



GLOBALIZATION AND THE TRANSATLANTIC DEFENSE INDUSTRIAL BASE

Terrence Guay¹

Smeal College of Business, Pennsylvania State University

Abstract:

This article examines the impact of globalization on the transatlantic defense industrial base. After providing a brief overview of globalization's general effects on countries and companies, and the current structure of the US and European global defense industry, the article examines how elements of globalization are shaping the strategies of defense companies. We focus on those elements of globalization that are of particular importance to the defense industry. They include the globalization of capital (finance), production, trade, and technology.

Keywords: Defense Industry, globalization, transatlantic.

Resumen:

Este artículo observa el impacto de la globalización sobre la base industrial del sector de defensa transatlántico. Tras facilitar un breve resumen de los efectos generales de la globalización sobre los países y empresas y la estructura actual de la industria de defensa de los EEUU y Europa, el artículo se centra en aquellos elementos de la globalización que atañen en particular a la industria de defensa. Tales elementos incluyen a globalización del capital (financiero), producción, comercio y tecnología.

Palabras clave: Industria de defensa, globalización, transatlántico.

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¹ Terrence Guay is Clinical Associate Professor of International Business in the Smeal College of Business, Pennsylvania State University.
Address: 324 Business Building Smeal College of Business Pennsylvania State University University Park, PA 16802. *E-mail:* trguay@psu.edu .



1. Introduccion

“Globalization” is perhaps the most popular term used to describe changes in the international environment since the end of the Cold War. Unfortunately, the term is now so frequently used that it has come to mean different things to different people. This lack of a precise definition that has wide currency can make it difficult to discuss globalization’s effects in a coherent way. However, one useful working definition of “globalization,” proposed by the International Monetary Fund, is “the growing interdependence of countries world-wide through the increasing volume and variety of cross-border transactions in goods and services and of international capital flows, and also through the more rapid and widespread diffusion of technology.”² This combination of forces will present challenges, risks, and opportunities to virtually every industry in every country for the foreseeable future. This includes the sector that traditionally has been more insulated from external pressures than any other – the defense industrial base. This article will explore how key elements of globalization have transformed national defense industries in Europe and the United States (US). We argue that governments and business executives must embrace many of the transformative effects of globalization if they hope to enhance their competitiveness in the defense sector.

2. Globalization

Although some would argue that features of globalization like cross-border trade and investment have been present for centuries, the proliferation of publications on globalization – both scholarly and mass market – dates to the end of the Cold War. The collapse of the bipolar international system, shaped for almost half a century by political forces, presented opportunities for numerous alternative explanations of how a post-Cold War world would be shaped. But it was the economic dimension that seemed to best capture global change in the 1990s. In part, it described the attempts by formerly communist countries in Eastern Europe, the former Soviet Union, and especially China to transition to capitalist forms of economic systems. In part, it represented the increasing prominence of international organizations. The European Community (now European Union, or EU) made “EC-1992” a buzzword in many corporate suites and government offices around the world, as business executives and policymakers planned their strategies for the challenges posed by European economic integration, including the creation of a new currency – the Euro. The 1990s saw the rise of other regional groups including the North American Free Trade Agreement (NAFTA) and Mercosur in South America. Also during this period, the General Agreement on Tariffs and Trade (GATT) was transformed into the World Trade Organization (WTO). Covering a wider range of goods and services and with more authority to punish countries in violation of international trade rules, the WTO helped to accelerate international trade, while at the same time serving as a focal point for those groups opposed to both the organization’s mission and regulatory powers.

But the economic dimension of globalization is perhaps best symbolized by the expansion of production, investment, and sales by multinational corporations into other countries. According to the WTO, world merchandise exports doubled from \$1.8 trillion in 1983 to \$3.7 trillion in 1993, doubling again to \$7.3 trillion in 2003, and rising to \$13.6

² International Monetary Fund, *World Economic Outlook*, May 1997, p. 45.



trillion in 2007.³ Meanwhile, the Organization for Economic Cooperation and Development (OECD), whose members consist of the world's 30 most prominent market democracies, reports that the total stock of inward investment among its members rose from \$1.3 trillion in 1990 to \$7.3 trillion in 2004.⁴

For the purposes of this article, the most important implication of globalization is its effect on the economic competitiveness of countries and particular industries. Globalization's impact on the defense industry will be addressed in subsequent sections. However, there is an abundant literature aimed at advising business and government decision-makers on how to capitalize on the globalization process. In *The Work of Nations*, former US Secretary of Labor Robert Reich argued that, in an era where companies are no longer as committed to their home country, public policies need to focus on enhancing education, skills, and training in an effort to make their country an attractive location for investment by either domestic or foreign companies.⁵ Management consultant Kenichi Ohmae contended that the forces of globalization were making it less useful to talk about national economies, and that the rise of industrial clusters would make regional economies a more accurate tool for mapping global economic development.⁶ In his 2005 best-seller *The World is Flat*, Thomas Friedman argues that the information technology revolution has reduced (perhaps even flattened) the advantages of the industrialized countries.⁷ An ever-increasing number of bright and educated workers, particularly in China and India, require only an internet connection to "plug and play" to participate in the global economy. The way forward, according to Friedman, is to equip more Americans with skills that will keep them ahead of foreign competitors. Business strategists like Michael Porter contend that countries still have some key locational advantages, and that they should build upon these "diamonds" of national advantage to enhance economic competitiveness.⁸

To summarize, the economic strands of globalization are playing a key role in structuring the global economy. How companies in the defense industry (and their home governments) respond to these pressures is the focus of the remaining sections.

3. Defense Industry Background

3.1. United States

Historically, the engine of growth for the US defense industry was strong domestic demand, fueled by the Cold War. Times were especially prosperous for the industry from the late 1970s through the late 1980s. By the early 1990s, however, the defense budget was slashed in search of a "peace dividend," and the defense industry realized that the golden years of

³ World Trade Organization, *International Trade Statistics 2008*, in http://www.wto.org/english/res_e/statis_e/its2008_e/its2008_e.pdf.

⁴ Organization for Economic Cooperation and Development, *Trends and Recent Developments in Foreign Direct Investment*, June 2006.

⁵ Reich, Robert (1991): *The Work of Nations: Preparing Ourselves for 21st Century Capitalism*, New York, Knopf.

⁶ Ohmae, Kenichi (1995): *The End of the Nation State: The Rise of Regional Economies*, New York, The Free Press.

⁷ Friedman Thomas L. (2005): *The World is Flat: A Brief History of the Twenty-First Century*, New York, Farrar, Straus and Giroux.

⁸ Porter, Michael: "The Competitive Advantage of Nations", *Harvard Business Review*, vol. 90, no. 2 (1990), pp. 73-93.



President Ronald Reagan's buildup were over. Military spending declined from \$458 billion in 1990 to \$342 billion in 2000 (in constant 2005 dollars), with the steepest decline coming in the mid-1990s (see TABLE 1). Prodded in 1993 by then Secretary of Defense Les Aspin, the industry hastened to adjust.⁹ Layoffs by firms such as Northrop, Hughes, Lockheed, General Dynamics, Litton Industries, and TRW marked a spate of "downsizings" and acquisitions, culminating in the mergers of Lockheed and Martin Marietta, Northrop and Grumman, Boeing and McDonnell Douglas, and Raytheon and Hughes. A 2003 Pentagon report found that the 50 largest defense suppliers of the early 1980s since had become the country's top five contractors.¹⁰

US firms now dominate the global defense industry: seven of the top ten defense companies in the world are based in the US, including Lockheed Martin, Boeing, Northrop Grumman, General Dynamics, Raytheon, L-3 Communications, and United Technologies (see TABLE 2). The US defense industry – or at least the aerospace and electronics components of it – consolidated quickly, but with the strong urging of the Pentagon. Most of the mergers occurred between 1993-1998, and allowed firms to either consolidate existing strengths in the defense sector or add a business with steadier revenue streams to complement their civilian side. Boeing's acquisition of McDonnell Douglas, for example, helped the company diversify into the military market. It has done so not simply by building military aircraft, but by becoming a prime contractor delivering integrated battle systems that link together equipment and systems used by different military branches.

