

Transparency in the Arms Industry

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Preface

On the motley scene of today's security transactions, the private sector, and particularly the arms production industry, is easily typecast as the villain. Considering what strong feelings the question of armaments raises, however, it is remarkable how little researchers—or the public at large—actually know about what is produced and by whom. This problem of transparency is what this Policy Paper focuses on, and it is far from being an abstruse or secondary issue. Without proper information, no judgement is possible, and without judgement, any attempts at policy control—national, international or by civil society at large—will lack foundation and grip.

Part of the challenge with the arms industry and other defence production is that it is, in several senses, a hybrid business. Many products are uniquely designed for the military, but a growing number of advanced techniques are dual- or multi-use. Parts of the industry worldwide remain fully or partially state owned, while others are shareholder owned and compete on an open market. Crucially for the subject of this publication, the defence industry tends also to fall into a gap between two traditions of governance. The attempts at international legal regulation that now extend to many security- and arms-related activities of states have not—yet—been supplemented by binding universal norms (in respect of transparency, or anything else) for arms production. On the other hand, the fast-proliferating network of corporate governance legislation has not been drawn up with the defence sector specifically in mind, and campaigns for 'corporate responsibility' (including the United Nation's Global Compact) have tended to steer clear—often quite deliberately—of issues directly linked to defence. The result is a mishmash of practice within the arms producing sector, with levels of transparency ranging from the adequate in some countries and companies to the non-existent in others. The patchiness of information is particularly inopportune and frustrating when arms and technology transfers have become so thoroughly internationalized as they are today.

In this Policy Paper Eamon Surry of the SIPRI Arms Production Project surveys the variations and gaps in transparency practice, speculates on their reasons, and makes a strong case for seeking global improvements on the basis of explicit and binding norms and voluntary disclosure. His research was much assisted by a study visit to the Korea Institute for Defense Analyses (KIDA) in Seoul and by the particular support of KIDA's Dr Nam-Sung Han. Thanks are also owed to Paul Dunne and his colleagues at the University of the West of England; to Elisabeth Sköns, Head of the Military Expenditure and Arms Production Project, and other colleagues at SIPRI; and to the SIPRI editorial staff, especially Tom Gill.

Alyson J. K. Bailes
Director, SIPRI
January 2006

Abbreviations and acronyms

CERES	Coalition for Environmentally Responsible Economies
CDIA	Canadian Defence Industry Association
CSC	Computer Sciences Corporation
CSR	Corporate social responsibility
DOD	Department of Defense
EADS	European Aeronautic Defence and Space Company
EDGAR	Electronic Data Gathering, Analysis and Retrieval system
EU	European Union
FIF	Försvarsindustriföreningen (Association of Swedish Defence Industries)
GAAP	Generally Accepted Accounting Principles
GDP	Gross domestic product
GIFAS	Groupement des Industries Françaises Aéronautiques et Spatiales (French Aerospace Industries Association)
JDA	Japan Defense Agency
KAI	Korea Aerospace Industries
KDIA	Korea Defense Industry Association
KIDA	Korea Institute for Defense Analyses
MND	(South Korean) Ministry of National Defense
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
UN	United Nations
UNROCA	United Nations Register of Conventional Arms

1. Introduction

Transparency in the government military sector has been on the political agenda since the 1970s and has resulted in, among other things, increased public reporting of military expenditure and arms transfers.¹ No similar reporting obligations have been placed on the arms industry, however. Companies' reporting of the military share of sales is rare and incomplete, while reporting on the military share of their exports and research and development is almost non-existent.

Research into transparency in the arms industry has generally focused either on the broad topic of regulating transnational corporations or on the narrow subject of combating corruption in the arms industry.² Often overlooked is the basic stumbling block to any kind of analysis in this area: the lack of publicly available information on company arms sales.

Transparency is a vague concept that can be defined in many different ways and applied to many different situations. Put most simply, it is the opposite of secrecy.³ Sibylle Bauer has identified six broad criteria on which transparency can be assessed: *availability* (ease of access, timeliness and clarity of presentation); *reliability* (quality of information); *comprehensiveness* (type and quantity); *comparability* (over time and between countries, requiring consistent methodologies); *disaggregation* (level of detail of information); and *relevance* (relevance of data to stated purpose).⁴

This Policy Paper addresses a particular aspect of transparency: the extent to which companies fully and accurately report their sales in the 'military', 'arms' or 'defence' sectors. There is no universally accepted definition of what the arms industry actually is. Arms sales are defined by SIPRI, for example, as the sale of military goods and services to military customers.⁵ 'Transparency in the arms

¹ On military expenditure see Sköns, E. and Nazet, N., 'The reporting of military expenditure data', *SIPRI Yearbook 2005: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2005), pp. 377–81. The UN Register of Conventional Arms (UNROCA), invites countries to voluntarily report their imports and exports of 7 categories of conventional arms each year. Information on UNROCA is available at URL <<http://disarmament.un.org/cab/register.html>>.

² On attempts to regulate transnational corporations see Abrahams, D., *Regulating Corporations: A Resource Guide* (United Nations Research Institute for Social Development: Geneva, 2004), pp. 1–5, URL <<http://www.unrisd.org/publications>>. On corruption in the arms trade see Courtney, C., *Corruption in the Official Arms Trade*, Policy Research Paper no. 1 (Transparency International UK: Sutton, 2002), URL <http://www.transparency.org/working_papers>.

³ Florini, A., 'The end of secrecy', eds B. I. Finel and K. M. Lord, *Power and Conflict in the Age of Transparency* (Palgrave: New York, N.Y., 2000), p. 13.

⁴ Bauer, S., SIPRI, *European Arms Export Policies and Democratic Accountability* (Oxford University Press: forthcoming, 2006). A detailed assessment of these criteria is given in chapter 4 of this Policy Paper.

⁵ On the SIPRI definition see the SIPRI Arms Production Project website, sources and methods section, URL <<http://www.sipri.org/contents/milap/milex/aprod/siprisources.html>>. On the different ways in which to define the defence industry see Chu, D. S. C. and Waxman, M. C., 'Shaping the

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industry' is a phrase that is often used but rarely defined, and the terms 'transparency' and 'arms industry' can mean different things viewed from different perspectives, while both can have political overtones.

The central issue addressed in this Policy Paper is not so much about how to control arms producing companies, but rather the availability of information. The transparency debate raises the question of 'what information should be made available, when and to whom?'⁶ Chapter 2 makes the case that there is a public interest in the availability of data on arms producing companies. The analysis of these data leads to insight into the activities of such companies, without which any public discussion of armaments issues is impeded.

To illustrate some of the points made in chapter 2, chapter 3 presents a case study of a specific country: South Korea. This is certainly not because South Korea is the least transparent state, although the level of transparency there is indeed low (see table 2.2 below). It has been chosen rather because it provides an instructive illustration of some of the practical reasons for low transparency. In particular, the observations made with regard to the culture of transparency, corporate governance, ownership models and industry sector as possible reasons for poor transparency can be tested with a real example.

The paper concludes that it may be unrealistic to expect a framework that would *enforce* company disclosure of the military share of their sales, but it identifies a variety of pressures on companies that could influence them to do so *voluntarily*. To be transparent is a conscious decision. This paper presents the case that companies can and should give a full and accurate account of their involvement in the sale of military goods and services.

structure of the American defense industry', eds G. I. Susman and S. O'Keefe, *The Defense Industry in the Post-Cold War Era* (Pergamon Press: Amsterdam, 1998), pp. 36–39.

⁶ Florini (note 3), p. 14.

2. The demand for and supply of information

Why collect company data?

SIPRI systematically monitors developments in arms producing companies for several reasons. These companies develop and produce military goods and services and thus provide one of the material bases for military activities. The analysis of military-related financial and employment data for companies provides a foundation for discussion of and thinking on armaments issues, for both policy makers and the wider public. This analysis provides the basis for an assessment of trends in company strategies and industry development—including company dependence on arms sales and exports for their revenues and profits, and shifts in employment—and identifies reasons for such trends. All these functions are hard to perform, however, without the regular disclosure by companies of consistent and reliable data on the levels of revenue, profit, exports and employment derived from the supply of military equipment, research and other military services.

Governments and industry associations produce a limited amount of good-quality data on arms production. Table 2.1 lists the sources of financial and employment statistics on national arms production for the 20 countries with the largest arms industries. The table shows that internationally comparable data on national arms production are extremely scarce. Only a few governments publicly disclose information about the size of their arms industries on a regular basis. There are often problems with consistency over time, and different departments of the same government may provide conflicting information. It may be difficult for a government to collect data, or it may be reluctant to release them because of a fear that to do so might reveal too much about its military–industrial capacity.⁷ South Korea (see chapter 3) is an example of a country where there is a clear reluctance to disclose any information that might indicate its level of military preparedness.

SIPRI began to collect data on arms producing companies in 1989 as an instrument for analysing trends in the arms industry after the end of the cold war. The resulting database, in the absence of data provided by industry or government, has been used to identify quantitative trends in arms industry output. Another function of the database that has developed in response to demand is to provide data on national arms industry output to external users and the public. Both these functions have contributed to transparency in the arms industry. There continue to be difficulties in gathering these kinds of data, however, because how and where companies report their arms sales vary greatly between countries and over time.

⁷ For a comprehensive overview of publicly available data on arms production at the national level see Weidacher, R., 'Arms industry transparency', SIPRI Arms Production Project, SIPRI, Stockholm, June 2002, URL <<http://www.sipri.org/contents/milap/milex/aprod/transparency.pdf>>.

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Table 2.1. Availability of financial and employment statistics on national arms production for the 20 countries with the largest arms industries, 2002

Country ^a	Source	Statistics			Background information ^e	First year of data
		Output ^b	Employment ^c	Defini- tion ^d		
USA	Government	–	+	–	–	
	Government	(+)	–	–	–	
	Government	–	–	–	+	1996
France	Government	+	+	+	–	1999
UK	Government	+	+	+	–	
Germany	–	–	–	–	–	
Japan	Government	+	–	–	–	
Russia	Government	Index	Index	–	–	
Canada	Industry	+	+	–	–	1997
China	–	–	–	–	–	
Israel	–	–	–	–	–	
Italy	Government	–	–	–	–	
South Korea	Government	+	–	–	–	
Australia	Government	–	–	–	–	
India	Government	+	–	–	+	
Netherlands	Government	(+)	–	(+)	(+)	1997
Singapore	–	–	–	–	–	
South Africa	Government	–	–	–	–	
Spain	Government	+	+	–	+	1998
Sweden	Government	+	–	–	–	1999
	Industry	(+)	(+)	–	–	1987
Taiwan	Government	(+)	–	–	–	
Ukraine	–	–	–	–	–	

– = No data or information; + = Valid data and information; (+) = Invalid data (e.g., company data rather than total national values or numbers, or contract values rather than sales/production values); ‘Index’ refers to data made available by the Teleinformatsionnaya Set-Voenno Promyshlenny Kompleks (Russian Teleinformation Network of the Military–Industrial Complex), ‘Index’ data are not precise values of output, but show the scale of increases or decreases compared with a base year.

^a Countries are grouped within broad ranges according to the estimated value of their arms sales. Within these groups countries are listed in alphabetic order. There may be other countries that would be included in such a table if data were available.

^b A figure for total arms production or arms sales is provided.

^c A figure for total, direct or indirect employment in arms production on a national level is provided.

^d A clear definition of what is measured is provided.

^e A qualitative assessment of the development of the arms industry and reference to relevant policy issues are provided.

Table adapted from Weidacher, R., 'Available government and industry data on the arms industry', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), p. 369.

