

# Current trends in the international arms trade and implications for Sweden

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## Introduction

The Parliamentary Committee on Swedish arms exports has been tasked with investigating the implications of Sweden sharpening its controls on the export of military equipment to non-democratic states, including the impact on Sweden's bilateral relations. To provide background information for this investigation, this study provides a general overview of current trends in the international arms trade, with a particular focus on international markets for arms and military equipment produced in Sweden for export or to be supplied from Swedish surplus.

Section I examines recent trends in the global arms trade. Section II presents an overview of the Swedish arms industry. Section III presents the trend in Swedish arms exports and an analysis of international competition for the main weapon systems exported by Sweden. Section IV examines Swedish exports of second-hand weapon systems. Section V examines deals involving the licensed production of Swedish arms abroad. Unless otherwise stated, all analysis in this paper is based on the information contained in the SIPRI Arms Transfers Database (see box 1). In certain cases, additional information has been collected in order to fill gaps in the coverage of the SIPRI Arms Transfers Database and the coverage of Sweden's controls on the export of military equipment.

**Box 1. The SIPRI Arms Transfers Database**

The SIPRI Arms Transfers Database—which is maintained by the SIPRI Arms Transfers Programme—contains information on all international transfers of major conventional weapons (including sales, gifts and licensed production) to states, international organizations and non-state armed groups since 1950. The database covers 11 categories of major conventional weapons: aircraft, air defence systems, anti-submarine warfare weapons, armoured vehicles, artillery, engines, missiles, sensors, satellites, ships, and a residual category of other weapons.<sup>a</sup> The database can be used to track changes in the trends in the volume of transfers of major conventional weapons and to answer such questions as:

- Who are the main suppliers and recipients of major conventional weapons?
- How have the relationships between different suppliers and recipients changed over time?
- Where do countries in conflict obtain their weapons?
- How do states implement their export control regulations?
- Where are destabilizing build-ups of weapons occurring today?

The database can be used to generate written reports (trade registers) and statistical data (trend indicator values, TIVs). Trade registers provide information on each deal included in the database. A deal is only included in a trade register if a contract is signed or if a weapon has been selected and a contract is close to being signed. Trend-indicator values are a measure of the volume of deliveries of major conventional weapons. SIPRI ascribes a TIV to each weapon or subsystem included in the database. These values are based on the known unit costs of a core set of weapons and reflect quality and technical characteristics of the arms.<sup>b</sup> The overall volume of arms exports from a particular state in any given year is then calculated by adding together the TIVs for the weapons and components delivered. Since year-on-year deliveries can fluctuate, SIPRI uses 5-year moving averages to provide a more stable measure for trends in international arms transfers.

Sweden's arms export control list is divided into two parts: military equipment for combat purposes (MEC) and other military equipment (OME). Combined, these lists covers most items in the SIPRI Arms Transfers Database, with the exception of certain types of engines and some basically civil type aircraft and ships. However, several items in Sweden's arms export control list are not covered by the SIPRI database. For example, the SIPRI database does not include most small arms and light weapons (SALW), trucks, artillery under 100-mm calibre, ammunition, support equipment, repair and support services, and most components. To fill these gaps in this paper, additional information has been provided on arms exports from Sweden that are not covered by the SIPRI Arms Transfers Database.

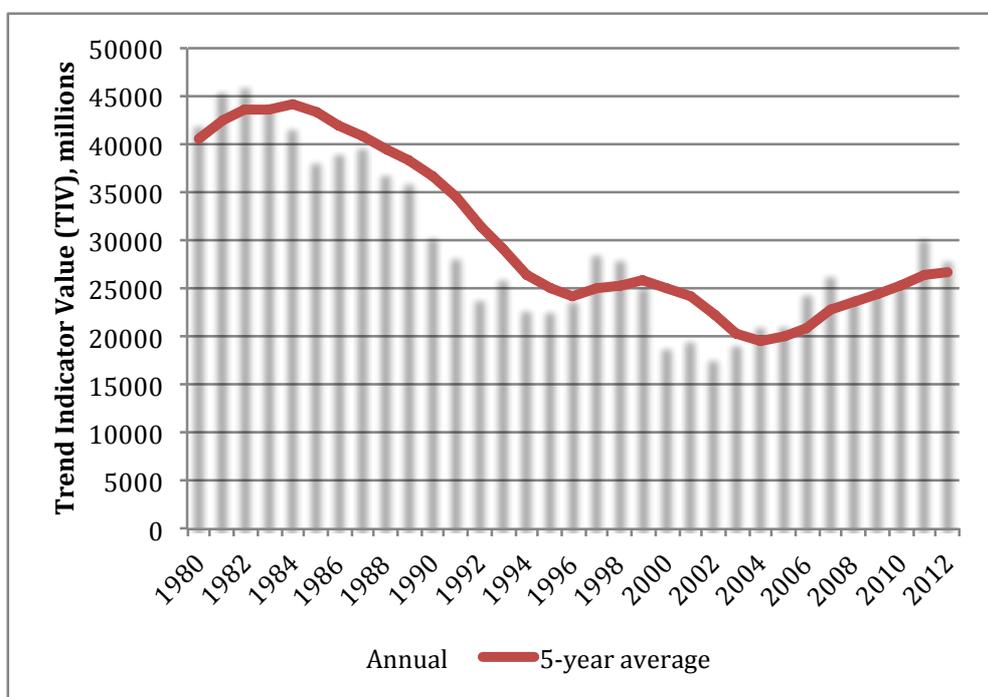
<sup>a</sup> Full details are available at <<http://www.sipri.org/databases/armstransfers/background>>.

<sup>b</sup> The method used to calculate the SIPRI trend-indicator value is described at <<http://www.sipri.org/databases/armstransfers/background>>.

## I. Major arms suppliers and recipients

### Global trends in arms transfers

Following the end of the cold war there was a decline in global arms transfers. In the period 2000–2004, the global volume of arms transfers amounted to only 44 per cent of its peak, in 1980–84. However, since 2002 there has been a steady increase in the global total of arms transfers. In 2008–12 the volume of arms transfers was 17 per cent higher than in 2003–2007 and 20 per cent higher than in 1998–2002 (see figure 1). While the global volume of arms transfers fell in 2012, this may be a short-term drop—the five-year average, which gives a more stable measure of trends, continues to rise. World military expenditure fell by 0.5 per cent in 2012 to \$1753 billion, indicating a reduction in the funds available for arms acquisitions.<sup>1</sup> However, spending by significant arms importing states in Asia, the Middle East and North Africa continued to rise. Arms imports by these states and regions may offset reductions elsewhere.



**Figure 1.** Trend in global transfers of major conventional weapons, 1980–2012

Source: SIPRI Arms Transfers Database, May 2013.

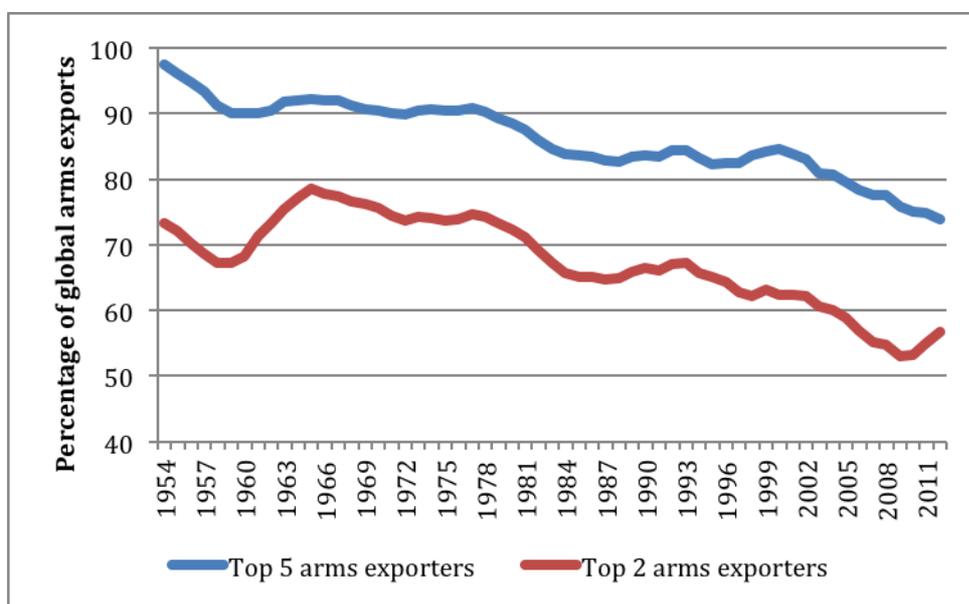
### Major suppliers

SIPRI identified 61 countries as suppliers of major weapons in 2008–12. However, the market is dominated by only a handful of states. Indeed, one of the most marked aspects of major arms transfers over time is the stable composition of the list of the five biggest suppliers, with only slight changes in the ordering. For much of the post-World War II period, the top 5 suppliers have been the Soviet Union/Russia, the United States, France, the

<sup>1</sup> Perlo-Freeman, S., Sköns, E., Solmirano, C. and Wilandh, H., ‘Trends in international military expenditure, 2012’, SIPRI Fact Sheet, Apr. 2013, <[http://books.sipri.org/product\\_info?c\\_product\\_id=458](http://books.sipri.org/product_info?c_product_id=458)>.

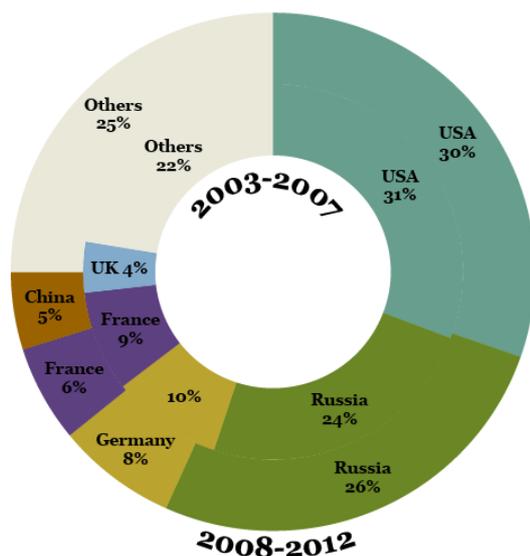
United Kingdom and Germany. Together, these states accounted for 75–85 per cent of all major arms transfers over the past 30 years. However, 2008–12 was the first five-year period since 1950 in which the UK was not among the top 5 suppliers, with China displacing it to become the fifth largest exporter. This was the first change in the composition of the top 5 suppliers since the end of the cold war.

The Soviet Union/Russia and the USA have consistently been the two largest suppliers, together accounting for 55–65 per cent of all major arms transfers over the past 30 years. The top 2 and top 5 exporters' share of global arms transfers has fallen steadily since the mid-1970s, indicating the growing importance of suppliers outside these two groups (see figure 2). While the volume of arms exported by the top 5 suppliers in 2008–12 was 14 per cent higher than the volume exported by the top 5 suppliers in 2003–2007, their collective share of total exports dropped from 78 per cent to 75 per cent (see figure 3).



**Figure 2** The top 2 and top 5 arms exporters' share of global arms transfers

Source: SIPRI Arms Transfers Database, May 2013.