Since the late 1990s, major defense contractors have pursued three strategies: buying relatively small defense units from diversified US conglomerates (like General Motors and TRW); acquiring defense-related businesses outside of aerospace and electronics (such as information technology or shipbuilding); or expanding abroad by buying foreign defense firms. The first strategy has been just about exhausted at this point in time. The second strategy is likely to continue to be popular, especially in a post-9-11 world where the US government is spending considerable sums on Homeland Security, intelligence, and surveillance. It is the third strategy that will present the most interesting possibilities in the near-term. Larger European or US companies now have acquired most of the smaller European defense firms. The next step for US firms in the transatlantic market would be to acquire or merge with large European companies – a much more significant development than the ad hoc alliances and collaborations that often arise with large multination weapons systems. Since the obstacles to this strategy are formidable, other options include acquisitions of and teaming arrangements with companies outside of the North Atlantic region. While such companies typically do not have the same level of technological and production experience as European ones, other factors (as will be described below) can make this an attractive option.

Technological change plays an increasingly critical role in defense industry developments. In the post 9-11 "Global War on Terror" (GWOT) era, the US government is shifting its spending priorities in ways that emphasize information technology, intelligence, surveillance, communications, and related technologies. Since such spending requires high levels of security, foreign firms – even European ones – are at a competitive disadvantage for Pentagon and Homeland Security contracts, even at the subcontractor level. Some defense

⁹ Augustine, Norman: "Reshaping an Industry: Lockheed Martin's Survival Story", *Harvard Business Review* (May-June, 1997), pp. 83-94; Dowdy, John J.: "Winners and Losers in the Arms Industry Downturn", *Foreign Policy*, vol. 104 (1997), pp. 88-101.

¹⁰ Schneider, Greg and Merle, Renae: "Reagan's Defense Buildup Bridged Military Eras", *Washington Post*, 9 June 2004, p. E1.



firms are making the necessary changes to fill the needs of anti-terrorism and homeland security.¹¹ Northrop Grumman expects its sales to the US government related to homeland security to be at least \$500 million. The US Department of Homeland Security has a faster growing budget than the military defense budget, with investments expected to grow more than 10 percent each year until 2009. But most foreign firms will not be trusted to supply these needs. Still, with a 2007 budget for defense of \$439 billion, a figure larger than the combined total of the world's next 20 biggest military spenders, and weapons procurement of \$147 billion, the US is the most lucrative market for defense companies – US or foreign.¹²

3.2. Europe

The rationalization and restructuring of individual European defense companies occurred after US defense industry consolidation. Europe's defense industry began the 1990s as a collection of national defense fiefdoms. While the US defense industry was rapidly consolidating during the first half of the decade, most European firms continued to look inward. Transnational collaborations that did exist generally took the form of joint ventures (for products like missiles) or multinational consortia (like the Eurofighter) – both of which enabled defense firms to maintain their national independence. Large-scale cross-border mergers were hindered by the reluctance of most European governments to see a domestic company acquired by a foreign firm.

By the late 1990s, this situation became untenable. Given the consolidation in the US defense industry, the political impetus for a European Security and Defense Policy (ESDP) within the EU, and the fact that other sectors had begun to consolidate to take advantage of Europe's Single Market Program, European defense firms found themselves under political and economic pressure to consolidate.¹³ The first major consolidation occurred in the United Kingdom (UK) in January 1999, when GEC agreed to sell its defense arm (Marconi Electronic Systems) to British Aerospace. The new entity was renamed BAE Systems (BAE). Nine months later the most significant cross-border defense union to date occurred. The first step, as in the UK, was national consolidation. As part of its privatization in June 1999, France's Aérospatiale joined with Matra to create an aerospace and defense electronics powerhouse. Four months later, this combined entity merged with Dasa to form European Aeronautic Defence and Space Company (EADS). CASA, Spain's leading aerospace and defense firm, also merged into EADS. BAE now dominates Europe's defense industry with 2007 defense revenues of \$29.8 billion (95 percent of total revenues), while \$12.2 billion (21 per cent) of EADS's total \$57.6 billion total revenue comes from defense (see TABLE 3).

Prior to the consolidation of Europe's aerospace sector into BAE and EADS, Airbus had operated as a consortium under which the four partners (Aérospatiale, Dasa, British Aerospace, and CASA) kept ownership of their engineering and production assets. As a result of the consolidation, Airbus became owned by EADS (80 percent) and BAE (20 percent). However, in late 2006, BAE sold its stake in Airbus for about €1.87 billion in an effort to focus its operations in the US market. In spring 2006, Lagardère announced its intention of halving its 15 per cent stake in EADS, while DaimlerChrysler sought to reduce its 30 per cent stake down to 22.5 per cent. Since the French government controls 15 per cent of EADS, the politically sensitive company will remain equally influenced by Franco-German

¹¹ Bowe, Christopher: "Homeland Defence to give Boost to Northrop", *Financial Times*, 17 May 2004, p. 16.

¹² Done, Kevin and Boxell, James: "Successes bring new Challenges", *Financial Times Special Report: FT Aerospace 2006*, 17 July 2006, p. 1.

¹³ Guay, Terrence and Callum, Robert: "Future Prospects of Europe's Defence Industry", *International Affairs*, vol. 78, no. 4 (2002), pp. 757-779.



interests.¹⁴ But this more simplified ownership structure could be complicated by Spain, which is seeking to expand its own aerospace and defense industries. Madrid is interested in increasing its 5.5 per cent ownership share of EADS, since a greater stake would justify redistributing more EADS and Airbus work to Spain.¹⁵

While the bulk of Europe's aerospace and defense electronics sectors has consolidated into BAE, EADS, Finmeccanica, and Thales, other sectors have not followed suit. These include principally land vehicles, naval shipyards, and aircraft engines. Europe has 20 naval shipbuilders and 23 yards, while the US has only two companies making warships (Northrop Grumman and General Dynamics) and six yards.¹⁶ Despite the overcapacity in Europe, a result of less spending by governments on warships, consolidation has been exceedingly slow since the naval sector remains divided along national lines.¹⁷ Germany's ThyssenKrupp acquired Howaldtswerke-Deutsche Werft (HDW), Germany's biggest shipyard, in 2004 and was renamed ThyssenKrupp Marine Systems (TMS). In October 2004, the French government announced plans to privatize as much as 49 per cent of DCN, and began prodding Thales to merge its naval business with DCN. Such a union then would be in a stronger position to combine with TMS, which is now Europe's largest shipyard group. This "EADS approach" to naval consolidation still has to overcome contentious issues over ownership and which shipyards (in France or Germany) are to be closed. Other shipbuilders in Italy and Spain also would need to be coaxed into joining a Franco-German shipbuilder. Consequently, the consolidation of the naval shipbuilding sector will likely take time, despite the clear economic logic of such a move.

Demand for military vehicles has dropped sharply since the end of the Cold War.¹⁸ The German military vehicles sector has shrunk from 44,000 workers in 1989 to just 10,000 in 2000, while France's GIAT reduced its workforce from 17,000 in 1991 to 7,000 in 2001. Spending by the UK Ministry of Defense on combat vehicles dropped 70 per cent between 1990 and 2000. While the industry has responded to the decline in demand with employment reductions, there has been little in the way of company consolidation. In fact, the number of manufacturers of light tracked vehicles worldwide actually increased from 12 to 55 between 1993 and 2003. Consolidation has gone furthest in the UK, with BAE's 2004 acquisition of Alvis Vickers (a company produced by Alvis's acquisition of Vickers from Rolls-Royce in 2002 and of GKN in 1998) making it the only producer of military combat vehicles. In Germany, there are two main producers of land vehicles: Rheinmetall and KMW (the name given to Wegmann's acquisition of Krauss-Maffei's military operations. Finally, France's state-owned GIAT is that country's lone producer. While four land vehicles producers in three countries (and minor firms in other countries) may not seem too unreasonable, the US, which spends far more than Europe on these types of weapons systems, has only two companies: General Dynamics and United Defense. Thus, there is an economic logic for further consolidation within Europe.