Sources: **USA:** employment: Department of Defense, Office of the Under Secretary of Defense (Comptroller), 'National defense budget estimates for FY 2002, Aug. 2001', URL <<http://www.dtic.mil/comptroller/fy2001budget>>; output: Department of Defense, Directorate for Information Operations and Reports, Prime contract awards (annual), URL <<http://web1.whs.osd.mil/peidhome/procstat/procstat.htm>>; background information: Office of the Deputy Under Secretary of Defense (Industrial Affairs), Annual industrial capabilities report to Congress, Mar. 2002, URL <http://www.acq.osd.mil/ip/ip_products.html>; **France:** Ministry of Defence, Observatoire Economique de la Défense, *Annuaire statistique de la défense 2001* [Defence statistical yearbook 2001], **UK:** Ministry of Defence, Defence Analytical Service Agency, UK Defence Statistics 2001, 2001, URL <<http://www.mod.uk>>; **Japan:** Japan Defense Agency, *Defence of Japan 2001*; and contract awards: Japan Defense Agency, annual list of 20 largest contractors; **Russia:** Teleinformatsionnaya Set-Voenno Promyshlenny Kompleks [Russian Teleinformation Network of the Military-Industrial Complex], URL <<http://www.vpk.ru/eng>>; **Canada:** Grover, B., *Canadian Defence Industry 1999: A Statistical Overview of the Canadian Defence Industry*, Dec. 1999, URL <<http://www.cdia.ca/fullreport.htm>>; **Italy:** Ministry of Defence, Defence Industry Committee, *Lineamenti di Politica Industriale per la Difesa* [Defence industry policy outlines], Oct. 1996, p. 41; **South Korea:** Ministry of National Defense, *Defence White Paper 2000*, 2001, pp. 159 ff; **Australia:** Department of Defence, *Defence and Industry Strategic Policy Statement*, June 1998, URL <http://www.dmo.defence.gov.au/id/di_policy/policy.pdf>; **India:** Ministry of Defence, *Annual Report 2000-2001*, pp. 52 ff., 2001, URL <<http://www.mod.nic.in/reports/report01.htm>>; **Netherlands:** Domestic orders for military equipment: Ministry of Defence, Directorate General for Armament, Jaaroverzicht materieelbeleid [Procurement policy] (annual); arms export licences: Ministry of Economic Affairs, Nederlandse Wapenexportbeleid 2000 [The Netherlands arms export policy in 2000], July 2001, URL <<http://www.ez.nl/beleid/>>; **South Africa:** National Conventional Arms Control Committee, *White Paper on the South African Defence Related Industries*, 1999, URL <http://www.polity.org.za/govdocs/white_papers/defence/defenceprocure1.htm>; **Spain:** Ministry of Defence, *La industria de defensa en España* [The defence industry in Spain], 2000, URL <<http://www.mde.es/home>>; **Sweden:** government data: Swedish Ministry for Foreign Affairs, *Swedish Arms Exports 2000*, 2001, URL <http://www.utrikes.regeringen.se/propositionermm/skrivelser/pdf/s20002001_114.pdf>; industry data: Association of Swedish Defence Industries, *Facts about the Swedish Defence Industry 2001-2002*, Aug. 2001; and *Statistics 2001*, URL <<http://www.defind.se/pdf/statistik.htm>>, Mar. 2002; and **Taiwan:** Ministry of National Defense, *National Defense Report 2000*, 2000, pp. 83 ff.

Data on total sales, profit and employment are generally easy to obtain, at least in the case of publicly listed companies. Obtaining an estimate of arms sales from a company is not always as straightforward. Furthermore, such an estimate may be disclosed in different places and for non-sequential years, making comparison over time a difficult task. This paper describes some of the difficulties involved with research of this nature.

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The demand for information

There is a clear demand for information on the military industry from parliaments, the public and those non-governmental organizations (NGOs) that are concerned with disarmament and arms transfers. Since this industry provides states with the means to fight wars, its products have a direct impact on national security, making them fundamentally different from other industrial products. There is a high level of public interest in what kinds of military goods are produced and the destination of these goods; the level of information provided by governments and companies does not match this interest.

Transparency is also a condition for regulation. International initiatives on transparency and regulation in the military sector have focused on conventional arms limitation,⁸ the control of arms exports, leakage of arms to non-state actors and, recently, the activities of private security companies.⁹ However, efficient disclosure and regulation in all these areas require transparency regarding the supply of goods and services. Supplier transparency is the foundation on which transparency and regulation of other activities can be built.

In fact, one recent study found that ‘the use of information supplied by industry alleviates many of the problems of coverage and categorization associated with the use of customs statistics’.¹⁰ Multilateral efforts, such as the European Union (EU) Code of Conduct on Arms Exports,¹¹ may have different goals and focus on different aspects of transparency, but all such efforts rely on this fundamental information to function effectively. Without a solid structure of coherent and comparable reporting by arms manufacturers, any efforts to monitor and control their activities can be based only on guesswork.

The majority of arms producing companies still maintain a ‘national identity’, despite cross-border consolidation. Others operate very much at the international level through ad hoc joint ventures or more formalized ownership arrangements. A variety of attempts to influence and regulate the general behaviour of corporations have been made at both the national and the international level. Four main types of initiative are discussed here: (a) national regulation; (b) industry self-regulation; (c) international initiatives; and (d) civil society-driven corporate social responsi-

⁸ E.g., the 1990 Treaty on Conventional Armed Forces in Europe. See URL <<http://www.osce.org/docs/english/cfee.htm>>.

⁹ Holmqvist, C., *Private Security Companies: The Case for Regulation*, SIPRI Policy Paper no. 9 (SIPRI: Stockholm, Jan. 2005), URL <http://www.sipri.org/contents/publications/policy_papers.html>.

¹⁰ Bauer, S. and Bromley, M., *The European Union Code of Conduct on Arms Exports: Improving the Annual Report*, SIPRI Policy Paper no. 8 (SIPRI: Stockholm, Nov. 2004), URL <http://www.sipri.org/contents/publications/policy_papers.html>. pp. 28–29.

¹¹ The European Union Code of Conduct on Arms Exports was adopted in June 1998. See Council of the European Union, *European Union Code of Conduct on Arms Exports*, document 8675/2/98 Rev 2, Brussels, 5 June 1998, URL <europa.eu.int/comm/external_relations/cfsp/sanctions/codeofconduct.pdf>. For a recent study see Bauer and Bromley (note 10).

bility (CSR) initiatives. Meeting public demands for company disclosure of arms sales does not fit neatly into any of these four classes of initiative.¹²

None of these initiatives legally obliges companies to report their arms sales. Many such initiatives encourage companies to be financially transparent and to reveal the extent of their social and environmental impact, but there are no enforcement mechanisms. Most of the pressures that drive arms companies in the direction of transparency are part of a broader trend towards voluntary disclosure of financial information and the active demonstration by companies of their ‘responsible’ stance. In fact, this trend may be seen as being indivisibly linked with two other trends: democratization and globalization. There is now some degree of consensus that corporations as well as states should be held accountable for their behaviour.¹³

According to a statement published by Sandline, a now defunct military services company, arms producers and companies that provide military services are ‘no different from other commercial entities’ in the sense that they are driven by the same business goals, including ‘profit, growth, corporate sustainability, shareholder value and achievement’. Demands for increased transparency are likely to be resisted if companies believe such demands would ‘hinder their corporate effectiveness’ in any way.¹⁴ From their perspective this is a rational business decision. Efforts towards increased disclosure are likely to succeed only if a convincing case is made that it is in a company’s best interests to do so. This Policy Paper argues that company shareholders can act as a strong pressure group in this respect.

The loose framework embodied in the four types of transparency regulation initiative identified above largely relies on the carrot rather than the stick—rewarding good behaviour but leaving non-compliance unpunished. Nothing strictly compels a company to report its arms sales, and consequently, companies often choose not to do so.¹⁵ It is helpful, however, to make a brief survey of attempts at the above four types of regulation of arms producing companies. It is demonstrated below that companies operating in the defence industry are generally not bound, or even in any notable way influenced, by any of these initiatives.

¹² In this context, ‘public’ refers not only to demands made on governments by their citizens but also to demands from other sources including shareholders, NGOs and activist groups.

¹³ Florini (note 3), p. 16; and Maresca, J. J., ‘Business investment, humanitarian problems and conflict’, eds A. J. K. Bailes and I. Frommelt, SIPRI, *Business and Security: Public–Private Sector Relationships in a New Security Environment* (Oxford University Press: Oxford, 2004), pp. 121–28.

¹⁴ Sandline International, ‘Should the activities of private military companies be transparent?’, Sep. 1998, URL <<http://www.sandline.com/white/transparency.doc>>. Sandline closed its operations in Apr. 2004, but this document remains accessible online. Similar arguments have been made by several company representatives in informal discussions with the author but are seldom officially revealed.

¹⁵ Shareholder-owned companies do report their sales (but not necessarily what percentage of these are military) to their investors. Government-owned companies are likely to report more data directly to their owners, but a detailed version of this information seldom reaches the public domain.

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National regulation

Arms production takes place primarily within privately held or publicly listed companies,¹⁶ which are legal entities and as such are subject to national laws and regulations that dictate their behaviour. The nature of the legal requirements under which they operate varies from country to country but at a minimum level companies must register themselves as a business, submit financial records and pay taxes. Some countries, such as the United States, have elaborate rules and procedures regarding financial disclosure and these are discussed below. It may be the case that national laws and regulations can also have an international impact. The US Sarbanes–Oxley Act of July 2002, for example, aims to improve the reliability of disclosures by US corporations but also affects international companies listed on US exchanges.¹⁷

It must be noted, however, that these types of national legislation and regulation are aimed at governing economic activity in general. Arms producing companies are bound by them only because they are companies, not because they are involved in military production.

Industry self-regulation

While attempts at self-regulation have been common in civil industries, they have been rare in the arms industry. The tourism, mining and transport industries have all drawn up international charters to which companies should adhere. Labour and human rights issues have featured prominently in the discourse, but it has been environmental concerns that have been the driving force behind the main industry initiatives. Companies endorsing the Coalition for Environmentally Responsible Economies (CERES) principles, for example, undertake to monitor and improve

¹⁶ An exception in the recent past was China, where military production was controlled by the military itself. This is no longer the case. The People's Liberation Army (PLA) was ordered to begin divesting its commercial businesses in 1999. Medeiros, E., 'Analyzing China's defence industries and the implications for Chinese military modernization: testimony presented to the US–China Economic and Security Review Commission on February 6, 2004', RAND Corporation Testimony Series, URL <http://www.rand.org/pubs/testimonies/2005/RAND_CT217.pdf>. On 28 May 2005 the Chinese Government announced that, for the first time, private enterprises would be allowed to 'apply for permits to do research and development on specific weaponry listed in a special catalogue'. Xin, H., 'Private firms to compete for defence bids', *China Daily*, 28 May 2005, URL <http://www.china-daily.com.cn/english/doc/2005-05/28/content_446432.htm>. For a more detailed discussion of recent developments in the Chinese defence industry, see Edgar, W. and Drewry, S., 'China gambles with private sector', *Jane's Defence Industry*, Nov. 2005, pp. 8–9.

¹⁷ The Sarbanes–Oxley Act is available at URL <<http://www.sec.gov/about/laws/soa2002.pdf>>. According to a Harvard Law School paper, 'Since the passage of the Sarbanes Oxley Act (SOX), almost no European companies have chosen to list their shares for trading on U.S. markets, and many of the European companies already listed on U.S. markets would like to escape the burdens imposed by SOX—which has roughly doubled the cost of a U.S. listing.' Pozen, R. C., 'Can European companies escape U.S. listings?', Discussion paper no. 464, John M. Olin Center for Economics and Business, Harvard University, Mar. 2004, URL <http://www.law.harvard.edu/programs/olin_center/papers/464_pozen.php>, p. 1.

their environmental behaviour and to produce information for annual reports measuring their environmental performance.¹⁸

Within the arms industry, voluntary charters most often concentrate on eliminating bribery, improper influence over procurement officials and other forms of corruption. The Defense Industry Initiative on Business Ethics and Conduct, for example, was established in the United States in 1986. Signatories agree to draft and adhere to a written code of conduct. As of May 2003, 47 companies had signed the initiative including Boeing, General Dynamics, Raytheon and Thales.¹⁹ The initiative encourages full and honest disclosure of business information but does not specify what kinds of information should be disclosed.

Many countries have national defence industry associations, but these exist more to promote the industry's interests vis-à-vis governments (lobbying) than to encourage transparency or disseminate proprietary company information. The French Aerospace Industries Association (Groupement des Industries Françaises Aéronautiques et Spatiales, GIFAS), for example, aims *inter alia* to 'analyse and defend members' interests' and to 'promote the French aerospace industry'.²⁰

The Association of Swedish Defence Industries (Försvarsindustriföreningen, FIF) is a notable exception in terms of transparency. Every year FIF releases new data on its member companies' exports, employment, and commercial and military sales.²¹ The data are comprehensive and easy to compare over time.

Some national industry associations have carried out very detailed appraisals of arms production in their countries, but only on an ad hoc basis. In 1999 the Canadian Defence Industry Association (CDIA) published a detailed statistical overview.²² While this particular report was made public, such open distribution of information is rare. Some data are intended primarily for industry association members. For example, a report about the future of the Canadian military-industrial base was put online by the CDIA: public access was not specifically forbidden, but users were required to register by selecting which defence company they work for before they can access it.²³ The document contained information about defence industry employment.