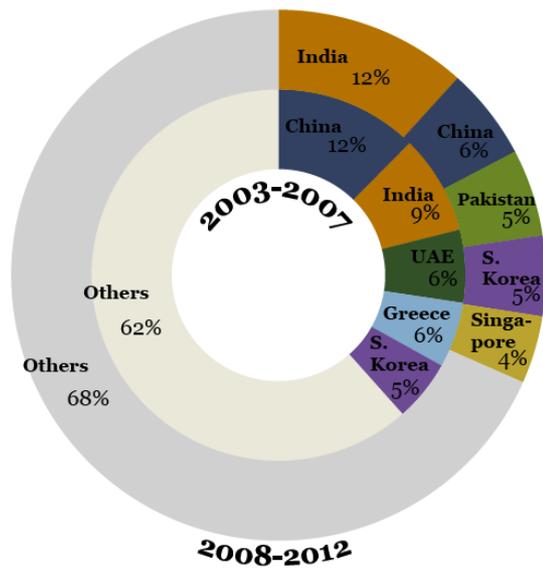
**Figure 3.** Market share of the top 5 arms exporters, 2003–2007 and 2008–12

*Source:* SIPRI Arms Transfers Database, May 2013.

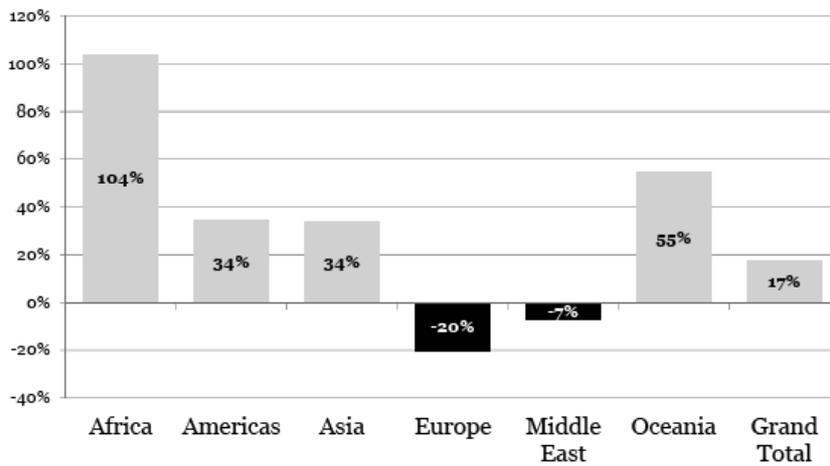
### Major recipients

SIPRI identified 156 countries, international organizations and rebel groups as recipients of major weapons in 2008–12. In contrast to the suppliers, the group of the largest recipients of major conventional weapons has varied more over the years. In addition, relative to the largest suppliers, the largest recipients account for a smaller share of the total market due to the large number of smaller recipients.

In the period 1980–84 the five largest recipients of military equipment—Iraq, India, Libya, Syria and Egypt—accounted for 26 per cent of total imports. In the period 2008–12 the top 5—India, China, Pakistan, South Korea and Singapore—accounted for 32 per cent of all imports. This change illustrates a shift in the major arms import markets over the past 30 years from the Middle East to Asia. However, in recent years the composition of the list has remained relatively stable (see figure 4). China and India were the world’s two largest arms importers in both 2003–2007 and 2008–12. Asia and Oceania accounted for almost half of imports of major conventional weapons in 2008–12 (47 per cent of imports), followed by the Middle East (17 per cent), Europe (15 per cent), the Americas (11 per cent) and Africa (9 per cent). The flow of arms to Asia and Africa increased notably between 2003–2007 and 2008–12, while flows to Europe and the Middle East decreased (see figure 5).



**Figure 4.** Market share of the top 5 arms importers, 2003–12  
*Source:* SIPRI Arms Transfers Database, May 2013.



**Figure 5.** Change in arms imports, by region, 2003–12  
*Source:* SIPRI Arms Transfers Database, May 2013.

## II. An overview of Sweden's arms industry and arms exports

### Post-World War II developments in Swedish arms production and procurement

Sweden's arms industry today has been significantly influenced by Sweden's post-World War II policy of non-alignment, which included an emphasis on maintaining a strong domestic arms industry with limited input from foreign suppliers.<sup>2</sup> This policy could be expressed as 'Sweden first', under which the Swedish Government favoured Swedish arms producers when making procurement decisions. Only when Swedish industry did not have the capability or capacity to build certain equipment—or when development of specific systems would be prohibitively expensive—did Sweden turn to foreign suppliers. In many cases, this policy resulted in Sweden funding the development of new weapon systems from scratch.

Despite the goal of self-sufficiency, the Swedish arms industry remained reliant on the supply of key technologies from abroad throughout the cold war period, particularly from the United States.<sup>3</sup> However, where equipment was purchased from abroad, Sweden sought to manufacture the foreign products under licence and, where that option was not available, carry out related research and development activities.<sup>4</sup> In the small number of cases where equipment that could have been purchased domestically was sourced abroad, decision-making was often connected to a bilateral arms sales agreement. Advances in the complexity and cost of military equipment, declining defence budgets, and a desire to integrate the Swedish arms industry into the world market increased Swedish dependence on arms acquisitions from abroad.<sup>5</sup> According to one estimate, the level of self-sufficiency in Swedish arms acquisitions fell from 90 per cent in the 1960s to 70 per cent in the 1980s.<sup>6</sup>

Despite the fact that for most of the cold war Sweden's arms industry and industrial policy were focused on domestic needs, exports took place and were actively sought. Arms exports came to be seen as a key way of supporting the domestic arms industry, reducing procurement costs for the Swedish Government and maintaining levels of production that would allow Sweden to increase supplies at a time of conflict. During the 1970s, Sweden accounted for 0.3 per cent of global arms transfers and was the 12th largest exporter.

The post-cold war period has seen significant changes in the arms acquisition policies of the Swedish state that have had important implications for Sweden's arms industry. In particular, there has been a decrease in the size and budget of the Swedish armed forces, with significant changes announced in the 2004 Swedish defence bill. This has reduced the amount of funds available for arms acquisitions. In addition, the 'Sweden first' procurement policy has been progressively abandoned. According to the principles for supplying equipment to the Swedish military outlined in the 2008 defence bill, preference should be given to the purchase of fully developed systems that are already available on the market,

<sup>2</sup> Regeringskansliet, *Strategisk exportkontroll 2012*, Regeringens skrivelse 2012/13:114, 21 Mar. 2013, p. 8; Axelsson, M. and Lundmark, M., 'Försvarsindustri i Sverige—Konsekvenser av internationaliserat ägande', Totalförsvarets Forskningsinstitut, Mar. 2007, <<http://www2.foi.se/rapp/foir2211.pdf>>, p.10; and Holmström, P. and Olsson, U., 'Sweden', eds N. Ball and M. Leitenberg, *The Structure of the Defence Industry* (Croom Helm: London, 1987), p 147.

<sup>3</sup> Axelsson and Lundmark (note 2), p.10.

<sup>4</sup> Holmström and Olsson (note 2), p 147; and Stenlås, N., 'Technology, national identity and the state: the rise and decline of a small state's military-industrial complex', Paper no.130, Institute for Future Studies, Apr. 2008, <<http://www.iffs.se/wp-content/uploads/2011/01/20080627133522filM45uvbzRF2Zl896V77AD.pdf>>, p. 20.

<sup>5</sup> Fred och säkerhet. Svensk säkerhetspolitik 1969–89. SOU 2002:108, p. 546.

<sup>6</sup> Fred och säkerhet (note 5), p 546.

even if the Swedish industry would be able to develop and produce an alternative.<sup>7</sup> The implications of this shift in policy can be seen in subsequent procurement by the Swedish Government. Thus, in 2008 the Swedish Coast Guard ordered four large patrol craft from a German shipyard.<sup>8</sup> In 2010 Sweden ordered the Finnish AMV armoured vehicle, which was fully developed, instead of a still-to-be-developed Swedish candidate.<sup>9</sup> In 2013 Sweden ordered the German-built IRIS-T SLS surface-to-air missile (SAM) system to replace the RBS-70.<sup>10</sup>

In situations where Sweden does invest in the development and acquisition of new weapon systems, preference is given to cooperation projects with other states, preferably European Union (EU) member states.<sup>11</sup> This includes, for example, the Meteor long-range air-to-air missile developed by a European consortium that includes Saab, and the Taurus KEPD-350 long-range air-to-ground missile developed by Saab and the German company LFK.<sup>12</sup> Meanwhile, Sweden has discussed with other Nordic states the joint procurement of small arms ammunition, tugboats, rubber tracks for armoured vehicles and batteries.<sup>13</sup> Sweden is also working with the European Defence Agency (EDA) on various projects aimed at promoting cooperation in the development and procurement of military equipment.<sup>14</sup>

To compensate for the Swedish Government's decreasing procurement budget and increased willingness to buy off-the-shelf, the government is providing support for Swedish companies to secure arms export deals. The importance of exports for the Swedish arms industry is highlighted by the establishment of a special government agency responsible for the promotion of exports for the arms industry, the Swedish Defence and Security Export Agency (Försvarexportmyndigheten, FXM), in August 2010.<sup>15</sup> FXM took over the export promotion role from the Defence Materiel Administration (Försvarets materielverk, FMV), whose main function has always been managing the acquisition of weapons for Swedish forces.

Alongside the increased emphasis on buying off-the-shelf, the 2004 Swedish defence bill also focused on certain key 'niche' sectors in Sweden's arms industry. The five sectors identified were aerospace, armoured vehicles, network-centric capabilities, communications, and short-range weapons. In addition, sensors, data fusion, signature management, protection, and system design were mentioned as key 'supporting technologies'.<sup>16</sup> In certain cases, Sweden is still willing to prioritize domestic arms purchases if they support these key niche sectors, even if there are potentially cheaper alternatives available on the international market. The most notable example of this policy is Sweden's continued support for the

<sup>7</sup> Regeringskansliet (note 2), p. 10.

<sup>8</sup> Brinkmann & Partner, 'Neubau-serie erfolgreich abgeschlossen: Peene-werft Wolgast übergibt Küstenwachtschiff an Swedish Coast Guard' [Successfully completed new series: Wolgast Peene shipyard passes coast guard vessels to Swedish Coast Guard], Press release, 26 Apr. 2013, <<http://www.brinkmann-partner.de/Neubau-Serie-erfolgreich-abgeschlossen-Peene-Werft-Wolgast-uebergibt-Kuestenwachtschiff-an-Swedish-Coast-Guard/701.news.htm>>.

<sup>9</sup> 'Häggglunds förlorade igen', SVT.se, 13 Aug. 2010, <<http://www.svt.se/nyheter/regionalt/mittnytt/hagglunds-forlorade-igen>>.

<sup>10</sup> The IRIS-T SLS version for Sweden will use Swedish sensors and command-and-control systems. It uses the same missile as that ordered for the Gripen. 'Diehle to supply IRIS-T SLS missile systems to Swedish Army', army-technology.com, 14 Mar. 2013, <<http://www.army-technology.com/news/newsdiehl-supply-irist-sls-missile-systems-swedish-army>>.

<sup>11</sup> Regeringskansliet (note 2), p. 10.

<sup>12</sup> Saab, <<http://www.Saabgroup.com>>.

<sup>13</sup> 'Nordic defence ministers' meeting in Skagen', Nordic Defence Cooperation, 7 Nov. 2012.

<sup>14</sup> Regeringskansliet (note 2), p. 10.

<sup>15</sup> See FXM, <<http://fxm.se>>.