¹⁴ Jones, Adam: "Lagardère Focus comes back down to Earth", *Financial Times*, 6 April 2006, p. 16.

¹⁵ Boxell James and Crawford Leslie: "BAE Seeks Details on Airbus Price", *Financial Times*, 5 July 2006, p. 16.

¹⁶ Spiegel, Peter: "Rationalisation Plans Still to Get Off the Drawing Board", *Financial Times*, 13 September 2005.

¹⁷ "Naval Shipyards: Pipe Dreams Aboard", *The Economist*, 28 October 2004.

¹⁸ Baumann, Hannes: "The Consolidation of the Military Vehicles Industry in Western Europe and the United States – Background Paper for the SIPRI Yearbook 2003", (2003), in http://www.sipri.org/milex/aprod/mv_background.pdf.



3.3. International

Defense companies based in the US and Europe dominate the global market. Of the 15 largest companies based on defense revenues, 11 are from the US (see TABLE 2). Of the top 30 defense companies, 18 are headquartered in the US and 10 are European (see TABLES 3 and 4). Of the top 60 companies, 28 are from the US, 18 from Europe, and only 14 are based in other countries. The global imbalance is even more staggering when based on revenue. The top ten US defense companies had combined defense revenues of more than \$174 billion in 2007. The top ten European companies had total defense revenues of \$80 billion, while the top ten companies from outside the North Atlantic region accumulated less than \$18 billion in defense sales.

Clearly, the US defense industrial base dominates the global defense industry. However, on some important indicators, the US defense industry may be viewed as losing ground to foreign rivals. One area is the global arms trade. Between 2003 and 2007, the US was the world's largest supplier of arms, followed by Russia (see TABLE 5). The US market share of the global arms trade during this period was 31 per cent, which is comparable to the 1980s when US firms had 24-30 per cent of the international arms market annually. However, it is a significant drop from the 42-60 per cent market share that the US had every year between 1991-2000, and averaging 51 per cent over that ten-year period. Part of the US drop can be attributed to a turnaround in the Russian defense industry. However, European companies also have been taking a greater share of the global arms market. Germany exported only 5.7 per cent of the world's weapons between 1983-2002, but 9.8 per cent since then. Similarly, France's market share over the past five years has been 8.6 per cent – up from 6.5 per cent during the previous 20 years. The Netherlands, Spain, and Sweden also have experienced rather large increases in exports, while arms sales increased only slightly for Italy and the UK. Part, too, is due to a shrinking of the global arms market. The global arms trade surpassed \$40 billion each year during the height of the Cold War between 1981 and 1983. By the mid-1990s, international arms sales were barely half that level (in constant 1990 dollars). In 2000, the market fell below \$20 billion and stayed there until 2005. Forty per cent of US defense exports between 2001-5 went to established markets in Europe, where defense spending has declined since the end of the Cold War. The upshot is that competition among defense companies for foreign sales is intensifying.

Of course, variations among home markets can account for the decline in market shares. US companies, for example, have had plenty to sell to the US government, as defense spending has risen sharply since 2001 (see TABLE 1). Russian companies, on the other hand, are far more dependent on foreign markets, with the bulk of their exports going to just three countries in 2006 and 2007 – China (43 per cent of Russian arms exports), India (17 per cent), and Venezuela (12 per cent). While the US government bans arms sales to China, that country and India have become important markets for many non-US defense companies. Not only are they major importers of armaments in their own right (China and India were the world's two largest arms importing countries between 2003-7, accounting for 12 and 8 per cent of all arms imports, respectively), but are viewed as rising powers that will have a significant impact on international economics and politics over the course of the 21st century. Consequently, the US has reoriented its relationship with India, and now is more willing to see US defense firms develop collaborations with their Indian counterparts.¹⁹ India, however,

¹⁹ Hagelin, Bjorn; Bromley, Mark and Siemon T. Wezeman: "International Arms Transfers", in *SIPRI Yearbook 2006: Armaments Disarmament and International Security*, Stockholm International Peace Research Institute (SIPRI).



likely will treat such overtures with a degree of wariness, since the country has been on the receiving end of US sanctions in the past, including those placed on weapons and spare parts. Between 2003-7, India imported more weapons from France, the UK, and even Poland than it has from the US. Thus, European companies likely will have a strong advantage in the Indian market for the short- to medium-term.

Despite its growing economic importance, India was only the 40th largest arms exporter over the 2003-7 period. China ranks 9th, but that is much lower than its standing in the 1980s, when its arms exports were comparable to France, Germany, and the UK. Both countries expect to improve in this area in the coming years, as economic development and the diffusion of technology are expected to help domestic companies produce more sophisticated armaments that have wider appeal in global markets.

4. Globalization and Finance

Clearly, one of the most significant dimensions of globalization is the ability to move money to almost anywhere in the world at high speed. As countries have removed capital controls, investors large and small have more freedom to send their capital abroad and invest in foreign markets. The defense industry is not immune to this trend. Of the five leading US defense companies, Northrop Grumman has the largest share of foreign ownership, with about 7.5 per cent of its stock held by foreigners. Lockheed Martin follows with 7.2 per cent, Raytheon at 4.6 per cent, General Dynamics at 3.5 per cent, and Boeing at 7.8 per cent.²⁰ Many of these shareholdings are owned by foreign mutual funds, presumably on behalf of smaller investors who have capital invested in the funds. US defense companies are among the least international in terms of foreign ownership, although state-held firms in Russia, China, and elsewhere are often even less so. European companies, however, often have large blocs of foreign ownership. Foreign shareholdings of BAE, for example, were around 45 per cent in early 2009, but were as high as 59 per cent in 2003.²¹

The finance dimension of globalization has facilitated the ability of companies to list their shares on multiple stock exchanges. DaimlerChrysler became listed on the New York Stock Exchange (NYSE) in 1998, thereby meeting a goal to have access to a larger pool of investors. BAE also is considering a NYSE listing. Similarly, in June 2006, EADS announced it was seeking a listing on the Xetra Dax index of Germany's Deutsche Borse, which would add liquidity to the stock and give it greater exposure to investors.²² These moves can also increase financial transparency, as companies fulfill the requirements set by different stock exchanges, which is an attractive feature for some investors.

Such trends in foreign portfolio investment, however, are more than matched by cross-border flows of foreign direct investment (FDI), which have exploded over the past decade. According to the Organization for Economic Cooperation and Development (OECD), an international organization comprised of the world's 30 most developed economies, FDI flows have increased dramatically since the early 1990s. FDI outflows from OECD members rose from about \$200 billion annually between 1990 and 1993 to \$410 billion by 1997, \$652

²⁰ Data collected from ORBIS database, August 22, 2006.