Other national industry associations collect data to gain a better understanding of their membership base, but they are under no obligation to provide these data to the general public. In other cases, they may commission a consultancy or research

¹⁸ For the CERES principles see URL <<http://www.ceres.org>>.

¹⁹ For the full list of signatories see The Defense Industry Initiative on Business Ethics and Conduct, '2003 annual report to the public', URL <<http://www.dii.org/annual/2003/AnnualReport2003.doc>>, p. 77.

²⁰ See 'companies and activities' on the GIFAS website, URL <<http://www.gifas.asso.fr>>.

²¹ These data are available on the FIF website, URL <<http://www.defind.se>>.

²² Grover, B., *Canadian Defence Industry 1999: A Statistical Overview of the Canadian Defence Industry* (CDIA: Ottawa, Dec. 1999), URL <<http://www.cdia.ca/newsite/whatsnew/fullreport.htm>>.

²³ The defence industry employment figure of 50 000 was contained in a CDIA discussion paper, *The Future of Canada's Defence Industrial Base* (CDIA: Ottawa, Nov. 2002), URL <https://www.cdia.ca/public/publications_e/dibe.pdf>, p. 5. CDIA requests that users register at URL <<https://www.cdia.ca/public/index.asp?action=login.form>>.

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institute to undertake the data collection and analysis, but as owners of the end product they can set limits on its distribution.²⁴

International initiatives

The most influential international initiatives supporting the disclosure of company arms sales are the 2000 United Nations (UN) Global Compact (discussed below) and the 1976 Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises.²⁵ The guidelines are directed at international (civil) businesses and constitute recommendations on business conduct from states to transnational corporations in 39 countries. They are not legally binding but instead ‘represent standards of behaviour supplemental to applicable law’.²⁶

In terms of transparency, section III on ‘disclosure’ is the most relevant of the OECD guidelines to companies operating in the arms industry. Point 1 states that ‘Enterprises should ensure that timely, regular, reliable and relevant information is disclosed regarding their activities, structure, financial situation and performance.’²⁷ The inclusion of the words ‘activities’ and ‘regular’ support an interpretation that companies should report their arms sales in a consistent way, for example, in an annual report or other financial document. However, compliance is entirely voluntary, and businesses are merely ‘encouraged to communicate additional information that might include information on the social, ethical and environmental policies of the enterprise’.²⁸

Other international initiatives worth noting are the EU Code of Conduct on Arms Exports and the UN Register of Conventional Arms (UNROCA).²⁹ In the context of the EU Code of Conduct, some EU member states compile and publish data on arms exports submitted by the companies themselves.³⁰ This is not directly relevant to the broader question of what the companies are producing in total but is an interesting and uncommon example of data of this type being compiled by industry and ending up in the public domain. UNROCA invites countries to voluntarily report their imports and exports of seven categories of conventional arms each year.³¹

²⁴ E.g., It is the understanding of the author, on the basis of interviews undertaken at the Korea Institute for Defense Analyses (KIDA), that the institute has collected data on behalf of the Korea Defense Industry Association (KDIA) but is not allowed to release it without KDIA’s permission.

²⁵ OECD, *The OECD Guidelines for Multinational Enterprises (Revision)* (OECD: Paris, June 2000), URL <<http://www.oecd.org/dataoecd/56/36/1922428.pdf>>, pp. 5–6.

²⁶ Costello, P., ‘Statement by the Chair of the Ministerial’, OECD (note 25), pp.5–6. The 39 countries are the 30 OECD member countries plus Argentina, Brazil, Chile, Estonia, Israel, Latvia, Lithuania, Romania, and Slovenia.

²⁷ OECD (note 25), Preface, III.5, p. 20.

²⁸ OECD (note 25), Preface, III.5, p. 20.

²⁹ UNROCA (note 1).

³⁰ Bauer and Bromley (note 10), p. 28.

³¹ See Wezeman, S. T., *The Future of the United Nations Register of Conventional Arms*, SIPRI Policy Paper no. 4 (SIPRI: Stockholm, June 2003), URL <http://www.sipri.org/contents/publications/policy_papers.html>.

This does not result in a demand on companies to report their arms sales but is important in terms of the ongoing development of a normative principle that there should be transparency in relation to the global arms trade.

Any international transparency initiative is hampered by the fact that the arms industry is a poorly delineated sector of international business. There is no distinct defence-sector code within the UN International Standard Industrial Classification of all Economic Activities,³² nor is there universal agreement on how to define the arms industry. This makes it difficult to establish even a framework for discussion at the multilateral level.

Civil society initiatives

The most significant initiatives in terms of encouraging arms producing companies to disclose their arms sales have come from what can broadly be described as civil society. Shareholder activism has been ‘case by case’, but most of the concerted and comprehensively organized initiatives have developed under the umbrella of the UN Global Compact, which was launched in 2000. The Global Compact is based on 10 principles related to human rights, labour standards, the environment, and combating corruption.³³ Participants in the Global Compact from the private sector agree to make voluntary steps towards implementing these principles and to publish information on the ways in which they are doing so.

The UN maintains a database of companies that participate in the Global Compact. There is no ‘defence’ section but there is an ‘aviation’ division, and examples of arms producing companies that have pledged their participation include Dassault Aviation, European Aeronautic Defence and Space Company (EADS), Hindustan Aeronautics and Thales.

Participation in the Global Compact does not necessarily imply disclosure of a company’s arms sales, however: in fact there is nothing in it to encourage such disclosure. The Compact can best be seen as a symbol of a global movement for increased company transparency and accountability, directed at international business generally. Nevertheless, because of its prominence, it is also the most likely forum out of which initiatives to influence the behaviour of arms companies could develop: this process may have already started. Remarks by UN Secretary-General Kofi Annan in April 2004 drew the attention of the UN Security Council directly to the arms industry: ‘private companies operate in many zones of conflict or conflict-

³² The closest relevant sector code is ‘Public administration and defence: compulsory social security’. There are also numerous other classifications into which defence products might fit, including ‘manufacture of weapons and ammunition’, ‘building and repairing of ships’, manufacture of aircraft and spacecraft’, ‘transport equipment’ and ‘manufacture of chemicals and chemical products’. United Nations Department of Economic and Social Affairs (statistics division), ISIC, ‘Rev. 3.7’, URL <<http://unstats.un.org/unsd/cr/registry/REGCST.asp?CI=17>>.

³³ The 10 principles are available on the UN Global Compact website at URL <<http://www.unglobalcompact.org/>>.

12 TRANSPARENCY IN THE ARMS INDUSTRY

prone countries . . . private companies also manufacture and sell the main hardware of conflict'.³⁴

In April 2005 the Global Compact launched a report that focused on 'legitimate business [that] may have unintended negative impacts on local conflicts by affecting the distribution of economic benefits, by upsetting existing social and cultural relations, and by generating negative externalities such as environmental pollution'.³⁵ This shows that the current focus is directed towards regulating the behaviour of businesses that may exacerbate or prolong conflicts rather than those that provide states or intra-state groups with the material means to fight. The report indicates that there are early signs that companies are beginning to explore 'ways to extend corporate social responsibility to address broader issues of peace, security and sustainable development, particularly when operating in war-affected settings'.³⁶ However, the extent to which the focus will remain on 'war-affected' settings remains to be seen: the importance of transparency in the actual production of weapons has not yet been fully realized.

The Global Compact has strong links with the Global Reporting Initiative, which became an independent institution in 2002 but works in cooperation with the Compact. The Global Reporting Initiative is one of the most significant guidelines for 'sustainability reporting' to emerge in the wake of the Global Compact. Many companies now produce CSR-style reports in addition to their regular financial statements, but these relate mostly to the company's impact on the environment. Very few address their responsibilities regarding weapon production directly.³⁷

The supply of information

From this brief survey of the existing pressures on companies to report their arms sales, it is clear that such disclosures have hitherto been entirely voluntary. There has been no major transparency initiative that applies specifically to the military industry.

³⁴ United Nations, 'Role of business in armed conflict can be crucial "for good and for ill", Secretary-General tells Security Council open debate on issue', Press release SG/SM/9256, 15 Apr. 2004, URL <<http://www.un.org/News/Press/docs/2004/sgsm9256.doc.htm>>.

³⁵ UN Global Compact, *Enabling Economies of Peace: Public Policy for Conflict-Sensitive Business* (UN Global Compact Office: New York, Apr. 2005), URL <http://www.unglobalcompact.org/content/news_events/8.1/enabling_econ.pdf>, p. 20.

³⁶ UN Global Compact (note 35), p. 20.

³⁷ Two exceptions are EADS and the Kongsberg Group. EADS has issued a CSR statement in which it commits to 'act responsibly in developing and selling defence products' and openly discloses that 'approximately 24% of our revenues are earned from products and services connected with national sovereignty and defence'. EADS, 'Corporate social responsibility', 2003, URL <http://www.reports.eads.net/eads/ar_2003_en/pages/master.php?id=a_1_6_3>. The Norwegian Kongsberg Group released a sustainability report alongside its 2003 annual report where the group discloses that '46% of the Group's activities are related to the defence industry' and acknowledges 'that, in extreme situations, our products can help take lives'. Kongsberg Group, 'Sustainability report 2003', URL <http://www.kongsberg.com/dokumenter/xrsrapport/kog/english/kog_sr03_72dpi.pdf>, p. 20.

While legal frameworks exist in every country to compel publicly listed companies to report financial data to their shareholders, there is no legal obligation for them to report what share of their revenue comes from arms sales. Of the four broad classes of pressure identified above, the case for compelling companies to declare their arms sales fits best with civil society CSR measures. However, such initiatives are non-compulsory and lack any enforcement mechanisms or verification procedures.

Table 2.2 presents the reporting of arms sales data for 2003 for 152 arms producing companies in 26 countries—the same companies that SIPRI compiled data on for its list of the top 100 arms producing companies in the *SIPRI Yearbook 2005*.³⁸ The table identifies six categories of disclosure arranged in approximate declining order of transparency from left to right. It shows that company reporting of arms sales varies widely, both between and within countries. Of the 152 companies listed, only 41 can be described as having fully and completely disclosed their arms sales in a company financial document in 2003 (category *a*). At the other end of the scale there were 6 companies for which there was no information available regarding the value of their arms sales in 2003 (category *f*). Between these two extremes is a ‘grey area’ characterized by inconsistent reporting, or reporting of data that may only partly relate to arms sales.³⁹

Some US companies do not report these data in their widely distributed annual reports, choosing instead to do so only in their less widely read ‘10-K’ financial statements.⁴⁰ Twelve companies listed in table 2.2 did not report their arms sales as such but provided ‘just enough’ information to allow accurate estimates to be made (category *c*).

The level of transparency varies widely between most of the countries listed in the table. Locating arms sales data in the Nordic countries presented no major problems. France and the UK also had high levels of transparency. Companies in the USA had a fair degree of transparency but often reported ‘sales to the Department of Defense’ or ‘sales to government’ without precisely reporting the volume of arms sales. Two countries stand out as having consistently low transparency:

³⁸ Surry, E. and the SIPRI Arms Industry Network, ‘The 100 largest arms-producing companies, 2003’, *SIPRI Yearbook 2005: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2005), p. 404.

³⁹ Such sales include sales to a defence ministry, some of which may not be for military applications.

⁴⁰ Each publicly traded company in the USA is required to file a 10-K report every year with the Securities and Exchange Commission (SEC). These documents frequently contain information that is not available in the company’s annual report. E.g., the 10-K document filed with the SEC by CACI International on 29 Sep. 2003 stated: ‘We derived 63.6% of our total revenue in FY2003 . . . from contracts with agencies of the DOD’. The same information was not provided in its 2003 annual report. CACI International Inc., ‘Form 10-K: annual report under section 13 or 15(d) of the securities exchange act of 1934 for the fiscal year ended June 30, 2003’, SEC file no. 0-8401, SEC, Washington, DC, 29 Sep. 2003, URL <<http://www.sec.gov/edgar/searchedgar/companysearch.html>>.