<sup>16</sup> Janssen Lok, J., 'Swedish defence industry warms to exports as domestic markets cool', *IDR*, May 2005, p. 53.

domestically produced Gripen combat aircraft. As with earlier Swedish combat aircraft (e.g. the J-29 Tunnan, J-31 Lansén, J-35 Draken and J-37 Viggen), the original Gripen combat aircraft (the JAS-39A/B and JAS-39C/D) were developed for Swedish procurement needs. While efforts were made to market the aircraft abroad, exports were not seen as essential for the feasibility of the programme.<sup>17</sup> Despite the availability of potentially cheaper off-the-shelf alternatives on the international market, the Swedish Government has continued to support the Gripen programme. In January 2013 the Swedish Government approved the development and acquisition of 60 Gripen-E (formerly known as the Gripen-NG) for the Swedish armed forces.<sup>18</sup> However, in contrast with previous combat aircraft, the financial viability of the Gripen-E programme depends on gaining export orders. If none are secured, the Swedish Government has the option of cancelling its order.<sup>19</sup>

### Sweden's most significant arms producers

During the cold war, Sweden's most significant arms producers were Saab, Volvo, Bofors and FFV.<sup>20</sup> Naval shipbuilding was spread over several shipyards, including Kockums and the state-owned Karlskronavarvet. Other important suppliers included LM Ericsson, ASEA and Hägglund & Söner.<sup>21</sup> Ongoing processes of concentration meant that by 1979 there were only 50 separate companies producing arms.<sup>22</sup> The production of combat aircraft was a major focus for the Swedish arms industry and the Swedish Government. During the 1970s, the air force accounted for half the value of Sweden's arms acquisitions.<sup>23</sup>

The post-cold war period saw changes to both the ownership structure and orientation of the Swedish arms industry. As part of broader processes of privatization, Swedish industry—including the Swedish arms industry—was opened up for foreign ownership during the 1990s. Several large arms producers that had previously been entirely Swedish-owned were partly or completely taken over by foreign companies. In 1997 the British company Alvis purchased Hägglunds Vehicle; in 2000 the US company United Defense Industries (UDI) purchased Bofors Weapon Systems; in 2005 the German company HDW purchased Kockums; and in 2012 the British company GKN purchased Volvo Aero.<sup>24</sup>

A key motivation for these acquisitions by foreign companies was gaining access to Swedish procurement spending. The intention was not to sell foreign weapon systems to Sweden, but rather to capture the revenue stream generated from the relationship between the

<sup>17</sup> E.g. the Draken was sold to Denmark and Finland. The Viggen was offered to several NATO countries in competition with—among others—the F-16. The Viggen was also offered to India but the USA blocked re-export of the US-manufactured engine used in the Viggen. Dörfer, I., *Arms Deal: The Selling of the F-16* (Preager: New York, 1983); and Arnett, E., 'Nuclear stability and arms sales to India: implications for U.S. policy', *Arms Control Today*, Aug. 1997, <[www.armscontrol.org/act/1997\\_08/arnett](http://www.armscontrol.org/act/1997_08/arnett)>.

<sup>18</sup> 'Swedish government OKs purchase of 60 Saab Gripen jets', Reuters, 17 Jan. 2013, <<http://www.reuters.com/article/2013/01/17/saab-idUSL6N0AM3BG20130117>>.

<sup>19</sup> 'Swedish government OKs purchase of 60 Saab Gripen jets' (note 18).

<sup>20</sup> Together, these companies accounted for 72% of all of Sweden's defence procurement expenditure in 1972–73. Stenlås (note 4), p. 17.

<sup>21</sup> Stenlås (note 4), p. 17.

<sup>22</sup> *Sevenskk Krigsmaterielexport. Betänkande av 1979 års krigsmaterielkommitté*, SOU 1981:39, Stockholm: 1981, p. 55; and Holmström and Olsson (note 2), p. 145.

<sup>23</sup> Olsson, U., *The Creation of a Modern Arms Industry in Sweden* (Gothenburg University, Institute of Economic History: Gothenburg, 1977), p. 186.

<sup>24</sup> Alvis was taken over by BAE Systems (UK) in 2004; UDI was acquired by BAE Systems in 2005; and HDW itself is part of German ThyssenKrupp Marine Systems (TKMS).

Swedish companies and the Swedish Government.<sup>25</sup> Other motivations included gaining access to Swedish technology and eliminating competition.<sup>26</sup> For example, HDW's acquisition of Kockums gave HDW access to the advanced submarine technology developed by Kockums—including the Stirling air-independent propulsion (AIP) technology—while also eliminating Kockums as a competitor. Since the takeover, HDW has signed several contracts for submarine orders (for submarines designed in Germany) while Kockums has received none.

**Table 1.** Main Swedish arms producing companies

Company	Owner	Products
Saab	Private	Aircraft, missiles, avionics, radar, camouflage systems, anti-tank weapons
TKMS AB (Kockums)	TKMS (Germany)	Surface ships, submarines, AIP
Hägglunds	BAE Systems (UK)	Armoured vehicles
Nammo	Nammo (Norway)	Ammunition
Bofors	BAE Systems (UK)	Artillery, ammunition
Swede Ship	Private	Patrol craft, landing craft
Dockstavarvet	Private	Patrol craft, landing craft
Volvo	Private	Trucks
Volvo Aero	GKN (UK)	Aircraft engines

*Source:* Company reports, press releases and websites; media reports.

There are now five main arms producers in Sweden: Saab, BAE Systems Bofors, BAE Systems Hägglunds, ThyssenKrupp Marine Systems AB (TKMS AB, known as Kockums until June 2013) and Nammo Sweden. With the exception of Saab, which accounts for 50 per cent of the value of Swedish arms sales, all of these companies are foreign-owned (see table 1). Saab produces the Gripen combat aircraft as well as a range of other military equipment, including radars and other sensors (e.g. Giraffe and CEROS), naval combat systems (e.g. 9LV), anti-ship missiles (e.g. RBS-15), SAM missiles (e.g. RBS-70), anti-tank missiles (e.g. Bill), and recoilless rifles (Carl Gustav). BAE Systems Bofors produces artillery (e.g. Archer and FH-77), naval guns (e.g. Bofors 57 Mk3) and ammunition (e.g. BONUS and Excalibur). BAE Systems Hägglunds produces tracked combat vehicles (e.g. CV-90) and specialized soft-terrain tracked vehicles (e.g. the unarmoured BV-206 and the armoured BV-206S and BvS-10). TKMS AB produces advanced small- and medium-sized submarines, fast attack craft and corvettes, patrol craft, and air-independent submarine propulsion systems (Stirling engine). Nammo Sweden produces ammunition.

Almost all Swedish arms-producing companies are members of the Swedish Security and Defence Industry Association (Säkerhets och försvarsföretagen, SOFF). SOFF has 65 member companies—including 55 that are considered small- and medium-sized companies (SMEs)—that collectively account for nearly all Swedish arms sales.<sup>27</sup> SOFF holds the Swedish membership in the AeroSpace and Defence Industries Association of Europe (ASD). Two other associations also exist in Sweden: SME-D (small- and medium-sized companies in the defence sector) and the Swedish Association of Civil Security (SACS), which operate in the field of public security.

<sup>25</sup> Axelsson and Lundmark (note 2), p.13.

<sup>26</sup> Axelsson and Lundmark (note 2), p.13.

<sup>27</sup> SOFF, <<http://www soff.se/en/home-1/the-association>>.

### III. Swedish arms exports

#### Recent trends in Swedish arms exports

Based on 5-year averages, the volume of Swedish arms exports and its share of the global total increased between 1993 and 2012. The volume of Sweden's arms exports in 2008–12 was 200 per cent higher than in 1993–1997 and 52 per cent higher than in 2003–2007 (see figure 6). Since 1993, Sweden's arms exports have increased at a faster rate than the global volume (see figure 7). The volume of global arms transfers fell between 1993 and 2005 and then gradually increased back to 1993 levels by 2012. The volume of Swedish arms exports fell between 1990 and 1997 and then increased back to 1993 levels by 2001. Despite this increase, Sweden is currently outside the list of the 10 largest arms exporters. Between the period 2003–2008 and 2008–12, Sweden fell from its position as the 11th largest exporter to that of the 12th largest exporter (see table 2).

Official government data shows a significant increase in the value of Swedish arms exports since 2003, with such exports reaching their highest level of nearly SEK14 billion in 2011 (see figure 8). In 2012 the value of Swedish arms exports fell to SEK9.8 billion. The value of arms export licences issued also fell in both 2011 and 2012, although the number of advance notices, tenders filed and export permits rose in 2012.<sup>28</sup> Official figures indicate that over the past five years, arms exports accounted for around 1 per cent of all Swedish exports. The highest percentage was in 2009, when they accounted for 1.36 per cent of all Swedish exports, and the lowest was in 2012, when they accounted for 0.84 per cent (see figure 9).<sup>29</sup>

**Table 2.** Swedish exports of major weapons, ranking and share of total, 5-year periods 1978–2012

Period	Ranking	Share of global (%)
1978–82	15th	0.3
1983–87	12th	0.6
1988–92	11th	0.9
1993–97	12th	0.7
1998–2002	7th	1.9
2003–2007	11th	1.8
2008–12	12th	1.9

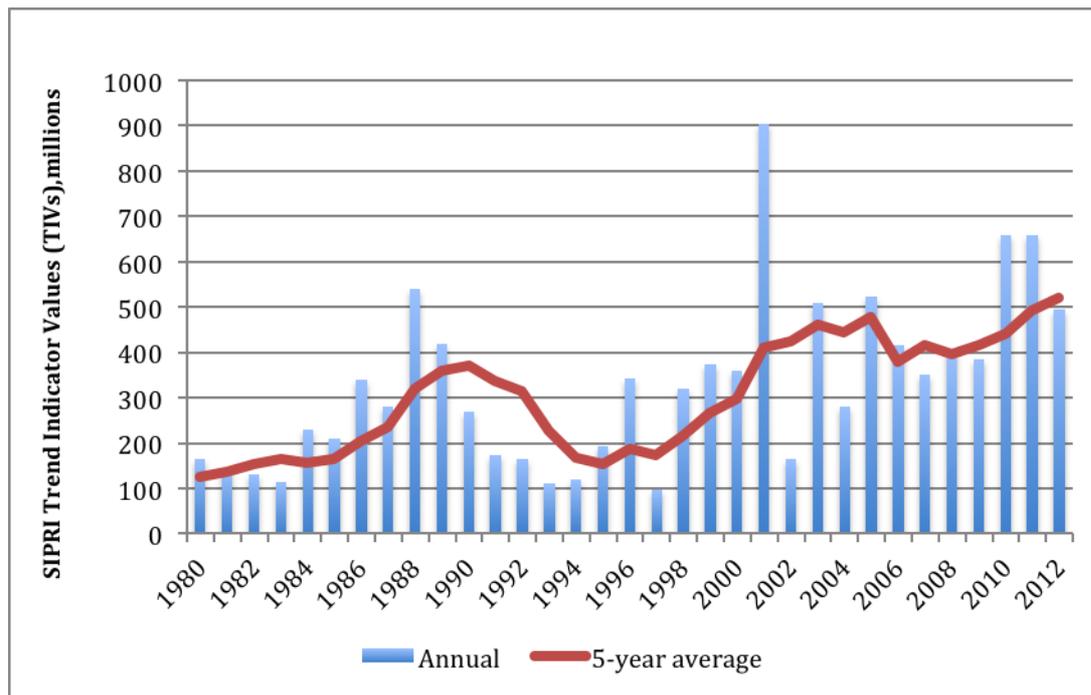
Source: SIPRI Arms Transfers Database, May 2013.

During 1993–97 SIPRI identified 16 countries that imported major weapons from Sweden. For 1998–2002 this increased to 27 countries. In the past decade the number of recipients has remained stable. During 2003–2007 SIPRI identified 24 countries that imported major weapons from Sweden while for 2008–12 it was 29. However, the relative importance of particular recipients and regions has altered significantly over the past decade (see figures 3 and 10). During 2003–2007, the top 5 recipients of Swedish exports of major weapons were

<sup>28</sup> According to SOFF '[a]ntagandet att exportsektorn fortsätter att utvecklas till en allt större marknadsandel för försvarsindustrin ligger fast och allt pekar på att den industri som är verksam i Sverige även fortsatt är mycket konkurrenskraftig på den internationella marknaden'. Statistik, Strategisk exportkontroll 2012 <<http://soff.se/var-organisation/statistik-1>>.