²¹ BAE Systems website, <http://production.investis.com/investors/shareholder/shforeign/>

²² Flood Chris and Thomson Darryl: "EADS Lifted by Plans for Germany Listing", *Financial Times*, 8 June 2006, p. 28.



billion in 1998, over \$1 trillion in 1999, and more than \$1.2 trillion in 2000.²³ Outflows have dropped sharply from the 1999-2000 boom years, but have been over \$600 billion each year from 2001-2005. Similarly, FDI inflows among OECD members passed \$200 billion for the first time in 1995, rising to \$894 billion in 1999 and just under \$1.3 trillion in 2000, before stabilizing in the \$500-600 billion range in each of the past five years. The stock of inward investment among OECD countries was estimated to be about \$7.3 trillion in 2004 – a huge jump from \$1.3 trillion in 1990. FDI has a tremendous impact on the recipient country's economy. In 2006, US affiliates of foreign (majority-owned nonblank) companies employed 5.3 million Americans, contributed \$615 billion to US GDP, and accounted for 19 per cent of US exports and 26 per cent of imports.²⁴

While FDI is expanding at a rapid pace for many companies, defense firms in general have been latecomers to this process. The United Nations Conference on Trade and Development (UNCTAD) ranks the transnationality of companies based on their foreign assets, sales, and employment as a percentage of the company's totals in these areas. Interestingly, under UNCTAD's measure, only three major defense companies rank among the world's top 100 non-financial transnational corporations – BAE Systems (ranked 28th), United Technologies (ranked 68th), and EADS (ranked 83rd).²⁵ Although this measure does not take into account a company's global supply chain, it should not be too surprising that defense companies, which have long focused on their relationship to their home government, have a much higher percentage of their assets, revenues, and employment based in their home country. Nonetheless, the trend for virtually all defense companies in the US and Europe is to extend their international operations. Consequently, the remainder of this section focuses on aspects of FDI that are of particular importance to the defense industry.

4.1. Mergers and Acquisitions

The globalization of capital has contributed to the growth in cross-border mergers and acquisitions (M&A) in nearly every sector, including defense. In many OECD countries, they account for more than half of total FDI. Cross-border M&As to and from the 30 OECD countries amounted to \$1.3 trillion in 2005 – far more than the \$281 billion in 1995.²⁶ Much of the M&A activity, particularly in Europe where deals have outpaced the US in 2006, is within industries. Such “horizontal integration”, which seeks to build efficiencies through cost-cutting and economies of scale, has been slower to come to Europe.

Within the defense industry, there is more opportunity for M&A activity in Europe than in the US. As described earlier, much of the consolidation of the US defense industry was completed by the mid-1990s. There was not much significant movement in Europe until the late 1990s. The first wave of consolidations led to British Aerospace's acquisition of GEC and the formation of EADS through the uniting of French, German, and Spanish aerospace companies. It is very likely that a second round of M&A activity is about to begin. Europe's land vehicles and shipyards are ripe for consolidation, and EADS has made

²³ Organization for Economic Cooperation and Development, *Trends and Recent Developments in Foreign Direct Investment*, June 2006.

²⁴ Anderson, Thomas (U.S. Bureau of Economic Analysis): “U.S. Affiliates of Foreign Companies: Operations in 2006”, *Survey of Current Business*, August 2008, pp. 186-203, in http://www.bea.gov/scb/pdf/2008/08%20August/0808_affiliate.pdf.

²⁵ United Nations Conference on Trade and Development, *Largest Transnational Corporations, 2006*, (http://www.unctad.org/sections/dite_dir/docs/wir2008top100_en.pdf).

²⁶ Organization for Economic Cooperation and Development, *Trends and Recent Developments in Foreign Direct Investment*, June (2006).



overtures to Thales. A union between these two companies would give EADS a dominant presence in defense electronics, but Thales has resisted these overtures, despite encouragement from former French Defense Minister Michèle Alliot-Marie to create a single European satellite maker.²⁷ However, there is industrial (and political) logic to the unification of Thales with Italy's Finmeccanica, since both companies have closer relationships to the Pentagon and UK Defense Ministry than does EADS. Other companies are restructuring in preparation for M&A activity. In early 2006, MBDA, Europe's leading missile maker and co-owned by EADS (37.5 per cent), BAE (37.5 per cent), and Finmeccanica (25 per cent), announced plans to cut 10 per cent of its staff prior to embarking on a fresh wave of cross-border consolidation.²⁸

While still small when compared to the number of mergers among US companies, there have been significant transatlantic deals that have been facilitated by increased capital mobility. In March 2005, BAE agreed to buy the US combat vehicle and armaments manufacturer United Defense Industries for \$4.1 billion.²⁹ The largest acquisition in BAE's history, financed in part by the sales of stakes in several European joint ventures (including those with Finmeccanica and Saab) worth about \$1.9 billion, made the company's US arm the fifth-largest defense firm in the US. Ironically, this deal came a year after BAE thwarted General Dynamics' attempt to acquire the UK armored vehicle maker Alvis by offering a higher bid, thereby engineering a national rather than transatlantic consolidation in land vehicles.³⁰

Defense industry M&As have followed a distinct pattern. The first phase consisted of regional mergers (first in the US, followed by Europe) that led to the formation of large companies in the defense aerospace and electronics sectors. The second phase appears to be unfolding in two ways: consolidation in the land armaments and naval sectors, as well as large firms buying smaller ones on the opposite side of the Atlantic Ocean.

But it is talk of a big transatlantic aerospace and defense industry merger that has captured the imagination of many executives and government officials. Perhaps the most attractive European firm from the US perspective is BAE. General Dynamics, Boeing, and Lockheed Martin have all negotiated with BAE, but the deals fell apart when BAE refused to sell its profitable and fast-growing North American operations.³¹ BAE sells more to the US government than any other non-US company, which would make it a valuable acquisition for a US defense contractor. BAE Systems Inc., the US subsidiary, has seen its sales grow 250 per cent in five years, and has made more than a dozen acquisitions since 2000.³² The US subsidiary also employs 45,000 of BAE's 100,000 workers.³³ In fact, BAE is trying to be so "American" that it was one of the top 20 corporate donors in the 2006 US election cycle.³⁴ Yet, while the US defense market is extremely important to BAE, so are the European defense and civilian markets. Publicly, BAE claims that it is not interested in selling its North American business unit. Certainly, a US firm could make an offer that BAE could not

²⁷ Boxell, James: "EADS Plan for Satellites is "Good"", *Financial Times*, 28 April 2006, p. 14.

²⁸ Boxell, James: "MBDA Prepares for Consolidation", *Financial Times*, 17 March 2006, p. 17.

²⁹ Huband, Mark: "BAE Advances on US with \$4bn Purchase", *Financial Times*, 8 March 2005.

³⁰ Merle, Renae: "General Dynamics Loses Bid for Britain's Alvis", *Washington Post*, 4 June 2004.

³¹ Spiegel, Peter: "General Dynamics Breaks Off Merger Talks with BAE", *Financial Times*, 22 October 2003, p. 1.

³² Boxell, James: "BAE Systems Pursues its Atlantic Devotion", *Financial Times*, 30 August 2006, p. 19.

³³ *Ibid.*, *Idem.*

³⁴ Kirchgaessner, Stephanie: "UK Defence Group among the Top Donors to US Lawmakers", *Financial Times*, 22 August 2006, p. 1.



reasonably refuse, but negotiations by Northrop Grumman and Boeing have yielded no results and the premium that BAE would demand is too costly for any US company at this time.

4.2. Foreign Investment and Protectionism

While much of the evidence suggests that FDI and M&A activity is on the rise, there are concerns that global financial flows are facing politically-motivated obstacles. In many cases, national security is being raised as an excuse to prevent acquisitions. This was evident in early 2006, when several high profile mergers were opposed by European national authorities, including Mittal Steel's bid for Arcelor and the utilities deals mentioned above.