Table 2.2. Numbers of companies reporting arms sales, 2003^a

Country	Company sample	Level of transparency ^b					
		Company sources			Other sources		
		(a) Exact data	(b) Similar data	(c) Enough information	(d) Exact data	(e) Similar data	(f) No data
Australia	3	1	0	0	2	0	0
Brazil	1	1	0	0	0	0	0
Canada	2	0	1	0	0	1	0
Czech Republic	1	0	0	0	0	0	1
Denmark	1	1	0	0	0	0	0
Finland	1	1	0	0	0	0	0
France	9	6	2	1	0	0	0
Germany	8	4	0	0	3	0	1
Greece	1	0	0	0	0	0	1
India	3	1	0	0	1	1	0
Israel	5	1	1	3	0	0	0
Italy	4	0	0	0	4	0	0
Japan	17	0	0	0	0	17	0
Korea, South	6	1	2	1	1	0	1
Netherlands	2	2	0	0	0	0	0
Norway	1	1	0	0	0	0	0
Russia	10	1	0	0	9	0	0
Singapore	1	1	0	0	0	0	0
South Africa	1	1	0	0	0	0	0
Spain	3	0	1	1	1	0	0
Sweden	5	2	0	0	3	0	0
Switzerland	1	1	0	0	0	0	0
Taiwan	2	0	0	0	0	0	2
Turkey	4	0	0	0	4	0	0
UK	13	7	0	3	3	0	0
USA	47	8	28	3	2	6	0
World	152	41	35	12	33	25	6

^a For the SIPRI definition of arms sales see URL <<http://www.sipri.org/contents/milap/milex/aprod/siprisources.html>>.

^b The levels of transparency are: (a) the company reports its arms sales in its normal reporting procedures, e.g., in an annual report or press release or on a website; (b) the company reports data that are similar to arms sales, e.g., sales to a defence ministry, some share of which may be for non-military applications; (c) the company reports sufficient information to enable a rough estimate of the company's arms sales, e.g. the defence shares of different divisions; (d) the company's arms sales are reported but not by the company itself in its normal reporting procedures, e.g., data are obtained by special request from SIPRI or are reported by a research institute, a trade journal or other media source—this may be with

the cooperation of the company but not part of normal company reporting procedure and is therefore considered to be at a lower level of transparency; (e) reports of data that are similar to arms sales are made by others than the company itself, e.g., reports by a government of the value of contracts awarded to a company in a financial year; and (f) no data, or insufficient information to enable an estimate, were available to the standard SIPRI sources in 2003.

Source: SIPRI Arms Industry Database and Arms Industry Files.

Japan and Russia.⁴¹ For Japanese companies, arms production generally accounts for only a small part of their overall revenues. Japan's pacifist constitution means that the issue of arms production is politically sensitive.⁴² None of the 17 Japanese companies listed in the table provided data on its arms sales, or data from which such estimates can be calculated. The only data available are those provided by the Japan Defense Agency (JDA) for the value of annual contracts awarded by it. These data can be used only to give an approximation of annual arms sales by the respective companies.

Of the sample of 10 Russian companies listed in table 2.2, only one, the Irkut Corporation, could be described as being notably transparent.⁴³ This is significant because it is the only Russian arms producer to have been listed on a stock exchange: 23.3 per cent of the company's shares were sold in an initial public offering on the Russian RTS Stock Exchange in March 2004.⁴⁴ At around the same time the company website was updated and information on arms sales was added to the front page.⁴⁵ The company has also started to produce annual financial statements audited to US Generally Accepted Accounting Principles (GAAP) standards.⁴⁶ Russian state secrecy laws still limit what the Irkut Corporation can disclose,⁴⁷ but it is reasonable to conclude that the public listing of the company may have been a factor in this increased level of transparency.⁴⁸ The other major Rus-

⁴¹ The level of transparency in China is also very low. Chinese companies are excluded from the SIPRI list of arms-producing companies owing to a lack of comparable data.

⁴² Mizushima, A., 'Japan should maintain ban on arms exports', *Asahi Shimbun*, 8 Sep. 2004.

⁴³ Since this table was prepared the Sukhoi Company has also published its arms sales share on its website. The 'non-defence products' share is given as 'about 5%'. Sukhoi Company, 'This year's results', URL <<http://www.sukhoi.org/eng/company/annualreport/>>.

⁴⁴ 'Russian plane-maker embraces capitalism', *New York Times*, 11 Mar. 2004, section W, p. 1; KAMAZ, a Russian producer of heavy vehicles, including trucks used by militaries, became the first incorporated company in the Soviet Union in 1990. KAMAZ, 'A little bit of history', URL <<http://www.kamaz.net/en/company/history>>.

⁴⁵ Irkut Corporation, URL <<http://www.irkut.com/en/>>.

⁴⁶ This is a growing trend among Russian companies seeking to attract investment. Iskyan, K., 'The mighty Red Army's IPO', *Slate*, 22 Mar. 2004, URL <<http://fray.slate.msn.com/id/2097499/>>.

⁴⁷ An Irkut company report states: 'The operations of the Group related to the construction and sale of military aircraft are subject to the Law of the Russian Federation on State Secrets signed by the President of the Russian Federation on July 21, 1993.' Irkut, 'Consolidated financial statements December 31, 2003 and 2002', 27 Aug. 2004, URL <http://www.irkut.com/en/for_investors/reports/>, p. 8.

⁴⁸ Irkut announced its quarterly financial results for the first time under international accounting standards on 11 Feb. 2004, just a month before the public offering was to take place. Irkut, 'Irkut

sian companies are government owned and release little public information.⁴⁹ It can be safely assumed that the Russian Government has access to these data but does not distribute them.

The low level of transparency in arms sales: issues identified

The military industry is a loosely defined group of companies engaged in a variety of industrial sectors. It is therefore difficult to generalize about what makes some companies more transparent than others: it may be several factors acting in concert that encourage a company to fully and accurately disclose the nature of its business. However, on the basis of the difficulties in gathering data encountered by the SIPRI Arms Production Project, it is possible to make some general observations.

The ownership model

The SIPRI Arms Industry Database reveals that there is a connection between arms industry transparency (as defined in chapter 1) and company ownership. Publicly listed companies are obliged to report a degree of financial information to their shareholders, while privately owned or government-owned companies are not. This may partly account for the low level of transparency in Russia, because all but one (Irkut) of the major arms producing companies is government owned. Annual reports are produced primarily for shareholders, and government-owned companies are obliged only to report to their respective governments. This does not necessarily result in public transparency because the governments are under no obligation to pass on this information to their electorate. Companies that are not publicly listed are also under no obligation to report their arms sales.

The system of state-owned arms production facilities that was built up in most Western countries in the 1930s has gradually been transformed into a system of private contractors that produce weapons for the state. There was a wave of privatization in the 1990s, notably in the USA, and by 2000 the bulk of the arms industry in most major arms producing countries was privately owned.⁵⁰ When arms production was predominantly in the hands of the public sector, it was accountable, in theory at least, to 'direct democratic and civil service accountability systems'.⁵¹ The extent to which this was true is, of course, debatable.

With the transfer of most arms production activity into the private sector there is now an excellent opportunity to make arms producers more accountable because, if

Corporation announces 9 months results under US GAAP', Press release, 11 Feb. 2004, URL <http://www.irkut.com/en/news/press_release_archives/index.php?id48=62>.

⁴⁹ Cooper, J., 'Developments in the Russian arms industry', *SIPRI Yearbook 2006: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, forthcoming 2006).

⁵⁰ Sköns, E. and Weidacher, R., 'Arms production', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), pp. 341–46, URL <<http://www.sipri.org/contents/milap/milex/aprod/privatization.pdf>>.

⁵¹ Sköns and Weidacher (note 50).

publicly listed, they must communicate information about their activities to their shareholders. Because of the highly regulated financial reporting procedures now established in most countries, this must be done in a public forum so that the information is accessible to any interested member of the public.

There are still some large government-owned companies and privatized companies that maintain close links to a defence ministry and are thus likely to be cautious about releasing information that could be detrimental to national security. Companies in a country with a difficult security environment will be especially conscious of this. Israel and South Korea are obvious examples, but governments all over the world have been careful to enshrine the 'special status' of their defence industries in law. In Europe, for example, Article 223 of the Treaty Establishing the European Community (Treaty of Rome) establishes that 'no Member State shall be obliged to supply information the disclosure of which it considers contrary to the essential interests of its security'.⁵² According to some interpretations, it also 'allows governments to exempt defence firms from EU rules on mergers, monopolies and procurement'.⁵³

There are several examples of large arms-producing companies that were once government owned but have since been privatized. It will take time for the managers of such companies, who are accustomed to reporting only to a defence ministry or other relevant government agencies, to realize that they are now accountable also to investors and other stakeholders: transparent reporting routines, like other financial procedures, must be learned.

Shareholder-owned companies frequently come under pressure from their own investors to fully disclose the exact nature of their business. This may be the result of shareholder activism with political motives or simply of the demands of investors to be able to fully assess the extent to which their company is dependent on arms production for revenue and profit. Requests are often made at shareholder meetings for disclosure of additional data not provided in annual company statements.⁵⁴

⁵² Article 223 of the treaty is available at URL <http://projects.sipri.org/expcon/eudu/art_223.html>. The article has remained unchanged throughout several treaty revisions, and was renumbered as Article 296 of the 1997 Treaty of Amsterdam, signed on 2 Oct. 1997, URL <<http://www.europarl.eu.int/topics/treaty/pdf/amst-en.pdf>>.

⁵³ Mörth, U., *Framing the Defence Industry Equipment Issue: The Case of the European Commission* (Stockholm Centre for Organizational Research: Stockholm, 1999), URL <<http://www.score.su.se/pdfs/1999-1.pdf>>, p. 8. There are currently efforts to improve cross-border competition, including a proposed voluntary code of conduct on defence procurement. European Defence Agency, 'EU governments agree voluntary code for cross-border competition in defence equipment market', Press release, 21 Nov. 2005, URL <<http://www.eda.eu.int>>; and 'EU agrees to open defence market', BBC News Online, 21 Nov. 2005, URL <<http://news.bbc.co.uk/1/4458014.stm>>.

⁵⁴ E.g., one major arms-producing company, Boeing, responded to a shareholder request for information on company arms sales as follows: 'Publication of such information would put Boeing at a disadvantage in its business, may breach contractual arrangements and would not be in the best interest of the Company or the majority of its shareholders.' Boeing Company, 'Proxy statement: annual meeting of shareholders, May 1, 2000', URL <<http://www.boeing.com/companyoffices/financial/finreports/annual/00proxy/1074t08.pdf>>. Another example is a 2004 shareholder proposal made to the Textron board of directors for a report that would include 'categories of military

The ownership model is certainly a factor but cannot alone adequately explain the varying levels of transparency between arms producing companies. The major South Korea arms producers are all listed on that country's stock exchange, but as chapter 3 demonstrates, it is very difficult for anyone, even shareholders, to access information about the level of military work a company undertakes.

Corporate governance models

The concept of corporate governance relates to such issues as the rights of shareholders, the role of other stakeholders and the executive board, and financial disclosure and transparency.⁵⁵ There are many different styles of corporate governance worldwide, which reflect the different histories and cultures of the countries in which they are embedded.

The literature on corporate governance broadly distinguishes between two basic systems.⁵⁶ The first is the Anglo-American model, also known as the 'market-based' or 'liberal' model, which is most often found in the USA and the United Kingdom. Its key characteristics are that companies are listed on the stock market and that share ownership is widely dispersed among investors. The investors may be individual or institutional, but concentration of ownership is generally limited. There is an ever-present battle for control between management and shareholders, and struggles for company ownership are common, most often manifested in an actual or threatened takeover of sufficient company shares to ensure a voting majority.⁵⁷ The system—rightly or wrongly—tends to be characterized as short-termist. Management is expected to consider the interests of shareholders first and foremost, and the control of company managers may be reduced by the wide dispersal of stock.

The second broadly defined model is the 'relationship-based' model. Germany and Japan are key examples, with variations of the model found elsewhere in continental Europe and Asia. In this system, individual shareholders have less influence over the day-to-day activities of a corporation and less control over management decisions generally. Instead, share ownership is often highly concentrated among banks and other firms. The system is characterized by more long-term relationships and what might be called arm's-length ownership. In Japan the banks

equipment or components; including dual-use items exported for the past three years, with as much statistical information as permissible'. Textron Inc., 'Notice of annual meeting, proxy statement pursuant to section 14(a) of the Securities Exchange Act of 1934, 19 Mar. 2004', URL <<http://www.sec.gov/edgar/searchedgar/companysearch.html>>.

⁵⁵ OECD (note 25), pp. 17–24.

⁵⁶ Chew, D., 'Introduction', ed. D. Chew, *Studies in International Corporate Finance and Governance Systems: A Comparison of the US, Japan, and Europe* (Oxford University Press: Oxford, 1997), pp. 1–4; and Vives, X., 'An overview of corporate governance systems', ed. X. Vives, *Corporate Governance: Theoretical and Empirical Perspectives* (Cambridge University Press: Cambridge, 2000), pp. 2–4.