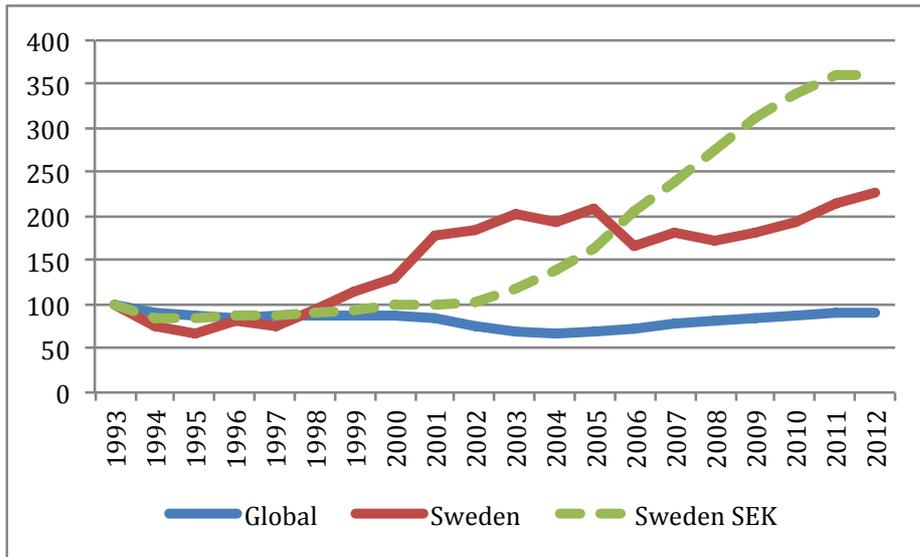
<sup>29</sup> Regeringskansliet (note 2), p. 35; Regeringskansliet, *Strategisk exportkontroll 2004*, Regeringens skrivelse 2003/04:114, 17 Mar. 2013, p. 6; and Regeringskansliet, *Strategisk exportkontroll 2008*, Regeringens skrivelse 2008/09:114, 12 Mar. 2013, p. 5.

the Czech Republic, Hungary, Australia, Finland and Switzerland. Europe accounted for 77 per cent of Swedish exports, Asia accounted for 2 per cent, and no major weapons were delivered to Africa. In 2008–12, the Czech Republic, Hungary and Switzerland did not import any major weapon from Sweden, and Austria and Finland were minor importers. The top 5 recipients were South Africa, Pakistan, the Netherlands, Singapore and Thailand. South Africa was the largest recipient, accounting for 26 per cent of Swedish exports. Europe accounted for 33 per cent of Swedish exports, while Africa and Asia accounted for 26 per cent and 35 per cent, respectively.



**Figure 6.** Volume of Swedish exports of major conventional weapons, 1980–2012

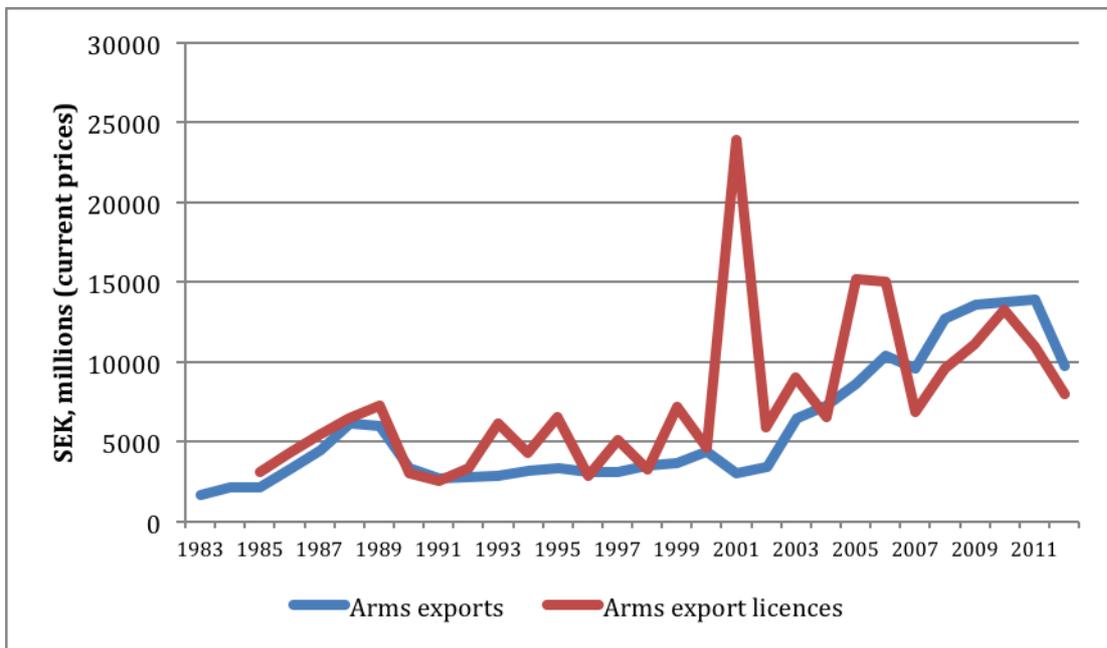
*Source:* SIPRI Arms Transfers Database, May 2013.



**Figure 7.** Changes in the volume of Swedish exports of major conventional weapons compared to global change, 1993–2012

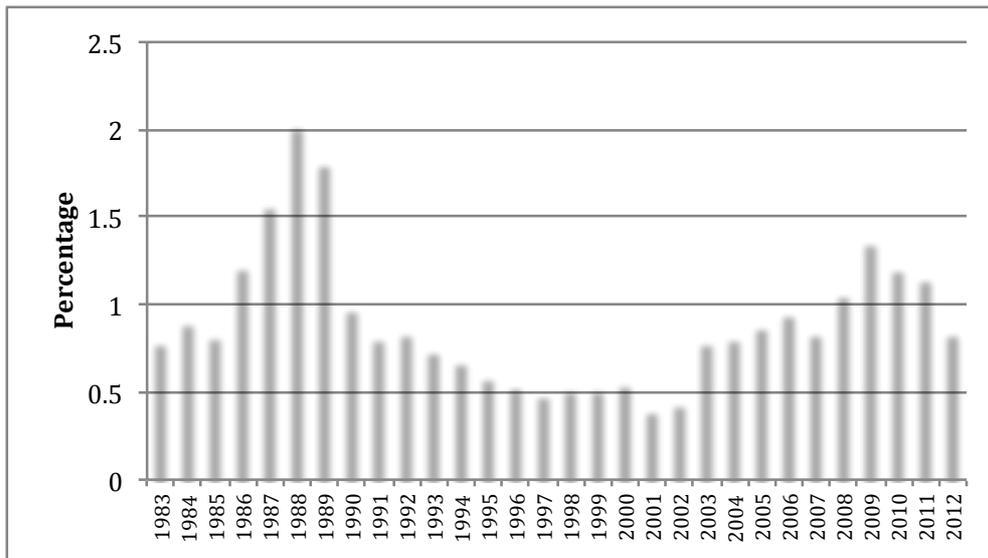
*Note:* The graph shows the change compared to the base year 1993. Based on five-year moving average values with 1993 as base year at 100.

*Source:* SIPRI Arms Transfers Database, May 2013; *Strategisk exportkontroll* (all years 1994–2012).

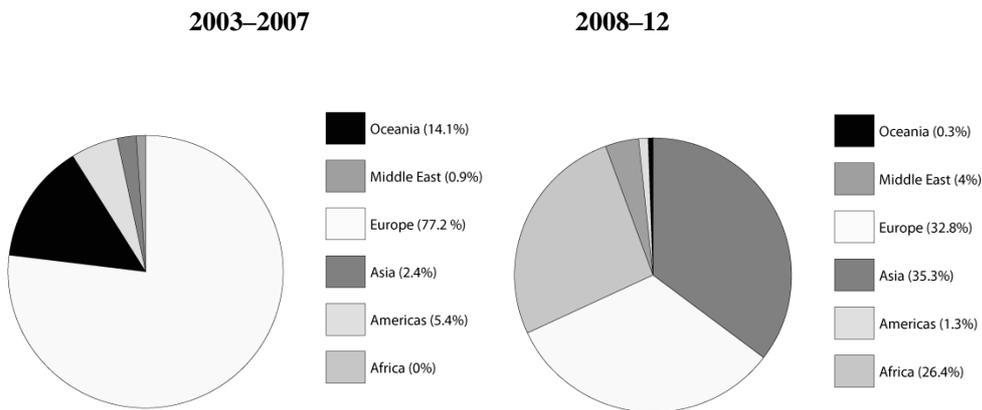


**Figure 8.** Value of Swedish arms exports and arms export licences, 1983–2012

*Source:* *Strategisk exportkontroll* (all years 1985–2012).



**Figure 9.** Value of Swedish arms exports as share of total Swedish exports, 1983–2012  
*Source: Strategisk exportkontroll (1985–2012).*



**Figure 10.** Recipients of Swedish major conventional weapons, 2003–12  
*Source: SIPRI Arms Transfers Database, May 2013*

**Table 3.** Recipients of Swedish major conventional weapons, 2003–12

Recipient	2003–2007		2008–12	
	Volume (TIV, millions)	Share of total (%)	Volume (TIV, millions)	Share of total (%)
Australia	293	14	15	1
Brazil	60	3	–	–
Brunei	–	–	8	<0.5
Chad	–	–	<0.5	<0.5
Croatia	–	–	8	<0.5
Czech Republic	392	19	–	–
Denmark	60	3	70	3
Estonia	3	<0.5	30	1
Finland	275	13	66	3
France	30	1	12	<0.5
Germany	42	2	45	2
Greece	19	1	120	5
Hungary	368	18	–	–
Indonesia	3	<0.5	–	–
Italy	20	1	34	1
Japan	–	–	40	2
Latvia	13	1	–	–
Luxembourg	–	–	1	<0.5
Malaysia	–	–	3	<0.5
Mexico	38	2	–	–
Netherlands	47	2	254	10
Norway	–	–	13	1
Pakistan	26	1	358	14
Poland	41	2	58	2
Saudi Arabia	–	–	6	<0.5
Singapore	15	1	240	9
Slovenia	–	–	2	<0.5
South Africa	–	–	684	26
Spain	8	<0.5	15	1
Switzerland	246	12	–	–
Thailand	7	<0.5	221	9
UAE	17	1	95	4
UK	40	2	126	5
Uruguay	–	–	7	<0.5
USA	15	1	25	1
<b>Total</b>	<b>2 077</b>		<b>2 600</b>	

Source: SIPRI Arms Transfers Database, May 2013

### Weapons exported by Sweden and Sweden's main competitors<sup>30</sup>

#### *Aircraft*

Aircraft accounted for the largest share of Swedish exports of major weapons during 2003–12. During 2008–12, aircraft accounted for 51 per cent of Swedish exports of major weapons,

<sup>30</sup> The SIPRI Arms Transfers Database covers 11 categories of major weapons (see box 1). Sweden did not export weapons in those categories not included in the text. Information has also been provided on exports covered by Sweden's arms export control lists that are not covered by the SIPRI Arms Transfers Database.

compared with 36 per cent during 2003–2007 (see figure 11). Sweden was the seventh largest supplier of aircraft during 2008–12, accounting for 2 per cent of global exports. The largest suppliers were the USA and Russia, which accounted for 42 per cent and 27 per cent of aircraft exports, respectively.