Some European governments are implementing measures to make defense industry companies more difficult to acquire. The 2002 acquisition of the German shipyard Howaldtswerke Deutsche Werft (HDW) by One Equity Partners (OEP), a US institutional investor, led to fears of a sell out of the German arms industry. These fears were ameliorated somewhat in 2004, when HDW was merged with the shipyards of Thyssen Krupp, with OEP's stake reduced to 25 per cent. However, rules for foreign ownership of defense-related companies were tightened in 2004 and 2005 to stipulate that the acquisition of more than 25 per cent of the voting rights in a German company producing armaments, ammunition, or cryptographic programs has to be reported to the Federal Ministry of Economics and Labour.³⁵ The Ministry then has the right to prevent the investment if necessary to safeguard "important security interests." The list of covered activities was expanded in 2005 to include companies producing and developing engines and gear systems for tanks and similar armored military vehicles. In December 2004, the French government presented 11 sectors (including: businesses relating to certain dual-use items and technology; cryptology services; weapons, munitions, and explosive substances for military purposes; and activities involving design or equipment supply contracts with the French Defense Ministry) for which foreign investment would require government authorization. Under the new rules, prior authorization is needed for investment not only in arms manufacturing, but all companies operating in "the interest of national defense." Russia, too, is in the process of drafting legislation regarding the protection of strategic sectors from foreign ownership. The proposed law would cover a few closed sectors and contain a list of approximately 39 sectors, including arms and defense-related sectors as well as nuclear energy and aerospace industries, in which foreign investors would need government authorization to acquire more than 50 per cent ownership.

The US also is showing increasing signs of protectionism with respect to FDI. In 2005, China's national oil company CNOOC sought to acquire Unocal, but withdrew its bid once vociferous opposition was mounted within the US. In early 2006, Dubai Ports World (DPW), a ports operator based in the United Arab Emirates, sought to acquire British-based P&O. The acquisition, which would have placed six US port terminals under DPW, faced even greater criticism from Congress and a large segment of the public. Much of the criticism was targeted at the Committee on Foreign Investment in the US (CFIUS), the secretive inter-agency panel that reviews deals for potential national security problems. In response to the DPW controversy, Congress has sought to revise the procedure for reviewing foreign acquisitions of US companies for security purposes, with House and Senate committees passing rather different bills in 2006. Among the proposals were the development of a secret ranking system based on a country's relationship with the US, including each country's adherence to non-proliferation control regimes and potential for trans-shipments or diversions

³⁵ Organization for Economic Cooperation and Development, *Trends and Recent Developments in Foreign Direct Investment*, June 2006.



of militarily sensitive technologies, and more Congressional oversight over CFIUS investigations.³⁶ Business groups, including the Organization for International Investment (OFII), which represents US subsidiaries of foreign companies, lobbied Congress to not make regulations so stringent that the US becomes an unattractive location for foreign investment.³⁷ Former US Secretary of Homeland Security Michael Chertoff suggested that the emotional response to the acquisition threatened to damage the country's economy.³⁸ Likewise, former US Treasury Secretary John Snow and Bruce Josten, Executive Vice-President at the US Chamber of Commerce, expressed concern that the reaction by lawmakers would send a signal that foreign investments from certain parts of the world, particularly the Middle East, are not welcome. One consequence of the DPW case is that companies may now believe their deals must get approval from a broader range of national and state politicians, including key members of Congress as well as governors, since approval from formal channels (i.e., CFIUS, Department of Justice, and FTC) may not be sufficient.³⁹

Such actions in the US and elsewhere prompted the OECD, in its 2006 report on trends and recent developments in FDI, to conclude that, “[w]hile many developing and emerging economies continue to take steps to open their economies to international participation, the international security situation and fears of negative consequences of globalization have prompted the governments of several OECD countries to review their FDI regulations. . . . Without contesting sovereign nations’ right to regulate, there is a risk that regulatory action may sometimes exceed what is needed to safeguard essential interests and be motivated by protectionist motives.”⁴⁰ Care, therefore, must be taken to ensure that FDI even in defense and defense-related industries is not deterred unless the national security screen has met the highest standard.

Political obstacles exist on the European side as well, particularly in areas like shipbuilding and land vehicles. Before being acquired by BAE, United Defense reportedly presented a takeover bid to Germany’s Rheinmetall, while General Dynamics was interested in purchasing the 49 per cent stake in KMW held by Siemens. However, the German government opposes takeovers of German military vehicles producers by US companies.⁴¹ Additionally, the ownership structure of the military vehicles industry in Germany and France makes international acquisitions difficult. Two families hold controlling stakes in KMW and Rheinmetall, which serves to prohibit hostile takeovers and reduce the pressure for maximizing shareholder value. In France, state-ownership makes the acquisition of GIAT all but impossible. Only BAE is a serious player in transatlantic mergers in the land vehicles area, and it emphasized this position with its acquisition of United Defense. With General Dynamics the only US-owned producer of land vehicles, it is unlikely that the Pentagon would permit the company’s takeover – even if there were a European company with whom such a merger would make strategic sense.

³⁶ Kirchgaessner, Stephanie: “Plan to Rank Nations in Foreign Deals Revamp”, *Financial Times*, 27 March 2006, p. 7.

³⁷ Kirchgaessner, Stephanie: “Foreign Subsidiaries to Warn on US Bill”, *Financial Times*, 18 February 2006, p. 4.

³⁸ Sevastopulo, Demetri and Yeager Holly: “Port Deal Reaction is Threat to Economy, Warns Chertoff”, *Financial Times*, 13 March 2006, p. 1.

³⁹ Kirchgaessner, Stephanie: “Foreign Companies turn to Congress to Bless Acquisitions”, *Financial Times*, 24 April 2006, p. 1.

⁴⁰ Organization for Economic Cooperation and Development, *Trends and Recent Developments in Foreign Direct Investment*, June 2006, pp. 1-2.

⁴¹ Baumann, Hannes: “The Consolidation of the Military Vehicles Industry in Western Europe and the United States – Background Paper for the SIPRI Yearbook 2003”, (2003) in http://www.sipri.org/milex/aprod/mv_background.pdf.



4.3. Privatization

Another trend stimulated by globalization and which impacts foreign investment is the privatization of assets formerly held by governments. While this trend has affected companies in virtually all industries, it has been somewhat slower to come to the defense industry, which is not too surprising given the delicate relationship of this sector to national security. Nonetheless, European governments started to privatize segments of its defense industry in the mid-1990s, shedding control over some defense companies partly to meet the financial criteria of the EU's common currency, and partly due to ideological changes that were shaped by increased international competition.

The trend has since progressed to other countries, with the case of India presenting both opportunities and challenges for US and European defense companies.⁴² In 2006, India appointed private sector Indian companies as prime contractors for rocket launchers. Until now, defense integration work has been done by government corporations or by overseas suppliers. About 70 per cent of India's defense capital budget is spent abroad because of the limitations of its public sector, and because FDI in private sector defense companies was banned until 2002. However, the government decided in 2005 that 30 per cent of the value of foreign defense contracts over 3 billion rupees (about \$66 million) should be offset by purchases, investments, and technology transfer to India. The objective is to persuade foreign defense contractors to engage in joint ventures, which in turn would boost India's defense exports. The strategy is seen as a way for India to build on the success of its information-technology outsourcing companies.

The approach seems to be working. EADS plans to invest \$2 billion in the country over the next 15 years, primarily through a technology center to house Engineering Centre Airbus India, which will focus on high-end engineering design and analysis.⁴³ Additionally, EADS has partnered with the Indian Defense Avionics Research Establishment to develop a missile warning system for the Indian Air Force, and with Antrix (the commercial arm of the Indian Space Research Organization) to jointly develop communications satellites.