⁵⁷ In the UK 'the market for corporate control is expected to be the main mechanism for the correction of managerial failure'. Goergen, M. and Renneboog, L., 'United Kingdom', ed. K. Gugler, *Corporate Governance and Economic Performance* (Oxford University Press: Oxford, 2001), p. 189.

that own companies will generally only intervene if there is a serious financial situation. In Germany large companies are controlled by commercial banks while smaller companies are still usually family owned. In this 'relationship-based' system there is a prevailing sense that the interests of the shareholder should not necessarily be put above everything else. The interests of other stakeholders, such as employees, are also taken into account. There is often, in contrast to the Anglo-American model, a two-tiered company board structure. Employees, customers and suppliers are represented on a supervisory board, which is separate and distinct from the normal company management board.

The corporate governance debate tends to hinge on two central issues. The first is the question of who should own a company and for what purpose. Joichi Aoi, Chairman of the Board of the Toshiba Corporation, phrased the dilemma in this way: 'To whom does the company belong? That is, should corporate managers view themselves primarily as stewards of their investors' capital and so aim to maximize shareholder value? Or should they view themselves instead as custodians of their companies' "human capital" and thus concentrate more on protecting the interests and developing the knowledge and skills of their employees?'⁵⁸

The second issue is the broader economic question of which system is more efficient. In the wake of the 1997 Asian financial crisis there was much debate over whether or not weak corporate governance structures were partly to blame. In South Korea there was a general consensus that the nation's unique governance system, characterized by tight family control of companies and a high level of discretionary power in the hands of the company chair, was at least partly responsible for the economic meltdown.⁵⁹

Both these issues inevitably raise questions related to transparency. The more recent corporate scandals in the USA and the passage of the 2002 Sarbanes–Oxley Act have reignited a discussion worldwide. The discourse has, however, focused on efforts to stamp out management corruption and fraud, and how far poor economic performance—defined in most cases by profitability and financial return to shareholders—results from poor corporate governance. Legislation is currently being considered in several national parliaments to tighten governance regulations for corporations generally.

The intricacies of the different systems of corporate governance are outside the scope of this discussion. Nonetheless, it is illuminating to reflect on differences in the degree of company transparency in relation to governance practices in countries where arms producers are based.

Table 2.2 shows that there is a relatively high degree of transparency in British and US companies—in other words, the Anglo-American model. Seven of the 13 British companies included in the survey reported their arms sales in a company

⁵⁸ Aoi, J., 'To whom does the company belong? A new management mission for the information age', ed. Chew (note 56).

⁵⁹ Cho, M., 'Reform of corporate governance', eds S. Haggard et al., *Economic Crisis and Corporate Restructuring in Korea: Reforming the Chaebol* (Cambridge University Press: Cambridge, 2003), p. 286.

document, while US companies tend to maintain what could be called ‘strategic ambiguity’, with 28 companies reporting ‘similar data’ (most often under a report heading of ‘sales to departments of defence’). Generally, however, the level of transparency is relatively high in these two countries.

Can this be attributed to their corporate governance practices? In terms of publicly listed companies, this Policy Paper cites examples of shareholder activism in the USA where a specific request has been made for information on company arms sales.⁶⁰ Shareholders, naturally, want to know what kind of company they have invested in. They may simply wish to know how much of their investment is exposed to the defence market: a company investor who judges that a decline in military expenditure is coming, particularly in the sector in which that company operates, will want to know how well prepared the company is for this.

Some investors will object to a company’s involvement in arms production on moral grounds, and there is a large industry of so-called ethical investment funds that invest on behalf of clients according to very specific guidelines on the kinds of business the client is prepared to invest in. These funds often function as a source of pressure on companies to be more transparent regarding their arms sales: because they have more money at their disposal than individual investors do and are better informed about company business practices, they are likely to be more effective in applying such pressure.

Turning to companies operating under the relationship-based model of corporate governance, Japan has a strikingly low level of transparency. None of the Japanese companies included in the survey reported their arms sales in their annual reports, but this cannot be explained by the governance system alone. In Germany, where a similar system exists, there is a reasonable level of transparency: half the German companies included in the survey reported their exact arms sales in a company document.

It is reasonable to conclude, therefore, that relationship-based corporate governance is only a partial explanation for low levels of transparency. Nor can the market-based model completely explain higher levels of transparency. Since several companies did not disclose their arms sales in the USA (two) and the UK (three) there must be other factors than corporate governance at play. The low level of transparency in Japan could be partially explained by its pacifist constitution: arms production has been a controversial issue in Japan since World War II. Conversely, the high level of transparency in Scandinavian countries is likely to be a product of the rapid adoption of CSR practices and reporting procedures by Scandinavian companies, with explicit government encouragement.⁶¹

⁶⁰ See note 54.

⁶¹ In Mar. 2002 the Swedish Government wrote an open letter to Swedish companies urging them ‘to become ambassadors for human rights, decent economic and social conditions and a sound environment’. Swedish Ministry for Foreign Affairs, ‘Open letter from the Minister for Foreign Affairs, Minister for Trade and Minister for International Development, Co-operation, Asylum Policy and Migration to Swedish companies about corporate social responsibility’, Mar. 2002, URL <<http://www.sweden.gov.se/content/1/c6/02/42/80/7b0ae21b.pdf>>. In Norway, 95% of medium-sized enterprises are involved in ‘external social activities’, the highest proportion in Europe. Observatory

The defence industry is in many ways unique. There are numerous industry-specific circumstances that may compel company management to keep certain kinds of information secret, and in these situations the 'normal' rules of corporate governance will not apply.

A 1999 study of the British defence industry shows that, while arms producing companies were affected by regulations drawn up in the 1990s on governance and disclosure, they always had a 'different position' because of the type of work they did: 'The role of the government as the main customer, the secrecy in production, the nature of defence production and the other idiosyncrasies of defence companies suggest rather different developments to mainly civil firms'.⁶²

The model of corporate governance can only provide a limited explanation of why some data are not available to the public. There are factors specific to the defence industry that are just as important as corporate governance: some of these are outlined below.

Industry sector

Another factor is the type of work performed by the company. Companies that produce electronics may find it particularly difficult to report the percentage of their sales that are for military purposes. This is particularly true in the case of companies that do subcontracting work for larger companies. High-technology dual-use goods have both military and civil applications,⁶³ and it may well be the case that a subcontractor supplying components to a large prime contractor does not know whether these components will be used in defence or civil products. This dilemma would particularly affect countries such as South Korea, which has carefully developed a dual-use production strategy (see chapter 3). Problems of definition are inevitably raised; in other words, the question of what actually constitutes a weapon. For example, a company producing radio components for military applications may not consider itself to be an arms producer.⁶⁴

The case of shipbuilding also illustrates some of the problems inherent in gathering arms production data. Companies producing engines that can be used in either civil or navy vessels frequently do not consider this work to be military in nature. The most transparent option for the company would be to put the breakdown by

of European SMEs (small to medium enterprises), 'European SMEs and social and environmental responsibility', Report 2002/no.4, URL <http://europa.eu.int/comm/enterprise/enterprise_policy/analysis/observatory_en.htm>, p. 20.

⁶² Dunne, P. and Parsa, S., 'Non financial information disclosure and the UK defence companies in the 1990s', *Defence Restructuring and Conversion: Sociocultural Aspects* (Office for Official Publications of the European Communities: Brussels, 1999), p. 66.

⁶³ For a detailed discussion of the linkages between high technology in the civil and military markets see Walker, W, et al., 'From components to integrated systems: technological diversity and interactions between the military and civilian sectors', eds P. Gummert and J. Reppy, *The Relations Between Defence and Civil Technologies* (Kluwer: Dordrecht, 1988), pp. 17–37.

⁶⁴ SIPRI Arms Production Project website (note 5).

end-user in their annual report, thus giving a full and comprehensive account of their business lines and allowing interested parties to make their own judgements.⁶⁵

Another military–industrial sector for which it is very difficult to make arms sales estimates is the relatively new, but fast-growing, part of the industry that provides services once performed by the armed forces themselves.⁶⁶ It may be difficult for a company that provides food and laundry services to an army to report on what percentage of this work is classed as military, as this involves new complexities of definition and value judgements.⁶⁷

The defence industry is extremely competitive and companies are often reluctant to disclose any information that might have an impact on their competitive advantage. There are, for example, substantial questions of commercial sensitivity regarding proprietary technologies within defence products. In addition, for reasons of national security, government clients of a particular company may not wish it to be known that they have purchased or upgraded a particular defence product. Even publication by the company of sufficient information to match contracts to exports may be enough to damage a business relationship.⁶⁸

Such issues do not always account for a lack of transparency. A company could, if it chose to do so, simply adopt one definition of ‘military’ or ‘defence’ and provide a clear explanation of what it has included in that definition. In 2003 Computer Sciences Corporation (CSC), which acquired major military services provider DynCorp in March of that year, was able to fully and accurately account for CSC ‘defence’ sales in its annual report.⁶⁹ However, Halliburton, owner of services provider Kellogg, Brown and Root, did not do so. The closest similar available information is from the US Department of Defense (DOD) list of annual prime contract awards.⁷⁰

⁶⁵ E.g., MTU Friedrichshafen of Germany did not provide such a breakdown of their ‘marine’ division in their 2003 annual report but did so on special request from SIPRI.

⁶⁶ For a detailed account see Singer, P. W., *Corporate Warriors: The Rise of the Privatized Military Industry* (Cornell University Press: Ithaca, N.Y., 2004).

⁶⁷ SIPRI Arms Production Project website (note 5).

⁶⁸ Many companies cite client confidentiality as a reason for a lack of disclosure of certain information. A representative of Israel Aircraft Industries said that the identity of some of their clients is kept confidential because ‘we respect their privacy’. Communication with the author, Nov. 2004.

⁶⁹ CSC divided its ‘Federal Sector’ revenues into ‘Department of Defense’, ‘Civil agencies’ and ‘Other’. See Computer Sciences Corporation, *2004 Annual Report*, (CSC: El Segundo, Calif., 2004), URL <<http://www.csc.com/investorrelations/reports.shtml>>, p. 23.

⁷⁰ This information was used to give a rough indication of the value of Halliburton’s military work in the *SIPRI Yearbook 2005*, although this method is problematic for several reasons. Contract value is not the same as annual sales because the money may be paid out over several years. Nor is there any real insight into the precise nature of the work carried out under these contracts. Various efforts have been made to assess the value of the defence work undertaken by Halliburton. See, e.g., the ‘*Defense News* top 100 List, 2004’, URL <<http://www.defensenews.com/content/features/2004chart1.html>> (contains data for 2003). In 2003 Peter Singer estimated, ‘by subtracting out the amounts given for oil and gas industry customers’, that about one-third of the work done by Halliburton subsidiary Brown and Root Services was military related. Singer (note 66), p. 139. In the absence of full company disclosure, however, only estimates can be made based on careful reading of company documents.

To understand companies' reluctance to disclose certain types of data requires an insight into the highly competitive business environment in which they operate. From the point of view of company management, strategic factors must be considered. For those companies involved in several sectors of industry, the disclosure or non-disclosure of a particular percentage level of arms sales share can be a conscious business decision. At particular times, such as during a war, a company's involvement in defence may be seen in a positive light by shareholders. A company that once downplayed its involvement in defence may take the decision to be more forthcoming with such information, both to attract investment and to convince procurement officials that it has sufficient experience and expertise to be awarded defence contracts.

Accounting practices

When considering transparency in the arms industry it is necessary to understand the complexity and types of financial data that may be gathered by a company, particularly a large multinational company involved in several areas of industry. Some companies may find it difficult to gather and publish accurate arms sales data simply because of their enormous size. Approximately half of the companies in the SIPRI top 100 list of arms producing companies have total annual sales in excess of \$1 billion. They frequently own many small subsidiaries that are located in countries different from the parent company, and they are inclined to organize themselves into several divisions to reflect their diverse business lines.

Some analysts would argue that collecting data on revenue, employment and exports is not an easy process for the companies, nor is assessing what percentage of revenue is defence related. Against this argument the case can be made that it is simply a question of allocating additional company resources to the collection and dissemination of such data in order to satisfy public demand. There is no doubt that it is no easy task—the accounting procedures in such companies are enormously complex, and staff come and go from different divisions or leave the company entirely, taking their knowledge and expertise with them.