During 2003–12, 36 per cent of Swedish exports of aircraft went to Europe, 33 per cent to Africa, and 27 per cent to Asia. Considering the competitiveness of the international market, Sweden has had significant success with exports of the Gripen combat aircraft. In 1995 Saab partnered with BAE in Saab-BAE Gripen AB (known as Gripen International from 2001) to adapt and market the Gripen for export. During 2003–12, Sweden exported 60 Gripen: 26 to South Africa, 14 to the Czech Republic, 14 to Hungary and 6 to Thailand.<sup>31</sup> Six more Gripen aircraft are due to be delivered to Thailand in 2013. The Gripen-E is currently being developed and is being promoted as a simpler and cheaper alternative to most other combat aircraft that are currently on offer. However, the Gripen-E faces competition from similar, or cheaper, alternatives offered by several newcomers to the combat aircraft market. For example, the South Korean F/A-50 is being promoted for export and was selected by the Philippines over the Gripen.<sup>32</sup> Switzerland has selected 22 Gripen-Es and the Swiss Parliament has given preliminary approval to the deal, but as of October 2013 a final order had not yet been signed.<sup>33</sup>

Sweden has also exported the Saab-2000—both as a transport aircraft and as an airborne early-warning and control (AEW&C) aircraft—and the Saab-340 AEW&C aircraft. During 2003–12, Sweden exported one Saab-2000 transport aircraft and four Saab-2000 AEW&C aircraft to Pakistan while Saudi Arabia has ordered two Saab-2000 AEW&C aircraft. Sweden has also exported two Saab-340AEW to Thailand and two to the United Arab Emirates (UAE).<sup>34</sup> Competition on the market for medium-sized AEW aircraft, such as the Saab-340, comes mainly from the USA (E-2 Hawkeye) and Israel (Phalcon radar on different types of medium aircraft). In addition, these two competitors and, more recently, also China, offer larger AEW aircraft.

Swedish companies have developed several helicopter unmanned aerial vehicle (UAV) designs. However, despite the fact that very few helicopter UAVs are available on the international market, exports have not been forthcoming. The UAE has been the only customer, buying seven Apid-55s in 2006. The main competitor to the Apid-55—the Austrian-produced Camcopter—has been more successful, with 66 sold, including 60 to the UAE in 2006.

### *Armoured vehicles*

Armoured vehicles accounted for the second largest share of Sweden's exports of major weapons during 2003–12. During 2008–12, armoured vehicles accounted for 15 per cent of Swedish exports of major weapons, compared with 25 per cent during 2003–2007 (see figure 11). Sweden was the ninth largest supplier of armoured vehicles during 2008–12,

<sup>31</sup> In the case of the Czech Republic and Hungary, the aircraft were originally produced for Sweden but declared surplus to requirements and leased to both countries.

<sup>32</sup> Vogelaar, R., 'Korea Aerospace Industries–KAI contract for mass producing the FA-50', Aviationnews.eu, 7 May 2013; and Waldron, G., 'KAI wins W1.1tn contract for FA-50 fighters', Flightglobal.com, 7 May 2013.

<sup>33</sup> Switzerland also selected 11 surplus Swedish Gripen-C/D in a lease worth CHF 22 million as an interim solution until delivery of the Gripen-E in 2020. FXM (note 15), 24 Aug. 2012.

<sup>34</sup> The Saab-2000 AEW aircraft are all based on second-hand civil aircraft. The Saab-340 AW aircraft are surplus from the Swedish Air Force.

accounting for 2 per cent of global exports. The largest suppliers were the USA and Russia, which accounted for 26 per cent and 20 per cent of exports, respectively.

During 2003–12, all of Sweden's exports of armoured vehicles went to Europe. Sweden was the second largest supplier of armoured vehicles to Europe in 2008–12, accounting for 13 per cent of deliveries. Germany was the largest supplier of armoured vehicles to Europe, accounting for 46 per cent of deliveries. During this period, Sweden exported 487 CV-90 infantry fighting vehicles (IFVs) to Denmark, Finland, Switzerland and the Netherlands, and 673 BV-206S and BvS-10 to France, Italy, Spain, Germany, the Netherlands and the UK. All CV-90s and many of the Bv-206Ss and BvS-10s have been produced under licence in the recipient country. In the IFV subcategory Sweden was the largest supplier to Europe in 2008–12, and the only significant competitor to the specialized Bv-206S and BvS-10 armoured personnel carriers (APC) is the Bronco produced by STK in Singapore.

### *Sensors*

Sensors accounted for the third largest share of Sweden's exports of major weapons during 2003–12. During 2008–12 sensors accounted for 12 per cent of Sweden's exports of major weapons, compared with 16 per cent during 2003–2007 (see figure 11). Sweden was the ninth largest supplier of sensors during 2008–12, accounting for 5 per cent of global exports. The largest suppliers were the USA and Israel, which accounted for 25 per cent and 14 per cent of exports, respectively.

During 2003–12, 51 per cent of Sweden's exports of sensors went to Europe, 26 per cent to the Americas, and 12 per cent to Asia. During 2003–12 Sweden delivered 27 ARTHUR artillery locating radars to the Czech Republic, Greece, Italy, South Korea, Singapore, Spain and the UK and has another 11 on order. Sweden has also exported 27 CEROS-200 fire control radars to Australia, Canada, Denmark, Finland, South Korea, Norway and Thailand and has another 31 on order. The CEROS-200 radars are fitted on ships produced abroad or on foreign ships undergoing modernization.

Sweden has also exported 23 Giraffe AMB air search radars to Australia, Estonia, France, Poland, Singapore, Thailand, the UAE, the UK and the USA and has 29 more on order. Most of the Giraffe radars are fitted on ships produced abroad or on foreign ships undergoing modernization. In 2012 Saab received a \$450 million order for the export of naval fire control and radar systems, a deal that probably includes CEROS-200 and Giraffe radars.<sup>35</sup> Due to confidentiality agreements, Saab did not reveal the final recipient, although it is thought that they will be placed on German-produced MEKO frigates for export to Algeria.

In the subcategories of naval air search and fire control radars for small- and medium-sized ships, Sweden faces especially strong completion from Thales Netherlands.

### *Ships*

Ships accounted for the fourth largest share of Sweden's exports of major weapons during 2003–12. During 2008–12, ships accounted for 8 per cent of Swedish exports of major weapons, compared with 15 per cent during 2003–2007 (see figure 11). Sweden was the 12th largest supplier of ships during 2008–12, accounting for 1 per cent of global exports. The

<sup>35</sup> 'Saab receives order for fire control and radar systems', Saabgroup.com, 7 Aug. 2012, <<http://www.saabgroup.com/en/About-Saab/Newsroom/Press-releases--News/2012---8/Saab-receives-order-for-fire-control-and-radar-systems/>>.

largest suppliers were Germany and Russia, which accounted for 19 per cent and 17 per cent of exports, respectively.

During 2003–12, 84 per cent of Swedish exports of ships went to Oceania, 11 per cent to Asia, and 3 per cent to Europe. Exports during 2003–12 included the last of 6 Collins submarines ordered in 1987 by Australia. Valued at \$2.8 billion, this was the largest Swedish arms export deal since 1950. The submarines were produced in Australia under licence. Two ex-Swedish Navy Västergötland submarines have also been delivered to Singapore in 2011–12 after modernization in Sweden. Several small patrol craft and landing craft have been exported to Denmark and the UAE between 2004 and 2009.

Competition among suppliers for the types of ship offered for export by Sweden is strong. In the field of submarines, Swedish exports face direct competition from DCNS (France), HDW (Germany), Navantia (Spain), Fincantieri (Italy), and DMSE (South Korea). In addition, Russia and China offer advanced submarines, and there are indications that in the near future Japan may be willing to export its advanced submarine technology. In the past two years Kockums has been dropped from competitions to supply submarines to Australia and Norway.<sup>36</sup> In May 2013 Australia signed an agreement with FMV (the owner of the technology used in the Collins design) for increased rights to that technology as one of the options on which to base a new Australian-designed submarine.<sup>37</sup> However, Australia is also discussing submarine technology transfers with Japan.<sup>38</sup> Swedish submarine design has suffered from the cancellation of the Nordic Viking submarine development programme by Norway in 2002 and by Sweden and Denmark in 2004. The Swedish Parliament authorized the development of the A-26 submarine as a replacement programme in 2010 but neither of the initial two boats has been ordered as of October 2013.<sup>39</sup>

In the surface ship market, the Visby corvette has dozens of competitors, including several designs from TKMS, the owner of Kockums.<sup>40</sup> Several of those foreign designs have gained orders in recent years. The most recent export order for surface ships from Sweden was in 2009 for 12 Ghannatha small fast attack craft for the UAE. The USA and other states have expressed interest in the Visby corvette but no export orders have been signed. The extended maritime areas assigned by the United Nations Convention on the Law of the Sea (UNCLOS) to coastal states—a 200-nautical mile (370 kilometres) exclusive economic zone (EEZ) and the continental shelf beyond that—are leading states to purchase corvettes and light frigates that are larger than the 630 tonne Visby and have a helicopter hangar (the Visby only has a landing platform for a light helicopter).

### *Missiles*

Missiles accounted for the fifth largest share of Swedish exports of major weapons during 2003–12. During 2008–12, missiles accounted for 11 per cent of Swedish exports of major weapons, compared with 6 per cent during 2003–2007 (see figure 11). Sweden was the 9th

<sup>36</sup> Tringham, K., 'Norway issues RfI as it considers submarine fleet future', *Jane's Defence Weekly*, 28 Nov. 2012, p. 13; and 'DCNS, HDW et Navantia en lice pour les futurs sous-marins Australiens', *Mer & Marine*, 14 Dec. 2011.

<sup>37</sup> Regeringskansliet and Försvarsdepartementet, 'Avtal om ubåtsteknik mellan Sverige och Australien', Press release, 16 May 2013, <<http://www.regeringen.se/sb/d/17021/a/217066>>; and Kleja, M., 'Ubåtschans för Kockums i Australien', *NyTeknik*, 16 May 2013.

<sup>38</sup> Wallace, R., 'Japan tech deal could help power our subs', *The Australian*, 27 Sep. 2012.

<sup>39</sup> Kockums, 'Riksdagen tar beslut om nya ubåtar', 16 June 2010, <<http://www.kockums.se/nyheter/riksdagen-tar-beslut-om-nya-ubatar/>>.

<sup>40</sup> The larger K-130 MEKO CSL and MEKO D corvettes (or frigates) are advertised for littoral use. Blohm + Voss, <<http://thyssenkrupp-marinesystems.com>>.

largest supplier of missiles during 2008–12, accounting for 2 per cent of global exports. The largest suppliers were Russia and the USA, which each accounted for 29 per cent of exports.

During 2003–12, 71 per cent of Swedish exports of missiles went to Europe, 24 per cent to Asia, and 4 per cent to Oceania. Sweden has exported up to 126 RBS-15 anti-ship missiles to Finland, Germany, Poland and Thailand and has up to another 13 on order. Sweden has also exported up to 11 750 NLAW and Bill-2 anti-tank missiles to Finland, Luxembourg, the UK and Saudi Arabia and has up to another 4000 on order. In addition, Sweden has exported up to 967 RBS-70 portable SAMs (man-portable air defence system, MANPADs) to Australia, the Czech Republic, Finland, Latvia, Singapore, and Thailand. Up to 700 RBS-70s have also been produced in Pakistan under a licensed production agreement signed in 1985. Saab also produces torpedoes but these have not secured any export orders.<sup>41</sup> A substantial number of competing anti-ship missiles, torpedoes, and portable SAMs are on offer from several countries (see table 4). Many of these competitors have been sold on the export market in much larger numbers than the Swedish designs.

### *Artillery*

Artillery accounted for the sixth largest share of Swedish exports of major weapons during 2003–12. During 2003–2007 and 2008–12, artillery accounted for only 1 per cent of Swedish exports of major weapons. Sweden was the 14th largest supplier of artillery during 2008–12, accounting for 1 per cent of global exports. The largest suppliers were the UK and South Korea, which accounted for 26 per cent and 14 per cent of exports, respectively.

