ Remember that these are state owned and run corporations.

- c. Do nothing. In this case, the threats were empty. This thesis shows that Beijing has the means to effectively and efficiently place sanctions on these corporations; however, if the PRC chooses to do nothing, then there exist factors that were not considered in this thesis. If this is the case, then this research should be expanded in time to understand why the PRC chose to do nothing.

The PRC has made clear its disagreement to the weapons sales however has not made clear exactly how they would go about holding U.S. DMNCs responsible. This thesis concludes that the PRC has the power to cause great pressure on U.S. corporations that do not comply to its interests. However, whether or not it does deploy this power remains to be seen.

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LIST OF REFERENCES

- Agreement on Trade in Civilian Aircraft*, World Trade Organization (1980), http://www.wto.org/english/tratop_e/civair_e/civair_e.htm (accessed September 20, 2010).
- Anna, Cara. "China: Taiwan Arms Sales Hurt National Interest." *Associated Press* (January 31, 2010): September 9, 2010, <http://abcnews.go.com/International/wireStory?id=9709332> (accessed September 9, 2010).
- Arming our Allies: Cooperation and Competition in Defense Technology*. Washington D.C.: Office of Technology Assessment, 1990.
- Arms Exports Control*, Public Law Title 22, Cornell University Law School (2010): Chapter 39, <http://frwebgate.access.gpo.gov/cgi-bin/usc.cgi?ACTION=BROWSE&TITLE=22USCC39&PDFS=YES>.
- Bennett, Philip A. "Globalization; U.S. Export Control Policy and Implications for U.S. Military Dominance." *USAWC Strategy Research Project* (April 7, 2003), <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA415479&Location=U2&doc=GetTRDoc.pdf> (accessed August 2, 2010).
- Birkinshaw, Julian, Pontus Braunerhjelm, Ulf Holm, and Siri Terjesen. "Why do some Multinational Corporations Relocate their Headquarters Overseas." *Strategic Management Journal* 27, no. 7 (Jul., 2006): 681–700.
- Bitzinger, Richard. "Globalization in the Post-Cold War Defense Industry: Challenges and Opportunities." In *Arming the Future: A Defense Industry for the 21st Century*, edited by Ann Markusen and Sean Costigan, 305. New York: Council on Foreign Relations Press, 1999.
- "Boeing v. Airbus: Nose to Nose." *The Economist* (June 23, 2005): September 8, 2010, <http://www.economist.com/node/4102185> (accessed September 8, 2010).
- Bohn, Michael, Denis Bovin, Pierre Chao, Phillip Odeen, and Alan Schwartz. *Task Group on Assessing the Defense Industrial Base*. Washington, D.C.: Defense Business Board, 2010, <http://handle.dtic.mil/100.2/ADA519057> (accessed November 11, 2010).
- Bolstering Defense Industrial Competitiveness: Preserving our Heritage, the Industrial Base Securing our Future*. Washington, D.C.: Office of the Under Secretary of Defense (Acquisition), 1988.

- Bown, Chad P., Meredith A. Crowley, Rachel McCulloch, and Daisuke J. Nakajima. "The U.S. Trade Deficit: Made in China?" *Economic Perspectives* 29, no. 4 (2005, 2005): 2–18.
- Brooks, Stephen G. *Producing Security: Multinational Corporations, Globalization, and the Changing Calculus of Conflict*. NJ: Princeton University Press, 2005.
- Buckley, Peter J. and Pervez N. Ghauri. "Globalisation, Economic Geography and the Strategy of Multinational Enterprises." *Journal of International Business Studies* 35, no. 2 (Mar., 2004): 81–98.
- Conley, Joe. "Impacts of Declining Budgets and Defense Mergers on the Department of Defense." *Army War College* (April 9, 2002).
- Drew, Christopher and Nicola Clark. "Engine Problem Delays Delivery of Boeing's Dreamliner." *New York Times*, August 27, 2010, <http://www.nytimes.com/2010/08/28/business/global/28boeing.html> (accessed September 8, 2010).
- Einhorn, Bruce. "Airbus may Beat Boeing in China's Aviation Market." *Business Week* (February 2, 2010), http://www.businessweek.com/globalbiz/content/feb2010/gb2010022_703055.htm (accessed July 20, 2010).
- Fetters-Walp, Eric. Boeing in China. *Boeing Frontiers*, October, 2009, 12, www.boeing.com/news/frontiers/archive/2009/october/oct09frontiers.pdf (accessed September 9, 2010).
- Galloway, Jonathan F. "The Military-Industrial Linkages of U.S.-Based Multinational Corporations." *International Studies Quarterly* 16, no. 4, Multinational Corporations and World Order (Dec., 1972): 491–510.
- Global Economic Prospects and the Developing Countries*. Washington, D.C.: World Bank, 1997, http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/1997/09/01/00009265_3980429111300/Rendered/PDF/multi0page.pdf (accessed November 28, 2010).
- "Global Market Brief: China's Aviation Plans." *Stratfor Global Intelligence* (March 22, 2007), http://www.stratfor.com/global_market_brief_chinas_aviation_plans (accessed September 9, 2010).
- Golde, Saar and Asher Tishler. "Security Needs, Arms Export, and the Structure of the Defense Industry: Determining the Security Level of Countries." *The Journal of Conflict Resolution* 48, no. 5 (Oct, 2004, 2004): 762.