In the US, privatization has taken the form of outsourcing, that is hiring private companies to undertake work previously done by the military. Outsourcing picked up speed in the 1980s, when the Reagan Administration sought to privatize a range of government functions, and continued in the 1990s, as the Clinton Administration outsourced food, transportation, and other services as part of its strategy to shrink the military. But it is the Bush Administration that has moved furthest in this area, with payments to contractors for providing food, shelter, security, and other services rising from \$53 billion in 2000 to \$104 billion in 2004.⁴⁴ According to the Congressional Research Service, of the approximately \$365 billion spent on the Iraq war and fight against terrorism between 2002-6, about \$60 billion (16 per cent) was paid to contractors for services. Controversially, oversight safeguards were lifted prior to the Iraq war, including the Department of Defense's ability to circumvent competitive bidding rules in emergency situations. Consequently, sole-source and other non-competitive contracts awarded by the Pentagon have increased 54 per cent since 2000, from \$65 billion to \$100 billion. Although instances of fraud and waste are prevalent, including a finding by Defense Department auditors that Kellogg, Brown & Root (a

⁴² "India's Defence Industry: The Private Sector to the Rescue", *Economist*, 6 April 2006, p. 43.

⁴³ Yee, Amy: "EADS to set up Base in India", *Financial Times*, 30 August 2006, p. 16.

⁴⁴ Kopecki, Dawn: "When Outsourcing Turns Outrageous", *Business Week*, 31 July 2006, pp. 54-55.



Halliburton subsidiary) had billed the government \$1.2 billion for questionable charges, a Congressional Budget Office study suggests that outsourcing is still a net benefit for the Pentagon.

The privatization and liberalization pressures of globalization also have their limits when they confront government-led industrialization strategies. In 2006, Russia merged all of the country's aircraft manufacturers (including Tupolev, Ilyushin, and Mig) into one state-run holding company (the government intends to retain a 75 per cent stake) to be called Unified Aircraft Corporation (UAC).⁴⁵ The new company also incorporates Irkut, a publicly traded company that is partly owned by EADS. Reflecting the multidimensionality of globalization, Russia is also looking outward to develop strategic ties with foreign partners. Airbus is in talks with the Russian government to create a \$25 billion "life-time" partnership that would include developing new aircraft, ordering parts for the A-350 airliner, converting passenger jets to carry cargo, and financing a new-generation aircraft program. Although the Russian government, as mentioned above, views aerospace as a strategic sector, it presented legislation that would loosen restrictions on foreign participation in aircraft projects, including up to 49 per cent ownership stakes (from the present 25 per cent limit).⁴⁶ This is characteristic of Russia's current economic development strategy, which typically begins with domestic industry consolidation with significant government influence over the new entity, and then is followed by an opening to foreign partners with minority stakes. The hope is that domestic consolidation, followed by foreign investment and technology transfer, will revive an aerospace industry that made one-quarter of the world's aircraft during the Cold War years, but has since faltered (the export of some MiG and Sukhoi military aircraft notwithstanding).

5. Production

Another important dimension of globalization is a more complex level of international production. One of the motivating factors for companies to expand FDI is to have access to sources of production in multiple locations. The reasons are both economic and political. Companies, searching for a different mix of workers, new markets, and technological developments, are more willing to manufacture parts of their products abroad. One benefit is reduced costs, since producing some or all of a product abroad may give firms cost advantages vis-à-vis their international competitors. While international economic competition is driving most of this process, politics also plays a key role in some sectors, particularly those that provide opportunities for producing higher value-added goods, technology transfer, good paying jobs (relative to what domestic firms typically pay), and higher levels of exports. Additionally, and especially pertinent to defense firms, production abroad may be necessary to win contracts and sell products in other countries. The defense industry, and those sectors related to it like aerospace, electronics, and information technology (IT), is among the more prominent sectors that are driven by these forces. While multi-nation weapons projects originated in the 1960s, and were motivated primarily (but not exclusively) for political reasons, the scale, cost, and complexity of such programs today make cross-border collaborations an economic necessity.

⁴⁵ Ostrovsky, Arkady: "Russia Merges Aircraft Makers into Single State Company", *Financial Times*, 22 February 2006, p. 2.

⁴⁶ Ostrovsky, Arkady and Done, Kevin: "Russia to Relax Rules on Foreign Investment in Aviation Industry", *Financial Times*, 24 August 2006, p. 1.



The aerospace industry is perhaps the most competitive when it comes to developing an international production base. Aerospace is leading other segments of the defense industry in developing a global base of production. Boeing and Airbus, the world's two dominant aerospace companies, seem to regard the world as their playing field, and as the US and Soviet Union did during the Cold War, they are fighting economic proxy wars through third parties. The intense rivalry between Airbus and Boeing presents opportunities for other firms to play this to their advantage. Italy's Finmeccanica has pursued such a strategy to their benefit. According to the *Wall Street Journal*, "Finmeccanica...reflects the increasingly global aerospace industry, where international partnerships abound and rivals are interlaced through common suppliers".⁴⁷ For example, the Italian company supplies Boeing with components for the 787, works with Lockheed Martin and Northrop Grumman on the Joint Strike Fighter, and collaborates with Lockheed Martin and Textron's Bell Helicopter unit on the Marine One fleet of presidential helicopters. Finmeccanica also partners with Airbus on the A380, with BAE and EADS on the Eurofighter, with France's Alcatel on satellite and space products, and with BAE and EADS on missiles. But the strategy of trying to develop close relations with both Boeing and Airbus does carry risks. Part of the EU's response to the WTO case filed by the US accusing European governments of subsidizing Airbus is that the Italian government provides aid to Boeing projects through Finmeccanica. Attempts by Airbus and EADS to bring Finmeccanica into a tighter relationship, including offering the Italian company a ten percent stake in Airbus in 2000, have not been successful.

US defense companies that are more reliant on defense sales, such as Lockheed Martin, Northrop Grumman, Raytheon, and General Dynamics, are not under the same kind of pressure to expand their international production base as are Boeing and Airbus. Their international strategy tends to take the form of collaborations that, for political and economic reasons, allocate development and production among companies from different countries. While such collaborations are almost entirely between North American and European companies, this may change as other countries (thanks to Boeing and Airbus) develop greater capabilities in aerospace technology and production.

For investment reasons already discussed, product supply chains now integrate multiple countries. The globalization of production is, in part, a response by firms to lower costs in an increasingly competitive marketplace. Host countries see many opportunities from attracting FDI, and the increasing "statelessness" of multinational corporations makes production in a variety of countries a necessary strategy. Boeing is a good example of a US defense company that has developed increasingly intricate global supply chains. Boeing used to design and engineer all of its aircraft models itself. But with the new 787 Dreamliner, Boeing has scoured the world to find the best possible suppliers (or "partners" in the upgraded terminology).⁴⁸ Boeing's new global partners number just under 100, far fewer than the 500-700 utilized in the 777 aircraft, but each has a much higher degree of responsibility for their portion of the work, as well as the overall project. Similarly, Airbus counts 18,000 suppliers in 30 countries (including 100,000 workers in the US) involved in the construction of the A380 superjumbo aircraft.⁴⁹

Boeing and Airbus have two motivations for such strategies. The first is to increase efficiencies by seeking the best suppliers – regardless of location. The second is to persuade

⁴⁷ Michaels, Daniel: "Flight plan: Woo Boeing, Airbus", *Wall Street Journal*, 3 February 2005, p. B6.

⁴⁸ "A Survey of the Company, Partners in Wealth: The Ins and Outs of Collaboration", *Economist*, 21 January 2006, pp. 16-17.

⁴⁹ Pae, Peter: "Airbus Superjumbo is a Plane as Big as the Globe", *Centre Daily Times*, 18 January 2005, p. B7.



prospective buyers (such as nationally-owned airlines) to purchase their planes. For the suppliers, and more specifically, their governments, this is an opportunity to build an aerospace and defense industrial base. In September 2008, Airbus opened a factory in Tianjin, in the hopes that it can expand on the 11 per cent of orders the company currently has from Chinese airlines.⁵⁰ Airbus forecasts that China will order more than \$230 billion in new aircraft by 2023. Since the centrally-controlled ordering process is highly-politicized, Airbus is betting that building aircraft in China (and the technology transfer that goes with it) will strengthen its position vis-à-vis Boeing. For China, this is part of an industrial strategy to build its aerospace and defense sector since, as discussed earlier, there are close links between the two.