During 2003–12, SAK-70 Mk-2 57-mm naval guns were exported to several customers—the largest being the USA—and 172 ex-Swedish Army 120-mm mortars to Baltic states. In the subcategory of naval guns, Sweden accounted for 8 per cent of global exports in 2006–12. Its only competitors for naval guns are companies in Italy, Russia and the USA. The 57-mm naval guns from Bofors have cornered a substantial share of the market for medium naval guns.

### *Other weapons and components*

Sweden is an important supplier of components for foreign-produced weapons, many of which are not included in the SIPRI Arms Transfers Database. These include electronics, communication systems, aircraft self-defence systems (e.g. BOL), camouflage systems, the Carl Gustav recoilless rifle, the AT-4 rocket launcher, and naval combat systems. The Carl Gustav has been exported to many states in Europe as well as Singapore, Thailand, the UAE, the USA and others and has become almost the global standard.<sup>42</sup> The BOL has also been exported to several European states and the USA.<sup>43</sup> Saab's 9LV combat system has cornered a substantial share of the market for such systems. High-tensile steel and steel armour has

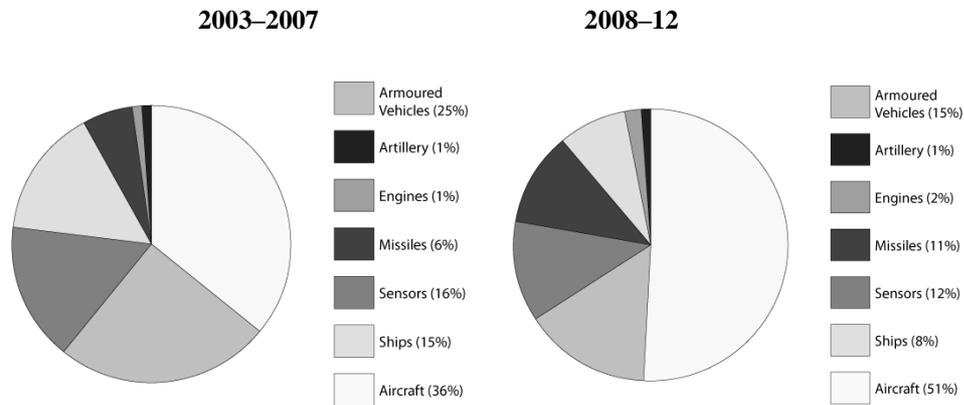
<sup>41</sup> The only export order for Saab's Torpedo-2000 was a SEK500 million acquisition by Brazil in 1999. However, the order was cancelled in 2004 due to problems of integration with the US-designed combat system on the German-designed submarines used by Brazil. *Jane's Defence Weekly*, 8 Sep. 2004, p. 7. Instead the US Mk-48 Mod-6 torpedo is being acquired. *Jane's Fighting Ships 2012-2013*, pp. 68-69. Sweden delivered a small number of Type-43 torpedoes to Pakistan between 1999 and 2004.

<sup>42</sup> Saab, 'Carl-Gustaf M3 weapon system: the best multi-purpose weapon there is', <[http://www.saabgroup.com/en/Land/Weapon-Systems/support-weapons/Carl\\_Gustaf\\_M3\\_weapon\\_system/In-use/](http://www.saabgroup.com/en/Land/Weapon-Systems/support-weapons/Carl_Gustaf_M3_weapon_system/In-use/)>.

<sup>43</sup> Saab, 'BOL advanced countermeasure dispenser: CM dispenser with superior endurance', <[http://www.saabgroup.com/en/Air/Electronic\\_Warfare\\_Solutions/Counter\\_Measure\\_Dispenser\\_Systems/BOL\\_Advanced\\_Countermeasure\\_Dispenser/In\\_use/](http://www.saabgroup.com/en/Air/Electronic_Warfare_Solutions/Counter_Measure_Dispenser_Systems/BOL_Advanced_Countermeasure_Dispenser/In_use/)>.

also been exported for use in weapon systems, including to India as part of the South African-designed MPV-I (or Casspir-6) armoured vehicle ordered for internal security roles.<sup>44</sup>

Numerous countries produce and export components and other weapons similar to those exported or offered for export by Swedish companies. The possible exception is the Carl Gustav recoilless rifle, for which competing designs exist that have not been as successful.



**Figure 11.** Swedish exports of major weapons by weapon category, 2003–12

*Note:* SIPRI identifies 11 categories of major weapons: aircraft, air defence systems, artillery, anti-submarine warfare weapons, armoured vehicles, engines, sensors, missiles, satellites, ships, and a residual ‘other’ category. Sweden did not export weapons in those categories not included in the graph.

*Source:* SIPRI Arms Transfers Database, May 2013.

<sup>44</sup> ‘Martin, G., ‘India receiving South African designed mine-protected vehicles’, DefenceWeb, 14 Sep. 2011.

**Table 4.** Selected Swedish weapons and their foreign competitors, 2003–12.

The 'Ordered' column gives the number of weapons ordered or selected and likely to be ordered in the period 2003–12; the 'Delivered' column gives the number of weapons delivered in the period 2003–12. The competitors listed are indicative but not exhaustive.

Swedish system	Ordered	Delivered	Foreign competitors	Ordered	Delivered
<i>Aircraft</i>					
Gripen	26	60	F-16 Block-50/60 (USA)	229	435
Gripen-E <sup>a</sup>	22	0	F-35 JSF (USA)	506 <sup>b</sup>	3
			F/A-18E (USA)	24	24
			F-15E/F-15SG (USA)	197 <sup>c</sup>	85
			F-15SE (USA)	0	0
			Su-30MK (Russia)	251	360
			Su-35 (Russia)	0	0
			MiG-29/SMT	123 <sup>c</sup>	63
			MiG-35 (Russia)	0	0
			PAKFA (Russia) <sup>a</sup>	144	0
			J-10 (China)	0	0
			JF-17 (China)	0	61
			Typhoon (UK/France/Italy/Spain)	84	39
			Rafale (France)	126	0
			F/A-50 (South Korea)	0	0
			KFX (South Korea) <sup>a</sup>	0	0
			Tejas (India)	0	0
			TFX (Turkey) <sup>a</sup>	0	0
Saab-2000AEW	6	4	E-2C/D (USA)	1	4
			G-550 Phalcon (USA/Israel)	8	6
			A-50EhI (Israel/Russia)	5	3
			B-737 AEW (USA)	6	10
			ZDK-03 (China)	4	2
Skeldar	0	0	Camcopter (Austria)	66	66
Apid-55	7	7	Orka (France)	0	0
			Sharc (France)	0	0
			A-160T Hummingbird (USA)	0	0
			Vantage (USA)	0	0
<i>Armoured vehicles</i>					
CV-90	191 <sup>d</sup>	487	Puma (Germany)	0	0
			BMP-3 (Russia)	212	180
			ASCOD (Austria/Spain)	0	0
			Boxer (Germany/Netherlands)	0	0
			VBCI (France)	0	0
Bv-206S	302	348	Bronco (Singapore)	125	125
BvS-10	239	325			
<i>Sensors</i>					
CEROS	50 <sup>e</sup>	19	STING (Netherlands)	43	26
			LIROD (Netherlands)	2	15
			M-2221 (Israel)	22	19
			Orion (Italy)	18	18
			TMX (Italy)	12	14

Swedish system	Ordered	Delivered	Foreign competitors	Ordered	Delivered
Giraffe	68	39	SMART (Netherlands)	56	16
			VARIANT (Netherlands)	25	16
			MW-08 (Netherlands)	21	16
			TRS-3D (Germany)	17	26
			Argos-73 (Italy)	33	33
			X-TAR (Italy)	27	27
<i>Ships</i>					
A-26 <sup>a</sup>	0	0	Type-212 (Germany)	2	2
			Type-214 (Germany)	16	6
			Type-210 (Germany) <sup>a</sup>	0	0
			Type-216 (Germany) <sup>a</sup>	0	0
			Type-219 (Germany) <sup>a</sup>	0	0
			Dolphin (Germany)	3	1
			Type-209 (Germany)	2	8
			Type-209 (South Korea)	3	0
			Scorpene (France)	10	4
			S-80 (Spain)	0	0
			Project-636 (Russia)	8	10
			Amur-1650 (Russia)	0	0
			Amur-950 (Russia) <sup>a</sup>	0	0
			Souryu (Japan)	0	0
			Type-041 (China)	6	0
<i>Missiles</i>					
RBS-15	91 <sup>f</sup>	136	Harpoon (USA)	745	359
			NSM (Norway)	50	22
			Exocet (France)	586	458
			SS-N-25 (Russia)	570	386
			C-802 (China)	450	405
			C-STAR (South Korea)	16	0
Torpedo-2000	0	0	Black Shark (Italy)	190	220
			DM2A4 (Germany)	129	99
			F21 (France/Germany) <sup>a</sup>	0	0
			White Shark (South Korea)	0	0
			ARYA (Turkey) <sup>a</sup>	0	0
			Mk-48 ADCAP (USA)	226	190
RBS-70	195	592	MISTRAL (France)	1 918	1 886
RBS-70 Bolide	550	700	FN-6 (China)	229	229
			QW-1	0	1 630
			QW-2 (China)	250	250
			QW-3 (China)	225	225
			QW-11 (China)	10+	10+
			Grom-1 (Poland)	0	0
			Grom-2 (Poland)	405	255
			Igla (Russia)	1 457	2 457
			Igla-1 (Russia)	486	1 142
			Igla-S (Russia)	5 140	5 140
			Chiron (South Korea)	118	0
Starstreak	235	145			
Stinger (USA)	1 729	2 958			

Swedish system	Ordered	Delivered	Foreign competitors	Ordered	Delivered
<i>Artillery</i>					
SAK 57mm	39	11	Compact 76mm (Italy)	12	30
			Super Rapid (Italy)	86	72
			AK-176M (Russia)	24	16
FH-77	114	0	M-777/UFH (UK/USA)	236	1 057
			SBT (Spain)	15	15
			Panther (Turkey)	72+ <sup>g</sup>	72
			WA-021 (China)	18	18
Archer	24	0	CAESAR (France)	175	106
			B-52 NORA (Serbia)	66	66
			ATMOS-2000 (Israel)	11 <sup>h</sup>	11
			G-6 (South Africa)	0	0
<i>Components</i>					
9LV			TACTICOS (Netherlands)		

<sup>a</sup> Weapons in development.

<sup>b</sup> Not including possible selection of additional up to 78 more for the UK.

<sup>c</sup> Including 62 older MiG-29 versions rebuilt to MiG-29SMT and 68 older F-15 versions rebuilt to F-15SG.

<sup>d</sup> Not including 103 CV-90 chassis without turret.

<sup>e</sup> Not including a 2012 order for an unspecified number for an undisclosed buyer.

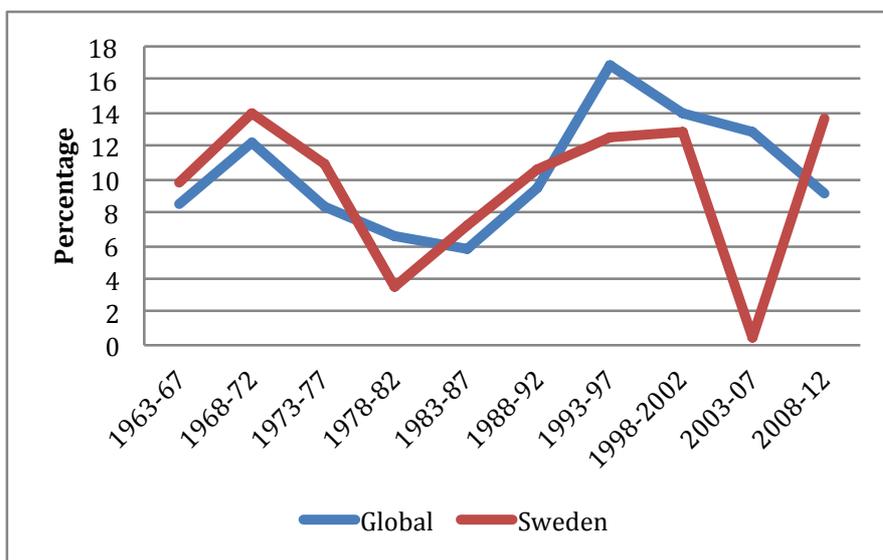
<sup>f</sup> Not including at least 2 orders in 2012 worth SEK783 million for unspecified numbers; data for the number of missiles and torpedoes ordered is often not provided by buyers or sellers and estimates are made by SIPRI.