Another important point relates to *comparability*. A key component of transparency is that data may be compared over a number of years. If it is to achieve a minimum level of transparency, a company cannot adapt or change its reporting procedures unless there are very compelling reasons to do so—such as a major acquisition or the disposal of a business unit. If data cannot be easily compared with the previous year it is impossible to assess company trends. Yet companies often make these changes: reporting 'sales' one year and 'value of production' the next is only one example. Reorganization of business lines without reporting pro forma data is also common.

The 'culture of transparency'

It is apparent from table 2.2 that some countries have particularly low levels of transparency in comparison to the rest of the world. There may be several explanations for this. Countries with only a short experience of private enterprise, such as Russia, are considered to have a high level of corruption and may require additional time to embrace all those features that are generally accepted to be aspects of transparency.⁷¹ A lack of comparable financial information on Chinese arms producing companies means that the latter are not even included in the SIPRI top 100 list.

It is likely that governments in regions with a precarious security environment will also be unwilling to allow companies to release arms production data, as they fear that to do so could threaten their national security. This may partly account for the low level of transparency in South Korea and Taiwan. The major arms producing companies in Israel are government owned and do not produce publicly available annual reports with detailed information on their activities. Clearly these governments (as well as other governments) have much more detailed information on their own arms industries but often choose not to publish it owing to national security considerations.

Other significant political factors relate not so much to the 'culture of transparency' as such, as to the short-term ebb and flow of national politics. A government may hope that 'offset' arrangements, for example, will create jobs.⁷² In cases where the intended compensation does not ensue, it might be politically damaging for data to be released that show the lack of an offset. Without the release of these data it is impossible, of course, to assess if the offset policies have indeed been beneficial.

⁷¹ This is further complicated by issues related to corruption. Transparency International's Corruption Perceptions Index (CPI) 2004 rated Russia as having a high level of corruption. The CPI 'ranks countries in terms of the degree to which corruption is perceived to exist among public officials and politicians . . . It reflects the views of business people and analysts from around the world'. Transparency International, 'Transparency International Corruption Perceptions Index 2004', 20 Oct. 2004, URL <<http://www.transparency.org/cpi/2004/cpi2004.en.html>>.

⁷² Offsets impose conditions on a foreign weapon supplier that allow the purchaser to 'offset', or recover, some of the costs of the acquisition. The details of an offset deal may involve, e.g., the creation of jobs, the transfer of technologies or the payment of subsidies to other (non-defence) industries in the purchasing country.

3. Case study: transparency in the South Korean arms industry

The case of South Korea is a good illustration of the difficulties encountered in gathering arms production data. Since the South Korean Government began the rapid build-up of the defence industry in 1970 in the wake of the Nixon Doctrine,⁷³ there has been great reluctance to release information related to arms production at either the national or the company level. To understand why requires an understanding of South Korea's unique security situation.

Information related to arms production (or indeed any other reliable information on government expenditure) is difficult if not impossible to obtain from North Korea. However, estimates indicate that since it attacked South Korea in 1950, North Korea has developed a force ratio of at least two to one over South Korea.⁷⁴ It has also established a large arms industry which today caters to most of the needs of the North Korean land and sea forces. In the absence of reliable and transparent information about the capabilities of North Korea, South Korea, understandably, is unwilling to disclose information about its own preparedness.

Furthermore, there is a palpable sense of insecurity in South Korea about the reliability of the USA's commitment to defend it. As early as the 1970s the administration of US President Jimmy Carter proposed the withdrawal of US ground forces from the country—plans that were suspended in 1979.⁷⁵ In 2004 the administration of President George W. Bush announced that it planned to withdraw 12 500 troops from the Korean peninsula by 2006, and North Korea declared itself a nuclear state.⁷⁶

There is an increasing sense of frustration in South Korea at the country's limited access to advanced US military technology and a sense that little is gained in terms of genuine technology transfer. Historically, there have been two main reasons for the strong desire of South Korea to obtain advanced US military tech-

⁷³ The Nixon Doctrine of 1969 emphasized that US allies should have independent military capabilities. Nolan, J. E., 'South Korea: an ambitious client of the United States', eds M. Brzoska and T. Ohlson, *Arms Production in the Third World* (Taylor & Francis: London, 1986), p. 216.

⁷⁴ E.g., International Institute for Strategic Studies, *The Military Balance* (Brassey's: London, 1991), pp. 167–70. One recent estimate of troop numbers alone gave figures of 650 000 for South Korea, and 1.2 million for North Korea. Congressional Research Service, 'Issue brief for Congress IB98045. Korea: US–Korean Relations—Issues for Congress' US Library of Congress: Washington, DC, June 2005, URL <www.fas.org/sgp/crs/row/IB98045.pdf>. According to one estimate some '70 per cent of [North Korean] active duty ground forces' are forward deployed. Bermudez, J. S., *The Armed Forces of North Korea* (I. B. Tauris: London, 2000), p. 3.

⁷⁵ Nolan (note 73), p. 217.

⁷⁶ One recent estimate put troop numbers at 690 000 for South Korea and 1 100 000 for North Korea. See 'US plans big S Korea troop cuts', BBC News Online, 7 Jun. 2004, URL <<http://news.bbc.co.uk/1/3782213.stm>>; on the North Korean declaration see 'N. Korea declares itself a nuclear power', *Washington Post*, 10 Feb. 2005, URL <<http://www.washingtonpost.com/wp-dyn/articles/A12836-2005Feb10.html>>.

nology. The first reason, of course, was for the defence of the country, and there is no doubt that advanced US military technologies were (and remain) invaluable to the defence of South Korea.⁷⁷ The second reason was economic. It was hoped that access to such technologies would result in significant advances in both civil and military industries, leading to rapid economic growth and increased exports. However, South Korea found that it was unable to export military equipment that incorporated US technology because of US export restrictions, which had become increasingly strict by the late 1990s.⁷⁸

Consequently, the South Korean Government places great importance on having a strong indigenous military–industrial base, including a capacity for dual-use production, and it also closely guards all information related to its arms industry capabilities. Data on the value of arms production, arms exports and even the number of people employed in the defence industry have historically been considered highly sensitive and classified.⁷⁹ Given this background, companies have been generally reluctant to release such information without government permission.⁸⁰

Background

An awareness of the history of the South Korean arms industry is necessary to help explain the current difficulties in obtaining data. South Korea is a relative newcomer to the ranks of arms producing states. Prior to 1970 it relied almost entirely on the USA for its military equipment.⁸¹ This initially took the form of direct military assistance, but dependence on US designs for licensed production has continued to the present day. Compelled by the perception of an increased threat from North Korea and a wish to reduce this dependence on foreign sources of arms, President Park Chung Hee (1961–79) oversaw the build-up of an entire arms industry, which took place at a phenomenal rate.⁸² Although the desire to export products was not an initial motivation behind the decision to set up an arms industry, it became an increasingly important factor during the 1970s. Exports of military equipment rose from \$5 million in 1975 to \$250 million in 1979.⁸³

⁷⁷ Kirk, J., ‘Experts ponder state of S. Korea without US’, *Stars and Stripes*, 19 Jan. 2003, URL <<http://www.globalsecurity.org/org/news/2003/030119-kor01.htm>>.

⁷⁸ Harris, S., ‘South Korea—wanting to go it alone’, *RUSI Journal*, vol. 144, no.4 (Aug. 1999).

⁷⁹ Nolan (note 73), pp. 220–21.

⁸⁰ Interviews conducted by the author at the Korea Institute for Defense Analyses, Mar. 2005.

⁸¹ Bitzinger, R., ‘South Korea’s defense industry at the crossroads’, *Korean Journal of Defense Analysis*, vol. 7, no. 1 (summer 1995), pp. 233–49.

⁸² President Park made all major decisions in relation to the build-up of South Korea’s defence industry. Markusen, A. and Lee, Y., ‘The South Korean defense industry in the post-cold war era’, eds A. Markusen et al., *From Defense to Development? International Perspectives on Realizing the Peace Dividend* (Routledge: London, 2003), p. 229 and fn. 58, p. 219.

⁸³ Nolan (note 73), p. 225.

South Korea has been identified as a third-tier arms producing country.⁸⁴ It initially concentrated on the production of low-technology items, including uniforms, small arms and ordnance.⁸⁵ The great majority of this output was intended for the South Korean armed forces, but by the mid-1970s uniforms were being delivered to Saudi Arabia and ammunition was being exported to Thailand and Venezuela.⁸⁶ The period was also characterized by licensed production with almost total dependence on foreign technology, principally that of the USA. Little has changed, with indigenous production in South Korea still dependent on Europe and the USA for technological input and assistance.⁸⁷ This led to several major controversies in recent years when South Korea attempted to export products containing US technologies to third parties. For example, in 1982 the USA denied the sale of munitions by the Poongsan Company to Jordan on the grounds that the equipment was partly of US origin and out of concern that the weapons were in fact intended for Iraq.⁸⁸

From the beginning, the South Korean arms industry was tightly controlled by the government. It was also something of a 'reluctant' arms industry: the defence business was, and still is, perceived as unprofitable. The government had to devise various methods to compel companies to produce defence products, including tax breaks, access to low-interest loans, national service exemptions for employees and even a guaranteed profit on anything they produced.⁸⁹ A lack of enthusiasm on the part of the companies for defence production persists today. In a 2003 study of the South Korean defence industry, Ann Markusen and Yong-Sook Lee interviewed managers at some of South Korea's biggest arms producing firms and found general indifference to the prospect of defence procurement cuts.⁹⁰ The companies realize that the civil market is more profitable and provides greater potential for exports.

The South Korean Government held the view that its financial incentives entitled it to impose certain conditions on companies. For example, it recommended that no company should have more than a 30 per cent involvement in defence production. Although in practice there were no penalties for exceeding the 30 per cent limit, the fact that the government felt that it could make such recommendations indicates a level of control over the domestic arms industry that is not common to many countries. According to Jamie Nolan, the Korea Institute for Defense Analyses proposed that 'the 30 per cent limitation on weapon production be taken seriously, so as to

⁸⁴ Krause, K., 'Dependent production and export in the third tier', *Arms and the State: Patterns of Military Production and Trade* (Cambridge University Press: Cambridge, 1992), p. 171. This assessment refers to the arms production efforts of South Korea during the 1970s and 1980s. It is debatable if South Korea can today still be described as a third-tier arms producer.

⁸⁵ Bitzinger (note 81), p. 235.

⁸⁶ Nolan (note 73), p. 225.

⁸⁷ Bitzinger (note 81), p. 256.

⁸⁸ Nolan (note 73), p. 227.

⁸⁹ Nolan (note 73), p. 230; and Sanders, R., 'South Korea and Taiwan', *Arms Industries: New Suppliers and Regional Security* (National Defense University Press: Washington, DC, 1990), p. 80.

⁹⁰ Krause (note 84), p. 225.

force the conversion of some plant capacity to more efficient and remunerative activity'.⁹¹ The government was also able to maintain tight control over industrial relations: even today, defence industry workers are banned from participating in strike action.⁹²

Although a similar system exists in Japan, South Korea has developed a unique model of corporate governance. The chaebol—massive family-based conglomerates involved in several areas of industry—are a key feature of what has been called the 'Korean way' of corporate governance.⁹³ The role of the chaebol in the Korean economy has been a source of controversy for some time, and debate intensified after the Asian financial crisis of 1997.⁹⁴ It was suggested that their lack of transparency and financial accountability might have contributed to the crash, or at least made it significantly worse than it otherwise would have been.

In terms of relations between state and industry, the government has traditionally had very close links with the chaebol. These links, according to *The Economist*, 'fed corruption and encouraged reckless expansion',⁹⁵ but they allowed the government to have a great deal of influence. As outlined above, in the 1970s the government was able not only to compel companies to undertake military production, but also to concentrate this production heavily in just a handful of companies. In the early 1990s it was estimated that some 75 per cent of South Korean military procurement contracts went to the 10 largest local defence companies—a very high concentration by international standards.⁹⁶ For purposes of comparison it is interesting to note that only 31 per cent of US DOD prime contracts were distributed to the top 10 US firms in 1993,⁹⁷ although the level of concentration increased very rapidly in the USA during the first half of the 1990s.⁹⁸

The degree of government control in South Korea was illustrated by the state's success in pushing as much arms production activity as possible into one area in the south of the country, far from the border with North Korea. A military-

⁹¹ Nolan (note 73), p. 230.

⁹² Freedom House, 'South Korea', 24 Aug. 2004, URL <<http://www.freedomhouse.org/research/freeworld/2004/countryratings/korea-south.htm>>.

⁹³ Joh, S. W. and Kim, E., 'Corporate governance and performance in the 1990s', eds Haggard et al. (note 58), p. 102.