Despite the pressures of globalization, political obstacles still can distort the economics of armaments production. EADS is demanding that the British government guarantee the company a greater share of defense and aerospace contracts in exchange for its continued investment in the United Kingdom, now that BAE has sold its 20 per cent stake in Airbus.⁵¹ Given that EADS trails BAE and even Thales and Finmeccanica in terms of defense sales in the United Kingdom, London may have to show more interest in EADS if it wants to ensure that thousands of its citizens will continue to have jobs supplying EADS with Airbus wings and other products.

6. International Trade

A key component of globalization is the promotion of international trade by reducing tariffs and other national barriers. The World Trade Organization (WTO) has been the major global forum for reducing trade barriers. In 2007, world exports of merchandise totaled \$13.6 trillion, representing a 13 per cent annual increase since 2003.⁵² Exports of commercial services jumped by a 12 per cent annual rate between 2000 and 2007 over this period, reaching \$3.3 trillion in 2007. In addition to this 153 member body, the WTO estimates that almost 300 regional trade agreements are operating or under negotiation. Bilateral agreements also have increased over the past decade. While the trade of armaments is largely excluded from such arrangements, defense-related products (including dual-use goods) often are not. The globalization of trade also has made it easier for certain types of weapons (such as small arms) to be traded. Also, firms like United Technologies that produce for both military and civilian markets are susceptible to increased global competition on the civilian side, even as the military side of their business may be fairly protected. Nonetheless, such firms may be forced to respond by restructuring, selling divisions, reducing workforces, or ultimately going out of business – which could seriously affect the defense industrial base.

As a major driver of globalization, technology is particularly important to the defense industry. Despite attempts by US defense firms to stay technologically ahead of potential adversaries, there is reason to believe that the technology gap closes more quickly now than in previous decades. Increasing US concerns about technology transfer may be a logical response to globalization, but it has created frictions with allies participating in the Joint Strike Fighter and other programs. This example highlights the tensions that may arise in

⁵⁰ Michaels, Daniel; Lunsford, J. Lynn and Jiayi Ho, Patricia: “China Urges its Airlines to Curb Plane Orders”, *Wall Street Journal Asia*, 9 December 2008

⁵¹ Boxell, James: “EADS Demands Commitment on UK Contracts”, *Financial Times*, 17 July 2006, p. 19.

⁵² World Trade Organization, *International Trade Statistics 2008*, in http://www.wto.org/english/res_e/statis_e/its2008_e/its2008_e.pdf.



devising policies to address components of globalization (e.g., technology, trade, and production) that have disparate effects on a particular industry. Technology even has changed the composition of defense industry rankings, with “non-traditional” firms like L-3 Communications, Science Applications International, and Computer Sciences Corp. now among the top US firms in terms of defense revenues.

The global arms trade is not governed by WTO rules, since a country cannot be prevented from taking actions that it considers necessary for the protection of its essential security interests. But the same forces of globalization that have facilitated the trade of “non-arms” goods and services – multinational supply chains, complex transportation logistics, penetration of new markets, and innovative financing – have also helped the weapons industry. A more complicated issue is the trade of dual-use goods, or goods that can be used for both civilian and military applications. In 2006, the US proposed to tighten controls on the export of high technology goods to China.⁵³ While China obviously was disappointed by the Department of Commerce’s plans, US industry is expected to mount a strong protest, arguing that foreign competitors are not bound by the same restrictions on transfer of civilian technology.

Like the foreign investment trends discussed above, the effects of increasing international trade flows affect defense companies in multifaceted ways. But perhaps the most intriguing is the increasingly complex manner in which they are interconnected. If firms want to enhance their opportunities to diversify their sales base by penetrating foreign markets, simply building weapons and related products in their home country will no longer cut it. As a result, one option is to build alliances with strategic partners. This strategy helps defense companies offset the disadvantage of not being a native firm.

For example, European governments are showing a growing inclination to procure weapons from European companies, which is upsetting some US defense firms that could often rely on steady sales to US allies. Airbus’s military subsidiary beat Boeing and Lockheed Martin to win a €20 billion contract to supply seven European countries with 180 new military transport aircraft – the A400M.⁵⁴ The A400M, due into service in 2009, is the first time Airbus has undertaken an all-new project in the defense market.⁵⁵ But the most important test for Airbus came in January 2004, when the UK Ministry of Defence opted to spend \$23 billion on refueling aircraft from EADS.⁵⁶ The 27-year contract was a major blow to Boeing, which has a near monopoly on tanker aircraft, and to BAE, which had teamed up with the US firm in the expectation that they would win the competition. The EADS-headed consortium included Rolls-Royce, which will manufacture the tankers’ engines, and Thales, which will produce much of the avionics in factories in Britain. Losing the UK contract would have effectively shut Airbus and EADS out of the tanker market. While the actual factors determining the outcome of the decision may never be known, it is likely that national industrial issues played a major role. The Airbus-led team, AirTanker, emphasized that its A330s are partly built in the UK and half of all new planes and 90 percent of conversions of the old aircraft used for their bid will be built in the UK. AirTanker claimed that 7,500 jobs would be added or sustained if their bid was picked, while Boeing’s team could claim just 5,000.

⁵³ Dinmore, Guy: “China Anger at US Exports Plan”, *Financial Times*, 27 June 2006, p. 4.

⁵⁴ Spiegel, Peter: “Boeing’s Main Rival Decides the best Offence is Defence”, *Financial Times*, 19 November 2003, p. 16.

⁵⁵ Done, Kevin: “Airbus in a Spin as Investors Punish Delays”, *Financial Times*, 15 June 2006, p. 20.

⁵⁶ Odell, Mark; Spiegel, Peter and Daniel, Caroline: “Boeing to Lose out on \$23bn Deal”, *Financial Times*, 23 January 2003, p. 1.



7. Conclusions

Globalization, in many ways, has strengthened the hand of defense companies at the expense of national governments. With more opportunities to expand their international presence, governments, at times, are being required to make concessions that would have been unheard of even a decade ago. With the Pentagon and European ministries of defense in a monopsonist position (i.e., being the only buyer), defense firms, which were very much oriented around a national production and finance base, were dependent on receipt of weapons contracts from their home governments, often in the face of intense competition with other firms in the industry. Of course, international arms sales were present and often vital for a company's success, but exports almost always were secondary, since they were a way to increase production runs, capitalize on learning from manufacturing processes for the home market, and lower overall per-unit costs.

But today, many companies are looking at foreign markets much sooner – or even instead of home markets. BAE is perhaps the best example of this. With probably the most open defense procurement markets in the world, the UK has often awarded contracts to foreign companies instead of its own national champion – BAE. According to a December 2005 White Paper, the UK Ministry of Defense placed 5 per cent of its 2004-5 spending on imports, 14 per cent with foreign-owned UK-based companies, and 13 per cent on cooperative European programs.⁵⁷ In contrast, the US spent less than 2 per cent on imports and 7 per cent with foreign-owned companies. With BAE generating an increasing percentage of its sales abroad, and even considering moving its corporate headquarters to the US, the British government revised its policy in 2006. The Ministry of Defense now promises to make BAE the government's partner of choice for air, land, and sea weapons procurements.⁵⁸ The new more cooperative relationship ensures the preservation of an indigenous defense industrial base, a serious concern of the government's, and provides BAE with an understanding that more contracts with the Ministry of Defense will be forthcoming.