<sup>g</sup> An unknown but probably large (up to several hundreds) number has been ordered by Pakistan.

<sup>h</sup> Not including at least 2 orders in 2011–12 worth \$54 million for unspecified but probably low numbers.

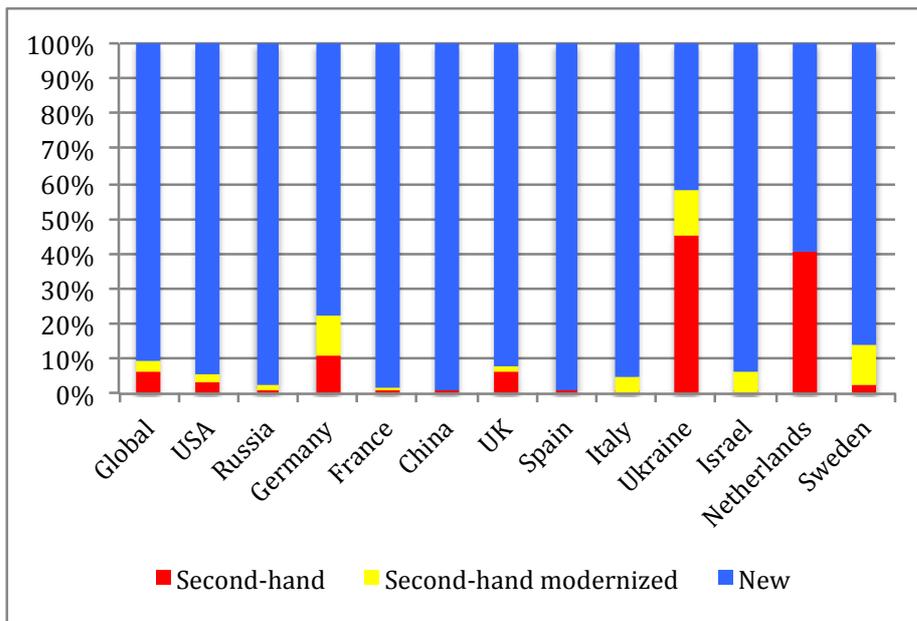
#### IV. Second-hand and surplus arms

Many retired weapons, particularly from developed countries, continue to have significant military use and are often offered for export. In many cases, these weapons are modernized by the states' domestic industry before export. The 2008 global financial crisis and consequent economic crisis have led to declining military spending in many parts of the world, and consequent reduction in the size of armed forces. This has both increased the amount of surplus arms available as well as states' interest in buying second-hand equipment. During 2008–12, second-hand weapons accounted for 9 per cent of the total volume of global transfers of major weapons, about the same as the average for the past 50 years (see figure 12). For most of the major exporters, second-hand weapons accounted only for a small part of their total exports. Only for Ukraine, the Netherlands, and to a lesser degree Germany and Sweden, were the shares of second-hand weapon exports significantly higher than the global average (see figure 13).



**Figure 12.** Deliveries of second-hand major weapons as share of total volume, 2008–12

*Source:* SIPRI Arms Transfers Database, May 2013.



**Figure 13.** Second-hand weapons as share of exports of major weapons, 12 largest exporters, 2008–12

Source: SIPRI Arms Transfers Database, May 2013.

### Second-hand and surplus arms exported by Sweden

The new Swedish defence policy from 2004 made major cuts in inventories of equipment and resulted in a large amount of surplus equipment.<sup>45</sup> Some of this surplus, like the Leopard-2 tanks and the Gripen aircraft, are still quite modern and potentially attractive to the international market. Considering the still substantial inventory of combat aircraft, ships and armoured vehicles compared to the small number of remaining active or reserve troops, it is likely that more equipment will become surplus. For example, after the recent downsizing and the abolition of conscription and the reserves, the Swedish Army is only about 5550 strong but still has some 120 tanks and 1000 armoured vehicles. Belgium and the Netherlands have larger armies (11 950 and 20 850 troops, respectively) and air forces (5450 and 8050, respectively) than Sweden. However, their inventories of major weapons are significantly smaller.<sup>46</sup>

The share of exports of major weapons from Sweden that are second-hand was broadly in line with the global average until the late 1990s (see figure 12). However, the Swedish and global trends diverged during 2003–2007 due to the fact that Sweden did not export any second-hand equipment during this time. During 2008–12, second-hand weapons accounted for 14 per cent of Swedish exports of major weapons, slightly above the global average of 9 per cent. Eighty per cent of the weapons exported were modernized in Sweden before delivery. The most important exports of second-hand major weapons in 2008–12 were two Västergötland submarines to Singapore, two Saab-340 AEW aircraft to Thailand and two

<sup>45</sup> Government Bill 2004/05:05, Report 2004/05:FöU5, Government Communication 2004/05:143; and Regeringskansliet (note 2), p.10.

<sup>46</sup> Data from reports to United Nations Register of Conventional Arms (UNROCA), <<http://www.un.org/disarmament/convarms/Register/>>; and International Institute for Strategic Studies (IISS), *The Military Balance 2013* (Routledge: London, 2013), pp. 115–16 (Belgium); pp. 158–60 (Netherlands); and pp. 178–80 (Sweden).

Saab-340AEW to the UAE. The submarines were significantly modernized before delivery. Available data indicates that only a limited number of second-hand SALW have been exported from Sweden.<sup>47</sup> However, considering the major reduction of troops, large numbers of SALW have become surplus, including the still sought-after Carl Gustav recoilless rifle.

Major weapons are not always supplied for use as complete systems. Sweden sold around 360 BMP-1 armoured vehicles, including all spare parts, to a Czech company in 2008.<sup>48</sup> At that time, the Czech Republic was itself reducing its inventory of BMP-1 and had no apparent need for additional vehicles. On the contrary, it was selling BMP-1s from its own inventory and was involved in BMP sales by other East European countries.<sup>49</sup> It is likely that the Czech Republic harvested spare parts from the Swedish BMP-1s for export. Several countries have announced plans to acquire tanks or combat aircraft of the kind that Sweden has available as surplus. They include Poland (130 Leopard-2),<sup>50</sup> Chile (100 Leopard-2A5), Peru (120–170 tanks),<sup>51</sup> Croatia (6–12 combat aircraft),<sup>52</sup> Bulgaria (8–12 combat aircraft),<sup>53</sup> and the Philippines (24 combat aircraft).<sup>54</sup> However, any exports of second-hand weapons from Sweden would face strong competition from similar weapons offered by other European countries and the USA.

<sup>47</sup> Sweden's reports to the United Nations Register of Conventional Arms (UNROCA) for 2009 and 2011 are available at United Nations, 'The global reported arms trade: the UN Register of Conventional Arms', <<http://www.un-register.org/ReportingStatus/Nationalreports.aspx>>.

<sup>48</sup> Försvarets materielverk (FMV), 'Avslutade försäljningar/previous sales, 7 Sep. 2009', <<http://www.fmv.se>>. The BMP-1 armoured vehicles were originally acquired from the East German equipment inherited by unified Germany and were designated Pbv-501 in Swedish use.

<sup>49</sup> Sales of BMP-1 armoured vehicles and versions using the same chassis and other components from the Czech Republic included 15 to Yemen in 2010 and 20 to Equatorial Guinea in 2007. SIPRI Arms Transfers Database, May 2013.

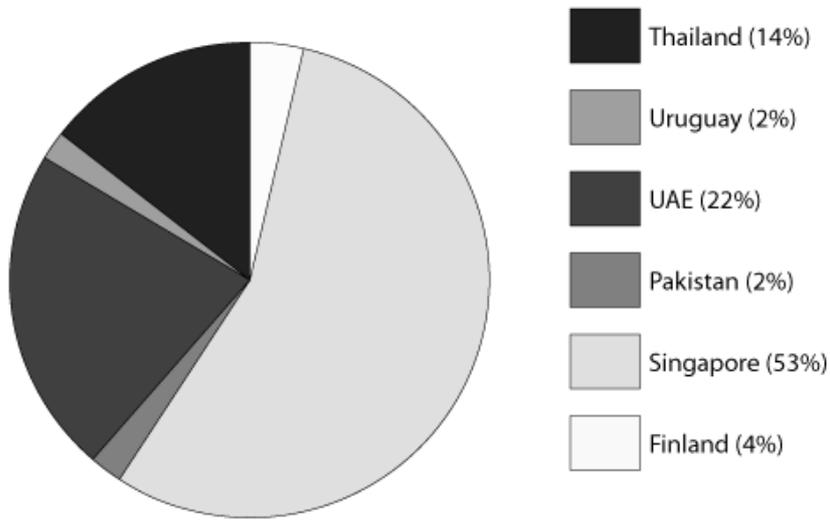
<sup>50</sup> 'Minister Skrzypczak precyzuje—Leopardy 2A4 lub A5' [Minister clarifies Skrzypczak—Leopards 2A4 or A5], 4 Mar. 2013, <<http://dziennikzbrojny.pl/aktualnosci/news,1,3584,aktualnosci-z-polski,minister-skrzypczak-precyzuje-leopardy-2a4-lub-a5>>.

<sup>51</sup> 'Russia offers T-90S main battle tank to Peruvian Army', army-technology.com, 17 May 2013, <<http://www.army-technology.com/news/newsrussia-t90s-battle-tank-peruvian-army>>.

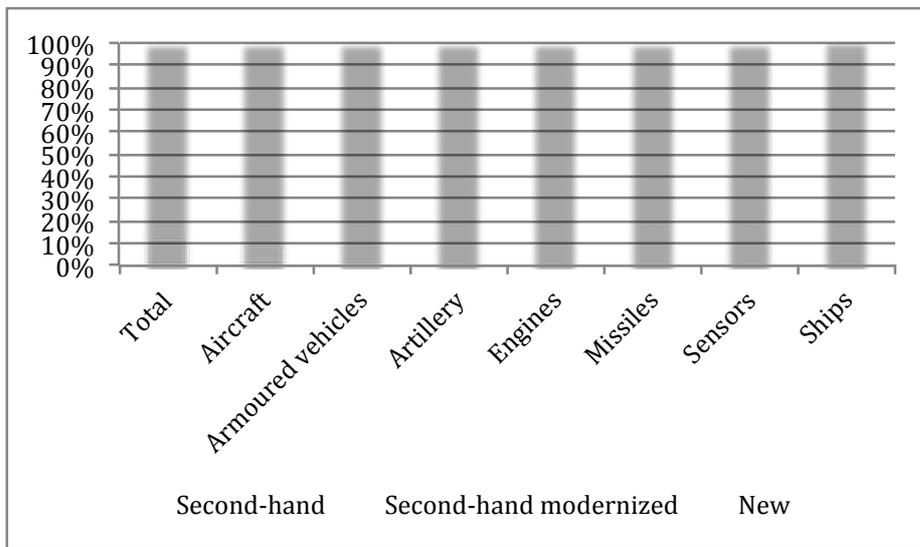
<sup>52</sup> 'Croatian Air Force mulls Hungary's offer of 6 leased Gripen JAS 39 fighters', FBIS, 5 Jan. 2012 (Zagreb Jutarnji.hr); and Bell, M., 'Saab plans \$2.5bn offset for Croatia Gripen del', *Jane's Defence Weekly*, 2 Nov. 2011.