⁹⁴ For a detailed overview of the evolution of the chaebol system see Lim, W., 'The emergence of the chaebol and the origins of the chaebol problem', eds Haggard et al. (note 59), p. 35.

⁹⁵ 'South Korea dumps the past, at last', *The Economist*, 11 Nov. 2000.

⁹⁶ Bitzinger (note 81), p. 240. It should be noted that the South Korean economy was relatively small with few companies capable of advanced defence production.

⁹⁷ Bitzinger (note 81), p. 240.

⁹⁸ The percentage of total US DOD prime contract awards held by the top 10 companies had risen to 58% by 1996 (calculation of the author on the basis of US DOD data). On the consolidation of arms production in the USA see the website of the SIPRI Arms Production Project, mergers, acquisitions and joint ventures section, URL <http://www.sipri.org/contents/milap/milex/aprod/m_and_a_jv.html>.

industrial complex was built virtually from nothing in Changwon.⁹⁹ At a very early stage a deliberate strategy was also set in place by which the arms producing companies would develop as producers of dual-use goods.¹⁰⁰

All this points to a remarkable level of control by the South Korean Government over its military–industrial base. It is hardly surprising, therefore, that the government also has a great deal of control over the availability of arms production data, which are examined below.

The availability of data

Publicly available data on arms production in South Korea are extremely limited. This is the case at both government and company level. Researchers interested in arms production in South Korea know that the data have been collected because the government has released them in the past, and it is unlikely that this collection process has been discontinued.

Table 3.1 shows that it is difficult to draw any conclusions on trends because no long, consistent series of data has been provided for any of the three categories for which information has been given. The Korea Defense Industry Association (KDIA) has made no detailed time series of data available. Limited information has been supplied by the South Korean Ministry of National Defense (MND) in its White Paper series. Data on domestic defence procurement were given for 1993, 1994 and 1995. Data on the export of military products were supplied for 1990–97 and for 2003–2004, while relevant data on the defence sales of selected companies were given only twice, in 1996 and 1997.

Data at the national level are so scarce that researchers must turn to data at the company level in an attempt to gauge the type and quantity of military production being undertaken in South Korea. The picture here is not much better, however. Historically, there have been strict government restrictions on companies in terms of what they can publish. Although there are signs that this is changing, the companies are still very cautious about releasing information on their arms production activities.

Before 2001 SIPRI did not make a consistent effort to gather South Korean company data because of the lack of information. However, the flow of data has since improved. Table 3.2 summarizes the data gathered by the SIPRI Arms Production Project for Korean companies in 2002 and 2003.

Korea Aerospace Industries (KAI) is a major arms producing company formed in 1999 through the consolidation of Samsung Aerospace, Daewoo Heavy Industries and Machinery, and Hyundai Space and Aircraft Company. In 2002 and 2003

⁹⁹ Five of the 10 major South Korean defence companies have their main operations in Changwon. On the Changwon complex see Markusen, A. and Lee, Y., 'The South Korean defense industry in the post-cold war era', eds A. Markusen et al. (note 82), pp. 230–31.

¹⁰⁰ Markusen et al. (note 82), p. 111.

Table 3.1. Available data on the South Korean national arms industry, 1990–2004
Financial data are in billions of won at current prices unless otherwise stated.

Year	Military sales, government data			Military sales, industry data			Employment	
	Total ^a	Domestic ^b	Exports ^c (US\$ m.)	Total	Domestic	Exports	Gov. data	Ind. data
2004	420	..	..	..	..	..
2003	240	..	..	..	..	..
2002
2001
2000
1999
1998
1997	3 430	..	69	..	..	..	..	..
1996	3 013	..	32	..	..	..	..	..
1995	..	3 721	77	..	..	..	..	..
1994	..	3 850	60	..	..	..	..	..
1993	..	3 680	59	..	..	..	..	..
1992	27	..	..	..	..	..
1991	91	..	..	..	..	..
1990	78	..	..	..	..	..

.. = No data available or received.

^a Refers to the total defence sales of 80 companies in 1996 and 81 companies in 1997.

^b Refers to domestic defence procurement.

^c Refers to exports of military–industrial products.

Sources: **Total:** 1996, Ministry of National Defense, Republic of Korea, *Defense White Paper 1997–1998* (Korea Institute for Defence Analysis: Seoul, 1998), p. 183, URL <<http://www.mnd.go.kr/english/html/02/1997/552.htm>>; 1997, Ministry of National Defense, Republic of Korea, *Defense White Paper 1998* (Korea Institute for Defence Analysis: Seoul, 1998), p. 161, URL <<http://www.mnd.go.kr/english/html/02/1998/312.html>>. **Domestic:** 1993, Ministry of National Defense, Republic of Korea, *Defense White Paper 1994–1995* (Korea Institute for Defence Analysis: Seoul, 1995), p. 215; 1994: Ministry of National Defense, Republic of Korea, *Defense White Paper 1995–1996* (Korea Institute for Defence Analysis: Seoul, 1996), p. 187; 1995: Ministry of National Defense, Republic of Korea, *Defense White Paper 1996–1997* (Korea Institute for Defence Analysis: Seoul, 1998), p. 198. **Exports:** 1990–97, Ministry of National Defense, Republic of Korea, *Defense White Paper 1998*, appendix 36 (Ministry of National Defense: Seoul 1999), URL <<http://www.mnd.go.kr/english/html/02/1998/ref/appendix36.htm>>; 2003–2004, Korea Ministry of National Defense, *Defense White Paper 2004* (Ministry of National Defense: Seoul 2005), URL <http://www.mnd.go.kr/cms.jsp?p_id=01902000000000>, p. 120.

there was no company-produced information on defence sales share available in the public domain for KAI. For 2002 SIPRI relied on a May 2000 *Defense News*

article as the basis for an estimate of 80 per cent, while in 2003 a share of 89 per cent was used (based on the *Defense News* top 100 list). Samsung Techwin completed a SIPRI questionnaire in 2004, without which it would have been very difficult to make a reliable estimate of the value of its defence work. The estimate the company made was that arms sales accounted for 36 per cent of its total sales in 2002 and 40 per cent in 2001. The company was contacted again in June 2004 but declined to respond, so SIPRI also applied the 36 per cent share to 2003. The completion of a questionnaire by a company is evidence of some degree of transparency but, because it is not part of normal own-initiative reporting, it would be listed under the category *d* of table 3.2.

SIPRI also relied on a questionnaire response from Daewoo Shipbuilding and Marine Engineering in 2002, when the company estimated that 5 per cent of its sales were military. In its 2003 company annual report, however, a new category of information was provided—sales to the ‘Department of Defense of Korea’.

The information revolution has supplied abundant opportunity for companies to report arms sales via the Internet if they wish to make this information known. Daewoo Heavy Industries and Machinery is a rare example of a South Korean company that has done so and has published its exact defence sales share in a company document. In its 2003 annual report, a detailed breakdown of its business lines is provided, listing the ‘defence products’ share as \$220.6 million, or 11.4 per cent. In the light of the very tight control that the government exercises over the publication of this kind of information, it may be that the company management sought official approval for the disclosure (see the next section). Another explanation could be that the company had been for sale for some time and potential new owners would insist on detailed information on the company’s business lines, including the share of military work compared to the civil side. The company was finally sold to Doosan Heavy Industries & Construction in early 2005.¹⁰¹

The fact that Daewoo Heavy Industries & Machinery was able to publish data on the company’s military sales in its annual report demonstrates that the conventions governing the release of such data can be sidestepped in some circumstances, in spite of the accepted wisdom in South Korea that the publication of such information is subject to government control. This may be a sign of a relaxation of the rules and an indication of future trends.

A technique for researching arms production from open sources in South Korea

In the absence of a reliable and consistent flow of information from a dependable source, researchers can only estimate arms production data. South Koreans have

¹⁰¹ Korea Development Bank, URL <<http://www.kdb.co.kr/weblogic/Board?BID=157&NID=15512&ACTION=VIEW&NPAGE=3>>.

Table 3.2. Summary of the data obtained by the SIPRI Arms Production Project on the military share of sales for South Korean companies in 2002 and 2003

Company	Year	Military share (%)	Source and level of transparency ^a
Daewoo Heavy Industries and Machinery	2003	11	2003 company annual report (a)
Daewoo Shipbuilding and Marine Engineering	2003	2.5	2003 company annual report (sales to the 'Department of Defense of Korea') (b)
Korea Aerospace Industries	2003	89	<i>Defense News</i> top 100 List (d)
Poongsan	2003	25	2003 company annual report (defence products division includes sports ammunition) (b)
Samsung Techwin	2003	36	Questionnaire completed by the company in Jan. 2004, with data for 2002 and 2001 (f)
Samsung Thales	2003	100	No evidence of non-defence work (c)
Daewoo Heavy Industries and Machinery	2002	14	2002 company annual report (a)
Daewoo Shipbuilding and Marine Engineering	2002	5	Questionnaire completed by the company, July 2003, with data for 2002 (d)
Korea Aerospace Industries	2002	80	Based on an article in <i>Defense News</i> , 22 May 2000 (f)
Poongsan	2002	23	2002 company annual report (defence products division includes sports equipment) (b)
Samsung Techwin	2002	36	Questionnaire completed by the company, Jan. 2004, with data for 2002 and 2001 (d)
Samsung Thales	2002	100	No evidence of non-defence work (c)

^a See levels of transparency outlined in table 2.2.

the right to apply for information under the Freedom of Public Information Act, which the MND complies with. A claimant may request that information be made public and receive a decision within 15 days. However, the ministry makes it clear that not all information will be made available: 'Regarding the scope of freedom of information, the military has been freeing itself from its erstwhile conservatism

toward a more positive attitude, to open all information *except military secrets* and thus ensure the transparency of defense administration'.¹⁰²

From time to time media articles appear with information about arms production but these are generally based on the information provided in the MND's White Paper series. On rare occasions new information will enter into the public domain through media channels, and usually such facts and figures are specific to a company. In 2000, for example, an article appeared in *Defense News* in which the defence product share of Korea Aerospace Industries was given, apparently with the cooperation of the company, as 80 per cent.¹⁰³

Although the defence product share is not, strictly speaking, classified, companies are reluctant to publicly disclose military industry-related data without first applying for permission from an agency of the MND via the KDIA. These rules have become accepted as convention within the South Korean defence industry because companies are accustomed to an atmosphere of secrecy and strict control over these kinds of sensitive information.

This political climate dates from the 1970s and 1980s, at the height of fears about the threat from North Korea. During this tense period almost any kind of data related to South Korea's defence capabilities was considered extremely sensitive and was tightly controlled. This was particularly true for any kind of data that gave an indication of the 'big picture' of national capabilities. In 1986 Nolan noted that 'the South Korean government considers the nature and value of its annual arms production or arms exports, the levels of employment related to arms production, and even the skill content and annual turnover of employees to be strictly classified information'.¹⁰⁴ There was particular caution about releasing a series of data that might allow for comparison over time.

Since then the restrictions on disclosure of data have been somewhat relaxed. In September 2004 the rules were further revised to allow most, but not all, defence industry-related data to be released publicly. This development was not widely publicized, however, which means that many companies are unaware of the changes. Because they are accustomed to previous conventions and practices it will take time for them to adapt their reporting. The military share of sales is now not classified as such, but defence companies remain conservative about releasing *any* kind of arms production data, including the share of defence sales in total sales.¹⁰⁵

The conservatism about releasing these types of information is a legacy of a time when South Korea did not want potential enemies to know the location of its defence companies for fear of a military strike. Once South Korea began to aggressively seek to export its defence products these restrictions became untenable.

¹⁰² South Korean Ministry of National Defense, 'People's right to know and publicizing information', *Defense White Paper 1998* (Korea Institute for Defence Analysis: Seoul, 1998), URL <<http://www.mnd.go.kr/english/html/02/1998/514.html>> (emphasis added).

¹⁰³ Barrie, D., 'KAI to choose sole bidder or new competition', *Defense News*, 22 May 2000, p. 1.

¹⁰⁴ Nolan (note 73), p. 221.

¹⁰⁵ Nam-Sung Han, Senior Research Fellow, Korea Institute for Defense Analyses, communication with the author, 24 Nov. 2005.

Overseas buyers naturally needed to know about the companies they were dealing with and wanted detailed descriptions of the products they made. There was a tension between laws that restricted what companies could claim about their products and the motivation to export those same products.

