

Crisis in Korea: America, China, and the Risk of War

STATISTICAL APPENDIX

Table A1: South Korea in North Korea's trade, 1989-2009

	Exports			Imports		
	South Korea \$m	total	SK share %	South Korea \$m	Total	SK share %
1989	18	883	2.0	1	1,252	0.1
1990	12	936	1.3	1	1,327	0.1
1991	106	794	13.4	5	1,509	0.3
1992	163	1,009	16.2	10	1,405	0.7
1993	178	1,065	16.7	9	1,537	0.6
1994	178	1,027	17.3	19	1,287	1.5
1995	223	1,052	21.2	64	1,613	4.0
1996	182	1,201	15.2	70	2,055	3.4
1997	193	1,077	17.9	115	1,576	7.3
1998	92	973	9.5	130	1,301	10.0
1999	122	906	13.5	212	1,436	14.8
2000	152	1,129	13.5	273	2,377	11.5
2001	176	1,135	15.5	227	3,521	6.4
2002	272	1,232	22.1	370	2,636	14.0
2003	289	1,207	23.9	435	2,663	16.3
2004	258	1,464	17.6	439	3,067	14.3
2005	340	1,571	21.6	715	3,830	18.7
2006	520	2,109	24.7	830	4,280	19.4
2007	765	2,499	30.6	1,032	5,506	18.7
2008	932	3,069	30.4	888	7,275	12.2
2009	934	2,769	33.7	745	5,860	12.7

Source: "Direction of Trade Statistics." *International Monetary Fund*, September 2010.

Table A2 North Korea's imports 1993-2009

A: Major source countries, by value

\$millions

	World	China	Algeria	India	Japan	Russia	S Korea
1993	1,528	663	-	21	243	185	9
1994	1,268	467	7	41	188	57	19
1995	1,549	535	-	52	282	77	64
1996	1,985	547	4	26	249	577	70
1997	1,461	588	-	35	197	81	115
1998	1,171	392	0	26	193	59	130
1999	1,224	362	-	61	161	53	212
2000	2,104	496	91	159	225	42	273
2001	3,294	628	98	176	1,170	64	227
2002	2,266	514	116	195	146	54	370
2003	2,228	691	141	181	100	122	435
2004	2,628	876	43	144	98	225	439
2005	3,115	1,193	498	79	69	251	715
2006	3,450	1,355	692	102	48	209	830
2007	4,474	1,532	881	731	10	139	1,032
2008	6,387	2,237	1,648	958	8	107	888
2009	5,115	2,080	1,148	838	3	47	745

Source: "Direction of Trade Statistics." *International Monetary Fund*, September 2010.

B: Major source countries, by share (%)

	World	China	Algeria	India	Japan	Russia	S Korea
1993	100	43.4	0.0	1.3	15.9	12.1	0.6
1994	100	36.8	0.6	3.2	14.8	4.5	1.5
1995	100	34.5	0.0	3.3	18.2	5.0	4.1
1996	100	27.5	0.2	1.3	12.5	29.1	3.5
1997	100	40.2	0.0	2.4	13.5	5.5	7.9
1998	100	33.5	0.0	2.2	16.5	5.0	11.1
1999	100	29.5	0.0	5.0	13.2	4.4	17.3
2000	100	23.6	4.3	7.6	10.7	2.0	13.0
2001	100	19.1	3.0	5.3	35.5	1.9	6.9
2002	100	22.7	5.1	8.6	6.4	2.4	16.3
2003	100	31.0	6.3	8.1	4.5	5.5	19.5
2004	100	33.3	1.6	5.5	3.7	8.6	16.7
2005	100	38.3	16.0	2.5	2.2	8.1	23.0
2006	100	39.3	20.0	3.0	1.4	6.1	24.1
2007	100	34.2	19.7	16.3	0.2	3.1	23.1
2008	100	35.0	25.8	15.0	0.1	1.7	13.9
2009	100	40.7	22.4	16.4	0.1	0.9	14.6

Source: "Direction of Trade Statistics." *International Monetary Fund*, September 2010.