- Grant, Jennifer. "Market Perception of Defense Mergers in the United States: 1990–2006, A Case of Event Studies." MBA, Naval Postgraduate School, 2007.
- Guay, Terrance R. "Globalization and its Implications for the Defense Industrial Base." *Strategic Studies Institute* (February, 2007), <http://www.strategicstudiesinstitute.army.mil/pdf/PUB756.pdf> (accessed August 2, 2010).
- Hensel, Nayantara. "The Impact of Globalization and Shifting Defense Priorities on the Defense Industrial Base." *Office of the Deputy Assistant Secretary of the Navy* (May, 2010), <http://handle.dtic.mil/100.2/ADA530665> (accessed November 11, 2010).
- Holmes, John. "The Organization and Locational Structure of Production Subcontracting." In *Production, Work, and Territory: The Geographical Anatomy of Industrial Capitalism*, edited by A. J. Scott and M. Storper. Boston: Allen and Unwin, 1986.
- Industrial Base: Significance of DOD's Foreign Dependence*. Washington, D.C.: General Accounting Office, b.
- Jennings, Ralph and Jim Wolf. "Factbox-US. Companies Involved in Taiwan Arms Sales." *Reuters* (January 30, 2010), <http://www.reuters.com/article/idUSN3015293920100130> (accessed September 9, 2010).
- Kobrin, Stephen. "The Architecture of Globalization: State Sovereignty in a Networked Global Economy." In *Governments, Globalization, and International Business*, edited by J. Dunning. Oxford: Oxford University Press, 1997.
- Markusen, Ann and Sean Costigan, eds. *Arming the Future: A Defense Industry for the 21st Century*: Council on Foreign Relations Press, 1999.
- McLean, Mark. "Defense Procurement Strategy for a Globalized Industry." *U.S. Army War College* (March 18, 2005).
- Milner, Helen. "Trading Places: Industries for Free Trade." *World Politics* 40, no. 3 (Apr., 1988): pp. 350–376.
- Milner, Helen. *Resisting Protectionism: Global Industries and the Politics of International Trade*. Princeton: Princeton University Press, 1989.
- Moran, Theodore H. "The Globalization of America's Defense Industries: Managing the Threat of Foreign Dependence." *International Security* 15, no. 1 (Summer, 1990): 57–99.