In 1976, at around the time that South Korea began to export arms in significant quantities, the KDIA was established and tasked with promoting the local defence industry. It undertakes to ‘support the protection of classified information’ and does not publish detailed financial data on the arms production of its member companies.¹⁰⁶ However, it does publish the Korean Defense Products Guide, which provides detailed information on the products manufactured in South Korea and the companies that make them.¹⁰⁷ It has thus become easier to establish who the major arms producers are and then, because they are publicly listed, obtain general financial data (with the exception of arms share) from the South Korean Financial Supervisory Service¹⁰⁸ or the companies’ own annual reports.

In spite of the above, it remains difficult to gain a clear picture of the activities of South Korean arms producers. The major defence companies are listed on the stock exchange, but shareholders are poorly informed about the extent to which their investment is exposed to the risks of the defence market. The lack of clarity appears to have become accepted as convention in South Korea owing to the country’s particular security situation.

In September 1999 the South Korean Committee on Corporate Governance (a non-governmental body funded by, among others, the Korea Stock Exchange) published its ‘Code of best practice for corporate governance’. It recommended that: ‘Shareholders, as owners of the corporation, [should] possess basic rights including . . . a right to obtain relevant corporate information in a timely and regular manner’.¹⁰⁹

¹⁰⁶ Korea Defense Industry Association, ‘Introduction to the KDA’, URL <http://www.kdia.or.kr/eng/c_1/05.asp>.

¹⁰⁷ Korea Defense Industry Association, *Korean Defense Products Guide 2005–2006* (KDIA: Seoul, 2005), URL <http://www.kdia.or.kr/eng/c_2/02.asp>.

¹⁰⁸ South Korean Financial Supervisory Service, Data Analysis, Retrieval and Transfer System, URL <<http://dart.fss.or.kr/>>.

¹⁰⁹ Committee on Corporate Governance, ‘Code of practice for corporate governance’, Sep. 1999. The document has been reproduced by the European Corporate Governance Institute, URL <http://www.ecgi.org/codes/documents/code_korea.pdf>.

4. Conclusions

The existing pressures on companies to report their arms sales are weak: there are no enforcement or verification mechanisms, and current initiatives rely entirely on voluntary disclosures of information by the companies themselves. Regardless of an increased demand for and flow of general financial company data,¹¹⁰ information on arms production specifically is still seldom supplied. There is a need to bring arms production under greater democratic control and accountability, and this requires that citizens have access to clear information about the extent of arms production taking place within their own countries.

If companies feel that disclosing such information will undermine their competitiveness, profitability or other commercial principles, they will not do so, and in the absence of a level playing field in terms of disclosure, no one company is likely to take the lead.

Only governments have the power to compel companies to report relevant data, including those on arms production activities. In the absence of such a legal framework, transparency in arms sales may be (and has been) increased by shareholder activism, industry self-regulation, international initiatives and the growing trend towards CSR reporting procedures.

This Policy Paper shows that the companies defined by SIPRI as being arms producers differ greatly in how and where they report their arms sales: company performance ranges from a very high level of transparency to none whatsoever.

Why does transparency matter?

Military production is an anomaly in economic activity because it provides states (and non-state actors) with the means to use lethal force. In an international community with networked economies and agreed norms on the legitimate use of force, the military sector should be subject to exceptional rules on reporting. There are such rules in place regulating arms exports, such as the need for a company to apply for a licence to export its products. At the basic level of conventional weapons production, however, a company is generally free to produce whatever type of product it wants if it has the technological capacity to do so.

Chapter 2 of this Policy Paper identifies reasons why the collection and analysis of arms production data are important. Good-quality data serve as an essential starting point for discussion of and thinking on armaments issues. Transparency is an important issue for business, the public, international security and good govern-

¹¹⁰ This is a recent trend that rapidly gathered pace after the end of the cold war. By 1998 Ann Florini was already able to identify 'a rapidly evolving shift . . . For corporations, the point of balance is moving away from an emphasis on privacy to agreement on financial transparency and corporate social responsibility'. Florini (note 3), p. 13.

ance. This paper is confined to just one aspect of transparency, but it is one with vital implications for global security.

Arms producing companies are highly significant global economic actors. The value of the largest companies' arms sales exceeds the entire gross domestic product (GDP) of many poor countries. In the SIPRI top 100 list of arms producing companies for 2003, the top 10 companies had average arms sales of \$14 billion, while the 61 'low-income countries' had an average GDP of \$18 billion. The combined revenues of the top 100 arms producing companies in 2003 were roughly equal to the combined national output of all 61 low-income countries in the same year.¹¹¹

The anomalous nature of the goods and services provided by arms producing companies makes it vital that their activities are transparent. Today, in the absence of transparency, there is a serious problem with democratic control and accountability. In most states there is only limited oversight of arms production activity. Information made available by governments is inadequate, while data provided by the industry are little better.

The arms industry is considered to be one of the most corrupt sectors of industrial production, and the majority of activism and research into arms industry transparency has focused on this aspect. The Transparency International Bribe Payers Index 2002, for example, ranks the arms industry as the second most corrupt business sector, just ahead of the oil and gas sector but behind the public works and construction sector.¹¹² If arms producing companies were to take strong action against bribery specifically (even if this was intended primarily to counter *perceptions* of corruption), this might encourage a culture of transparency within the company as a whole.

Weapons companies are notoriously secretive. The end of the cold war may have promoted a wave of mergers as companies hastened to adjust themselves to new political realities, but it certainly did not usher in a new spirit of openness. Full disclosure of the military share of company sales remains rare, and seldom is it given in a way that would adequately meet any definition of openness or transparency. Arms industry data rarely satisfy the questions asked: precise data do not always equate to transparent data, and quantity is no substitute for quality.

The current status of transparency in arms sales

The continued lack of solid information is a serious stumbling block to research and empirical analysis. SIPRI acts as an agent of transparency by collecting available information, analysing the trends the data may indicate, and presenting the findings in the SIPRI Yearbook and on the SIPRI website.

¹¹¹ Sköns, E. and Surry, E., 'Arms production', *SIPRI Yearbook 2005* (note 38), pp. 388–89.

¹¹² Transparency International, 'Transparency International releases new Bribe Payers Index', Press release, 14 May 2002, URL <http://www.transparency.org/pressreleases_archive/2002/dnld/2002.05.14.bpi.en.pdf>.

SIPRI is thus well able to draw conclusions on transparency in arms sales. These conclusions, however, depend on how transparency is defined. As mentioned in chapter 1, Bauer has identified six criteria by which to assess transparency: availability, reliability, comprehensiveness, comparability, disaggregation, and relevance.¹¹³

On some of these criteria transparency is relatively high. Nevertheless it falls far short of the levels required for the industry to be considered fully accountable. The majority of arms producing companies still maintain a national identity, despite cross-border consolidation, but their arms production activities are subject to only limited scrutiny by either national governments or the public. Publicly listed companies are accountable to their shareholders, and these shareholders have acted as effective agents of transparency by putting pressure on companies to disclose more information. However, this still has not resulted in acceptable levels of openness and transparency.

If transparency is judged solely on the criterion of *availability*, it has certainly improved owing to the Internet, which took off in the early 1990s. Without exception, all the major arms producing companies publish information about themselves on websites, which means that company documents—at least those that are publicly available—can be obtained much faster and more easily.

Governments have also improved ease of access to their documents by moving quickly to digitize their publications. Furthermore, the abundance of online newspapers, specialist military publications and trade journals has expanded the range of available secondary sources. Online search services also greatly increase the flow of information. Companies and governments cannot control the consequences of ‘selectively leaking’ information because NGOs and other interested groups will find it and, citing the original source, reproduce it.

The majority of world arms production takes place in the USA. This is fortunate from a research point of view, because the USA has been very quick to adopt systems that make both government and company documentation easily accessible. In 1994 the US Securities and Exchange Commission initiated its Electronic Data Gathering, Analysis, and Retrieval system (EDGAR), which is an automated system that collects more than 500 000 company financial filings each year and makes them available online. Since 6 May 1996 all public domestic companies in the USA have been required to make their filings in this way.¹¹⁴

Of particular interest to the SIPRI Arms Production Project are US companies’ annual 10-K reports, which are required by law to be filed with EDGAR. These reports often contain information that is not contained in company annual reports. EDGAR brings together in one place, in a completely searchable website archive, documentation that would otherwise have to be obtained from each company indi-

¹¹³ Bauer (note 4).

¹¹⁴ On EDGAR see the US Securities and Exchange Commission website, URL <<http://www.sec.gov/edgar/aboutedgar.htm>>. The company search page is located at URL <<http://www.sec.gov/edgar/searchedgar/companysearch.html>>.

vidually. It should be noted, however, that the data provided do not always convey information about arms sales.

It is thus clear that the *availability* of information has increased dramatically in the past decade, but this gives a false impression, because judging by the other Bauer criteria it is difficult to say that transparency has greatly improved. *Comparability*, in particular, remains a serious problem. It is difficult to compare arms production data provided by governments and companies in different countries since it is collected in diverse ways and for varying purposes. In addition, it is not published according to any international standard. No absolute definition of the arms industry exists, and often the working definition is not given when data are published.

Another difficulty lies in comparing data provided by even a single government or company over time. Information may be provided for several years and then simply stop, or the basis on which the data are calculated may change. This makes it difficult to gather any firm information on which to assess arms production or disarmament. Particularly in the case of arms producing companies, tremendous difficulties exist in tracking company strategies and the ways in which they move into or out of arms production when it cannot even be determined if the military share of their sales has increased or decreased over time.

There is not necessarily a correlation between the criteria of *comprehensiveness* and *disaggregation* and the criterion of *relevance*. A company can provide hundreds of pages of detailed financial data, expressing revenue, profit and employment data in many different ways, but such details may only be of interest to company auditors. A clear case can be made that the military share of a company's sales is of greater relevance to a broad spectrum of stakeholders.

The criterion of *reliability* is difficult to assess because it can never be fully known if the information provided is accurate. Depending on the political wind, a company may wish to portray itself as heavily involved in defence or as a producer of civil goods with only limited involvement in defence production. The most common course for it to take is one of strategic ambiguity.

Defence production remains a controversial activity in most countries. Furthermore, it can be economically risky. The complexity of the products and the cost of establishing and maintaining production lines mean that a company may be unwilling to disclose its actual exposure to such an uncertain market when it has no idea how the market will look in several years.

In terms of the information made available by governments, the compilation and publication of defence production data may also be subject to pressure from many interested groups. Unless a government publishes clear data with accompanying footnotes and sources, it is difficult to assess the extent to which the data have been skewed by political imperatives.

This Policy Paper demonstrates that reliable, comprehensive data on arms production at either national or industry level are scarce. While it is clear that there have been some promising developments in arms industry transparency since the end of the cold war, the improvements relate to only one aspect of transparency

identified here—*availability*. The quantity of information has increased enormously, but there remains a serious problem with quality. It has become infinitely easier to quickly access and search the limited number of company and government documents that are in the public domain, but these documents still do not provide clear answers to the questions that are asked.

Concluding remarks

The fundamental questions of which companies in the world are manufacturing arms and in what quantities remains a difficult area of research. Public discussion of armaments issues and the regulation of the companies involved is impeded without this solid basis of information from which to launch a discussion. This lack of transparency should be of concern to a broad range of stakeholders.

Most crucial are the general public, who should have a right to scrutinize arms production activities within their own borders. Shareholders can and should insist on a right to know the division of business lines in the company in which they have invested. Disclosure of such information increases the transparency and democratic oversight of arms production. Even if this is not the intended result it is nevertheless a positive outcome. National governments also have a clear interest in access to reliable data on arms production for both economic and security reasons.¹¹⁵

The only way to ensure that companies make information on their arms production activities publicly available is through internationally harmonized requirements. In the absence of such requirements, which will not be enacted in the near future, other stakeholders can play a significant part.

The recent privatization of most of the arms industry represents an opportunity to make arms producers more accountable to the public in those countries where they operate. In particular, shareholders of publicly listed companies have been effective agents of transparency because they expect and demand detailed financial information. NGOs can also play a significant role by finding and collating available information and publishing it, as well as by directly pressuring industry and national governments.

¹¹⁵ It is helpful for governments to have access to these types of data in order to, e.g., understand the extent of the resources that they (or other countries) have devoted to arms production activity. In particular, developing countries may need to understand the extent to which such activities have diverted 'financial, technological and human resources from development objectives'. United Nations, 'The relationship between disarmament and development in the current international context', Report of the Group of Government Experts on the relationship between disarmament and development, UN document A/59/119, 23 June 2004, URL <<http://www.un.org/ga/59/documentation/list1.html>>, paragraph 43, p. 11.

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