<sup>53</sup> 'Bulgarian Govt to buy third-hand fighter jets from Portugal: report', novinite.com, 3 Jan. 2013, <[novinite.com/view\\_news.php?id=146529](http://novinite.com/view_news.php?id=146529)>.

<sup>54</sup> 'Philippines may buy non-US fighters', *Asian Defence Journal*, June 2012, p. 40.



**Figure 14.** Recipients of second-hand weapons from Sweden, 2008–12  
*Source:* SIPRI Arms Transfers Database, May 2013.

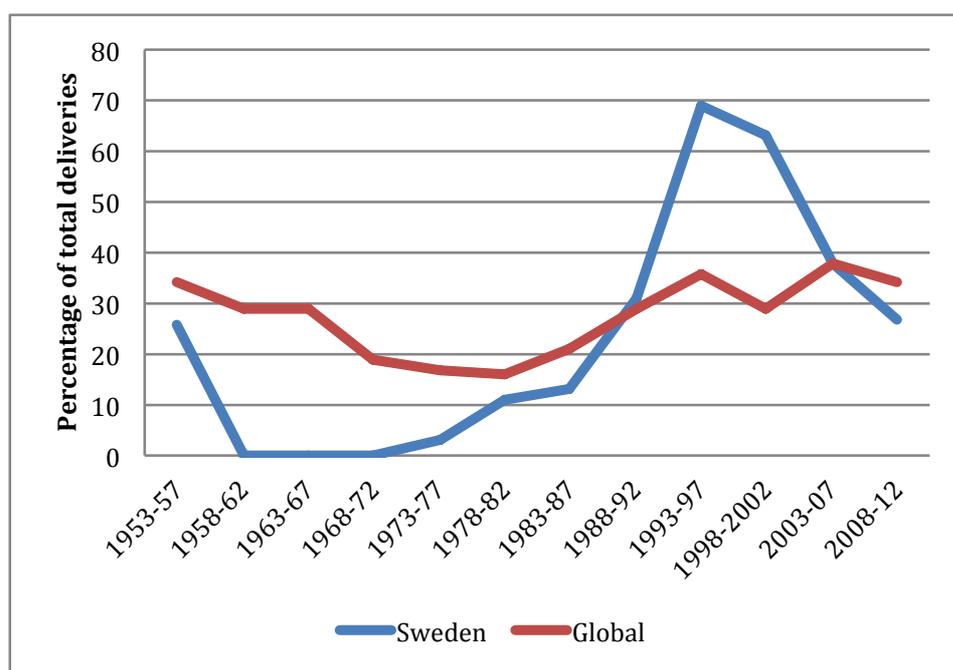


**Figure 15.** Deliveries of second-hand major weapons from Sweden, by weapon category, 2008–12  
*Source:* SIPRI Arms Transfers Database, May 2013.

## V. Licensed production, co-production and technology transfers

Arms importing countries often demand substantial involvement of their own industry in the production and maintenance of acquired weapons. Via such agreements importing states seek to use arms imports as a means of building up their arms industries, both for domestic procurement and exports. For example, Brazil is actively seeking to leverage advantages for its domestic arms industry via the inclusion of extensive technology transfer agreements in a series of large-scale arms import deals that it has signed in recent years.<sup>55</sup> In many cases, such involvement is a *sine qua non* for any contract and the demand is in some cases a legal obligation for any large acquisition of foreign weapons. For example, under Indian law, all arms imports with a contract value of more than INR3 billion (approx. \$65 million) require the involvement of Indian industry in the production of the equipment.<sup>56</sup>

Most exporters have signed arms deals with various countries involving licensed production and technology transfers. About 34 per cent of the volume of deliveries of new-produced major weapons in 2008–12 is licensed production, which is defined by SIPRI as transfers in which the agreement includes involvement of the recipient country in the production of the weapon (see figure 16). Such involvement may vary from production of the complete weapon by the recipient country to production of a limited set of simple components by the recipient country. For exporters, licensed production agreements may mean losing control over any technologies involved and creating increased competition with new producers. They can also involve losing control over the future re-export of technology by countries that may have less restrictive arms export controls.



**Figure 16.** Share of global and Swedish exports of major weapons involving licensed production

Source: SIPRI Arms Transfers Database, May 2013

<sup>55</sup> Brazilian Ministry of Defence (MOD), *National Strategy of Defence* (Brazilian MOD: Brasília, 8 Dec. 2008).

<sup>56</sup> Jackson, S. T. and Grinbaum, M., 'The Indian arms-production and military services industry', *SIPRI Yearbook 2012: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2012), p. 243.

## Deals involving Swedish companies

Swedish weapons have been produced under licence throughout the past 100 years or more. Probably the most famous example is the 40-mm anti-aircraft gun designed by Bofors in the 1930s and subsequently produced in huge numbers during World War II as the standard light anti-aircraft gun for most of the Allied countries. In the post-war period the Bofors 40-mm gun continued to be produced in several countries, as was the Carl Gustav recoilless rifle. However, after licensed production of 152-mm naval guns in the Netherlands and 105-mm field guns in Switzerland ended in 1953 there was no licensed production of Swedish major weapons until 1973, when Pakistan began production of the MFI-17 trainer aircraft. Until the 1980s, licensed production did not account for a significant part of Swedish exports of major weapons or reach a level comparable with the global average (see figure 16). The high percentages reached during 1993–2002 were mainly due to the licensed production of six Collins submarines in Australia. However, licensed production has remained a feature in Swedish exports of major weapons also for orders placed with Swedish companies in recent years (see table 5).

Licensed production agreements may have a long life. For example, the Pakistan Aeronautical Complex (PAC) in Pakistan produces the Swedish-designed MFI-17 (also called Saab Supporter) basic trainer and utility aircraft under a licence agreement dating from 1974. In 1981 PAC acquired the sole production rights for the MFI-17, still under a Swedish export licence. In 2011 the Swedish Government extended Saab's licence to support MFI-17 production in Pakistan.<sup>57</sup> By 2012 around 368 MFI-17s had been produced for the Pakistani Army and Air Force under the Pakistani designations Mushskak and Super Mushshak and production continued in 2013. Pakistan has also delivered the MFI-17 to Saudi Arabia (20 in 2005), Iran (25 in 1989–1991 and 1 in 2002) and Syria (6 in 1994).<sup>58</sup> Another licensed production deal with a long lifespan is the Indian order for 410 FH-77 155-mm guns and associated ammunition from Bofors in 1986. The original order included an agreement for full technology transfers and seemingly unlimited further production in India.<sup>59</sup> While the 410 guns were delivered by 1991, the agreement for Indian production remained dormant until 2012 when India decided to acquire an initial 114 FH-77B (in the improved 45-calibre version; the earlier order was for the 39-calibre version).<sup>60</sup> There is a requirement for hundreds more.<sup>61</sup> In both the MFI-17 and the FH-77 cases, Swedish industry is no longer involved in the production.

In its efforts to win export orders for Gripen combat aircraft, Saab has offered generous technology transfer packages to Brazil and India. In 2009 Saab offered the Gripen-NG (now called the Gripen-E) to Brazil, in response to its planned acquisition of 36 combat aircraft. The package included (a) full access to and complete involvement in the Gripen NG development programme; (b) complete technology transfer through joint development of the Gripen NG, giving national autonomy and independence in the design, development,

<sup>57</sup> See Regeringskansliet, *Strategisk exportkontroll 2011*, Regeringens skrivelse 2011/12:114, 15 Mar. 2012, p. 62.

<sup>58</sup> SIPRI Arms Transfers Database, May 2013.

<sup>59</sup> 'Production of howitzers by Ordnance Factory', Press Information Bureau, Government of India, 16 May 2012, <<http://pib.nic.in/newsite/erelease.aspx?relid=83930>>; Bedi, R., 'India to press ahead with Bofors howitzer licence build', *Jane's Defence Weekly*, 4 Apr. 2012, p. 21; and Pandit, R., 'Deis Bofors to plug gap in Army's long-range firepower', *Times of India*, 7 Mar. 2013.

<sup>60</sup> 'Test of guns', Press Information Bureau, Government of India, 29 Apr. 2013, <<http://pib.nic.in/newsite/erelease.aspx?relid=95272>>.

<sup>61</sup> Pandit (note 59).

manufacture and through-life support of Gripen NG and future generation fighters; (c) independence in terms of choice of weapons and systems integration; (d) production in Brazil of up to 80 per cent of Gripen NG airframes; (e) creation of a full Gripen NG assembly line in Brazil; and (f) full maintenance capability in Brazil for the Gripen NG engine.<sup>62</sup>

A similar offer was made to India in response to its planned acquisition of 126 combat aircraft.<sup>63</sup> In theory, these deals would allow Brazil and India to use the technology for any future development of an indigenous combat aircraft without involving Saab or Swedish regulations on export and re-export of Swedish technology. Any aircraft produced might even become competitors for the Gripen-E on the international market. In practice, such independence may not be reached.

Licensed production agreements may also involve participating in the design of new weapons by foreign companies or governments. In 2012 Saab signed an agreement with Turkish Aerospace Industries (TAI) to provide technical support in the design of the TFX (or F-X) combat aircraft and the T-X advanced trainer aircraft. The TFX is planned to replace Turkish F-16 combat aircraft from 2013.<sup>64</sup> It is noteworthy that the Gripen-E is likewise marketed to other countries as a replacement for the F-16. Similarly, TKMS AB and FMV may be involved in the design of a new Australian submarine (see above) that could become a competitor on the international market.

**Table 5.** Orders of major conventional weapons from Swedish companies involving licensed production, 2008–12

System	Buyer	No.	Value	Comment
Gripen-E	Switzerland	22	USD3.2 b.	Selected 2012; production of components in Switzerland (also for Gripen-E for Sweden and export).
CV-9030	Norway	110	NOK10 b.	Ordered 2012; production of components as part of 100% offsets.
BvS-10	UK	14	GBP14 m.	Ordered 2008; armour produced in UK.
BvS-10	UK	9	–	Ordered 2008; armour produced in UK.
BvS-10	UK	12	–	Ordered 2008; armour produced in UK.
BvS-10	UK	24	GBP24 m.	Ordered 2009; armour produced in UK.
Archer	Norway	24	GBP135 m.	Ordered 2010 (in cooperation with Sweden); production of components in Norway – also for 24 ordered by Sweden.
Ghannatha	UAE	12	–	Ordered 2009; 9 produced in UAE.
Arthur	South Korea	(10)	–	Ordered 2011; produced in South Korea.
FH-77B	India	144	–	Selected 2012; 100% produced in India under agreement dating 1987.

*Note:* Figures in brackets ( ) are estimates.

*Source:* SIPRI Arms Transfers Database, May 2013.

<sup>62</sup> Saab, 'Enhanced Gripen proposal to Brazil', Press release, 2 Oct. 2009, <<http://www.saabgroup.com/en/About-Saab/Newsroom/Press-releases--News/2009---10/Enhanced-Gripen-proposal-to-Brazil/>>.

<sup>63</sup> See Saab, 'Gripen for India: strategic leverage', <<http://www.saabgroup.com/Air/Gripen-Fighter-System/Gripen-for-India/Strategic-leverage/>>. In late 2012 the French Rafale was selected for this requirement but a final contract had not yet been signed by Oct. 2013.

<sup>64</sup> Ozbek, T., 'Turkish TFX fighter concept revealed at IDEF', Flightglobal.com, 9 May 2013, <<http://www.flightglobal.com>>; and Sariibrahimoglu, L., 'Turkey nears completion of F-X fighter design', *Jane's Defence Weekly*, 10 Apr. 2013, p. 6.