- Murtha, Thomas P. and Stefanie Ann Lenway. "Country Capabilities and the Strategic State: How National Political Institutions Affect Multinational Corporations' Strategies." *Strategic Management Journal* 15, no. , Special Issue: Strategy: Search for New Paradigms (Summer, 1994): 113–129.
- National Security Assessment of the Domestic and Foreign Subcontractor Base: A Study of Three U.S. Navy Weapons Systems*. Washington, D.C.: U.S. Department of Commerce, 1992.
- Nye, Joseph S. "Multinational Corporations in World Politics." *Foreign Affairs* 53, no. 1 (Oct., 1974): 153–175.
- Qiong, Wu, Xiong Zhengyan, and Zou Lan. "Airbus A320 Final Assembly Line in Tianjin Goes into Operation." *Xinhuanet News*, September 28, 2008, http://news.xinhuanet.com/english/2008-09/28/content_10128558.htm (accessed September 8, 2010).
- Redesigning Defense: Planning the Transition to the Future U.S. Defense Industrial Base*. Washington, D.C.: Office of Technology Assessment, 1991.
- Report on the Effect of Mergers in the Defense Industry*. Washington, D.C.: Office of the Secretary of Defense, 1997.
- "Sanctions Against U.S. Firms Selling Arms to Taiwan Not Violating WTO Rules: Chinese Experts." Embassy of the People's Republic of China in the United States of America. <http://www.china-embassy.org/eng/xw/t656463.htm> (accessed September 23, 2010).
- Schneider, Greg and Renae Merle. "Reagan's Defense Buildup Bridged Military Eras." *Washington Post*, June 9, 2004, <http://www.washingtonpost.com/wp-dyn/articles/A26273-2004Jun8.html> (accessed November 15, 2010).
- Shaked, Israel. "Are Multinational Corporations Safer?" *Journal of International Business Studies* 17, no. 1 (Spring, 1986): 83–106.
- Sislin, John. "Arms as Influence: The Determinants of Successful Influence." *The Journal of Conflict Resolution* 38, no. 4 (Dec., 1994): 665–689.
- Smeets, Maarten. "Conflicting Goals: Economic Sanctions and the WTO." *Global Dialogue* 2, no. 3 (2000): September 23, 2010, <http://www.worlddialogue.org/content.php?id=100> (accessed September 23, 2010).
- Stohl, Rachel. "Wrangling Over Arms Sales to China." *Foreign Policy in Focus* (November 21, 2006), http://www.fpif.org/articles/wrangling_over_arms_sales_to_china (accessed September 13, 2010).

- The General Agreement on Tariffs and Trade (GATT 1947) (Article XVIII — XXXVIII)*, World Trade Organization (1947), http://www.wto.org/english/docs_e/legal_e/gatt47_02_e.htm (accessed September 22, 2010).
- The Impact of Buy-American Restrictions Affecting Defense Procurement*. Washington, D.C.: Report to the United States Congress by the Secretary of Defense, July, a.
- The Stuxnet Outbreak: A Worm in the Centrifuge. *The Economist*, September 30, 2010b, <http://www.economist.com/node/17147818> (accessed November 11, 2010).
- The Unintended Consequences of “Buy American”: How HR 1588 could Stall Commercial Procurement at DoD*. Arlington, VA, 2003.
- The USSR Confronts the Information Revolution*. Washington D.C.: Central Intelligence Agency, 1987.
- Tong, Tony W. and Jeffrey J. Reuer. “Real Options in Multinational Corporations: Organizational Challenges and Risk Implications.” *Journal of International Business Studies* 38, no. 2 (Mar., 2007): 215–230.
- “Top 100 Defense Corporations of 2000-2008.” *Defense News*. http://www.defensenews.com/static/features/top100/charts/rank_2008.php?c=FEA&s=T1C.
- Vagts, Detlev F. “The Multinational Enterprise: A New Challenge for Transnational Law.” *Harvard Law Review* 83, no. 4 (Feb., 1970): 739–792.
- Van Crevald, Martin. *Technology and War: From 2000 BC to the Present*. New York: Free Press.
- Vawter, Roderick. *U.S. Industrial Base Dependence/Vulnerability, Phase I: Survey of Literature*. Washington, D.C.: National Defense University, 1986.
- Wheelock, Thomas R. “Arms for Israel: The Limit of Leverage.” *International Security* 3, no. 2 (Autumn, 1978): 123–137.
- World Investment Report: Foreign Direct Investment and the Challenge of Development*. Geneva: United Nations: United Nations Conference on Trade and Development (UNCTAD), 1999.
- Yeh, Andrew and Doug Cameron. “Airbus Studies Plans for Assembly in China.” *Financial Times* (June 6, 2006), <http://www.ft.com/cms/70cf1ffa-f754-11da-a566-0000779e2340.html> (accessed September 8, 2010).

Zieminski, Nick. "UPDATE 1–United Technologies: No Slowdown in China Orders."
Reuters (February 17, 2010),
<http://in.reuters.com/article/idINN1712484420100217> (accessed September 9,
2010).

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