Nigel Whitehead, head of BAE's fighter jet business, probably sums up the views of many defense industry executives – US and foreign – when he says, “The sentimental engineer in me wants to be in the UK. But if you look at the cold reality of corporations, we have to determine the best markets in which to invest shareholders' money.” The increasing difficulty of reconciling national loyalties and international business opportunities has been the main point of this article. Given the effects that globalization has had on national industrial bases around the world, governments in Europe and the US will need to think hard about the necessary measures to enhance their countries' national security. However, given the scope of globalization and the multiple actors and dimensions that underpin it, it is beyond the ability of national governments to shape its direction, even as globalization relates to the narrowly-defined and historically territorially-constrained defense industrial base.

⁵⁷ The Secretary of State for Defence, *Defence Industrial Strategy: Defence White Paper*, December 2005.

⁵⁸ Boxell, James: “After the Battle of Britain: How BAE can call itself Champion”, *Financial Times*, 23 June 2006, p. 11.

TABLE 1: Defense Spending of Selected Countries¹

	1990	2000	% Change from 1990	2005	% Change from 2000	2007	% Change from 2005
United States	\$457,648	\$342,172	-25.2%	\$503,353	47.1%	\$546,786	8.6%
France	57,340	50,205	-12.4%	52,917	5.4%	53,579	1.3%
Germany	58,464	41,147	-29.6%	38,060	-7.5%	36,929	-3.0%
United Kingdom	60,696	47,778	-21.3%	60,003	-25.6%	59,705	-0.5%
China	13,153 ²	23,778 ²	80.8%	44,322 ²	86.4%	58,265 ²	31.5%
India	12,036	17,697	47.0%	22,273	25.9%	24,249	8.9%
Israel	8,003	9,574	19.6%	10,303	7.6%	12,233 ²	18.7%
Japan	39,513	43,802	10.9%	44,165	0.8%	43,557	-1.4%
Russia	171,349 ²	19,141 ²	-88.8%	28,492 ²	48.9%	35,369 ²	24.1%
World	1,136,000	875,000	-23.0%	1,113,000	27.2%	1,214,000	9.1%

¹Figures are in US\$ million, at constant 2005 prices and exchange rates are for calendar year.

² Estimate.

Source: Figures derived from the Stockholm International Peace Research Institute (SIPRI), <http://milexdata.sipri.org/result.php4> and http://www.sipri.org/contents/milap/milex/mex_wnr_table.html.



TABLE 2: Top Ten United States Defense Companies (2007)

US RANK	WORLD RANK	COMPANY	2007 DEFENSE REVENUE ¹	2007 TOTAL REVENUE ¹	% OF REVENUE FROM DEFENSE
1	1	Lockheed Martin	\$38,513	\$41,862	92
2	2	Boeing	32,080	66,387	48
3	4	Northrop Grumman	24,597	32,018	77
4	5	General Dynamics	21,520	27,240	79
5	6	Raytheon ²	19,800	21,300	93
6	8	L-3 Communications	11,240	13,961	81
7	10	United Technologies	8,761	54,759	16
8	12	Science Applications International Corp. ³	6,511	8,935	73
9	13	KBR	5,967	8,745	68
10	14	Honeywell	5,000	34,600	15

¹ In millions of US dollars.

² Based on estimated growth, DoD contracts.

³ For fiscal year ending 1/31.

Source: Figures derived from *Defense News* Top 100
(<http://www.defensenews.com/index.php?S=06top100>)



TABLE 3: Top Ten European Defense Companies (2007)

EUROPE RANK	WORLD RANK	COMPANY	COUNTRY	2007 DEFENSE REVENUE ¹	2007 TOTAL REVENUE ¹	% OF REVENUE FROM DEFENSE
1	3	BAE Systems	UK	\$29,800	\$31,400	95
2	7	EADS ²	Multiple	12,239	57,600	21
3	9	Finmeccanica	Italy	10,601	19,779	54
4	11	Thales	France	7,246	18,116	40
5	16	Rolls Royce	UK	4,393	14,840	30
6	18	DCNS	France	4,155	4,155	100
7	20	Saab	Sweden	3,235	3,594	90
8	22	SAFRAN Group	France	3,156	17,679	18
9	27	Rheinmetall	Germany	2,588	5,891	44
10	28	Dassault Aviation	France	2,533	5,891	43

¹ Figures are in US\$ million. Currency conversions calculated using prevailing rates at the end of each firm's fiscal year.

² At the end of 2008, EADS was 22.5% owned by DaimlerChrysler (Germany), 25% by SOGEGADE (a French holding company comprised of Lagardère and the French state), and 5.5% by SEPI (Spanish state holding company). Approximately 47% of EADS shares are held by the public. EADS is registered in the Netherlands.

Source: Figures derived from Defense News Top 100 (<http://www.defensenews.com/index.php?S=06top100>)



TABLE 4: Top Ten Defense Companies Outside United States and Europe (2007)

WORLD RANK	COMPANY	COUNTRY	2007 DEFENSE REVENUE ¹	2007 TOTAL REVENUE ¹	% OF REVENUE FROM DEFENSE
24	Almaz-Antei ²	Russia	\$2,896	\$3,253	89
25	Mistubishi Heavy Industries ^{3,4}	Japan	2,778	27,166	1
34	Israel Aerospace Industries	Israel	1,962	3,316	59
36	Elbit Systems	Israel	1,883	1,982	95
37	Aviation Holding Company Sukhoi ²	Russia	1,786	1,942	92
41	Hindustan Aeronautics ³	India	1,607	2,009	80
45	Rafael Armament Development Authority	Israel	1,374	1,374	100
49	ST Engineering	Singapore	1,153	3,494	33
50	Tactical Missiles ²	Russia	1099	1,157	95
51	Kawasaki Heavy Industries ^{3,4}	Japan	990	16,518	6

¹ Figures are in US\$ million. Currency conversions calculated using prevailing rates at the end of each firm's fiscal year.

² Defense revenue is estimate by Center for Analysis of Strategies and Technologies, Moscow.

³ Fiscal year ending 3/31.

⁴ Defense revenue from Japan Defense Agency contracts.

Source: Figures derived from Defense News Top 100 (<http://www.defensenews.com/index.php?S=06top100>)

TABLE 5: International Arms Sales: Ranked by Top Ten Suppliers of Major Conventional Weapons (2003-2007)¹

Supplier	1983	1988	1993	1998	2003	2004	2005	2006	2007	1983 - 2002	2003 - 2007
United States	13,144	11,569	14,623	15,376	5,581	6,616	7,026	7,821	7,454	226,432	34,498
Russia	13,986	12,801	3,527	2,046	5,355	6,400	5,576	6,463	4,588	151,339	28,382
Germany ³	2,315	1,587	1,562	1,754	1,707	1,017	1,879	2,891	3,395	32,933	10,889
France	3,055	1,793	792	3,340	1,313	2,267	1,688	1,586	2,690	37,792	9,544
UK	2,362	1,175	1,446	1,211	624	1,143	871	978	1,151	32,705	4,767
Netherlands	441	767	446	584	342	218	611	1,575	1,355	8,426	4,101
Italy	1,204	499	466	420	311	210	818	694	562	10,790	2,595
Sweden	104	499	115	319	468	287	536	437	413	5,571	2,141
China	1,900	2,103	1,341	401	580	288	271	562	355	23,541	2,056
Spain	249	151	101	164	158	56	133	825	529	3,036	1,701
World Total	41,944	36,158	26,351	27,026	18,750	21,089	21,256	26,223	24,210	578,122	111,528
US % of Total	31.3%	32.0%	55.5%	56.9%	29.8%	31.4%	33.1%	29.8%	32.3%	39.2%	30.9%

¹ Figures are in US\$ million at constant (1990) prices.

² Figures are for Soviet Union through 1991 and for Russia from 1992-2007.

³ Figures are for Federal Republic of Germany.

Source: Stockholm International Peace Research Institute (SIPRI); SIPRI Arms Transfers Database (http://www.sipri.org/contents/armstrad/at_db.html)