Table A3: North Korea's main export markets, 1993-2009

A: by value (\$M)

	World	China	Japan	Brazil	India	Venezuela	S Korea
1993	887	269	222	1	8	0	178
1994	849	181	297	0	13	-	178
1995	829	58	306	11	67	0	223
1996	1,019	62	265	3	23	3	182
1997	884	111	269	32	31	0	193
1998	881	46	197	43	75	0	92
1999	784	38	182	43	32	-	122
2000	977	34	228	133	17	3	152
2001	959	152	199	62	19	3	176
2002	960	246	209	73	4	1	272
2003	918	360	158	66	2	0	289
2004	1,206	503	148	70	3	2	258
2005	1,231	451	120	72	41	6	340
2006	1,589	425	67	92	348	2	520
2007	1,734	529	-	109	222	250	765
2008	2,137	686	-	175	72	315	932
2009	1,835	718	-	99	63	296	934

Source: "Direction of Trade Statistics." *International Monetary Fund*, September 2010.

B: by share (%)

	World	China	Japan	Brazil	India	Venezuela	S Korea
1993	100	30.3	25.0	0.1	0.9	0.0	20.1
1994	100	21.3	35.0	0.0	1.5	0.0	21.0
1995	100	7.0	36.9	1.3	8.1	0.0	26.9
1996	100	6.1	26.0	0.3	2.2	0.3	17.9
1997	100	12.5	30.4	3.6	3.5	0.0	21.8
1998	100	5.3	22.4	4.8	8.5	0.0	10.4
1999	100	4.8	23.2	5.5	4.1	0.0	15.6
2000	100	3.5	23.4	13.6	1.7	0.3	15.6
2001	100	15.8	20.8	6.5	1.9	0.3	18.4
2002	100	25.6	21.8	7.6	0.4	0.1	28.3
2003	100	39.2	17.2	7.1	0.2	0.0	31.5
2004	100	41.7	12.3	5.8	0.2	0.2	21.4
2005	100	36.7	9.8	5.8	3.3	0.5	27.6
2006	100	26.8	4.2	5.8	21.9	0.2	32.7
2007	100	30.5	0.0	6.3	12.8	14.4	44.1
2008	100	32.1	0.0	8.2	3.4	14.8	43.6
2009	100	39.1	0.0	5.4	3.5	16.1	50.9

Source: "Direction of Trade Statistics." *International Monetary Fund*, September 2010.

Table A4: Share of world exports, 1948-2009, US, and groups

	US	Inner	BRIC		US	Inner	BRIC		US	Inner	BRIC
1948	21.8	3.7	7.4	1969	13.7	18.1	6.6	1990	11.4	28.3	3.2
1949	20.1	4.4	6.2	1970	13.6	18.9	6.3	1991	12.0	29.1	3.4
1950	16.6	7.3	7.8	1971	12.5	19.9	6.1	1992	11.9	29.5	3.7
1951	17.9	8.7	7.6	1972	11.9	20.5	6.1	1993	12.3	29.6	4.0
1952	18.5	8.6	7.6	1973	12.3	20.8	6.3	1994	11.8	29.2	5.9
1953	18.8	8.6	7.9	1974	11.8	19.8	5.5	1995	11.3	29.0	5.9
1954	17.4	9.5	8.2	1975	12.4	19.1	6.2	1996	11.6	27.5	5.9
1955	16.4	10.3	7.9	1976	11.8	20.2	6.0	1997	12.3	26.9	6.4
1956	18.2	11.1	7.6	1977	10.9	21.0	6.3	1998	12.4	26.6	6.2
1957	18.3	11.6	8.2	1978	11.2	22.0	6.2	1999	12.2	26.6	6.2
1958	16.3	12.2	8.6	1979	11.2	20.2	6.1	2000	12.1	26.3	7.0
1959	15.0	12.8	9.5	1980	11.1	19.7	6.1	2001	11.8	25.3	7.6
1960	15.8	13.5	8.3	1981	11.9	20.6	6.6	2002	10.7	25.5	8.4
1961	15.5	13.9	7.9	1982	11.5	21.3	7.4	2003	9.6	25.8	9.3
1962	15.2	14.2	8.1	1983	11.1	22.2	7.8	2004	8.8	25.8	10.3
1963	14.9	14.3	7.9	1984	11.5	23.2	7.9	2005	8.6	24.5	11.7
1964	15.1	14.4	7.4	1985	11.2	24.3	7.6	2006	8.5	23.9	12.6
1965	14.5	15.3	7.4	1986	10.6	27.5	7.5	2007	8.2	23.6	13.5
1966	14.6	15.9	7.3	1987	10.1	28.0	7.3	2008	8.0	22.4	14.2
1967	14.5	16.4	7.0	1988	11.2	28.3	7.1	2009	8.5	23.0	14.6
1968	14.3	17.4	6.9	1989	11.7	27.8	6.8				

Notes

Inner: Germany, Japan, South Korea, Hong Kong, Taiwan, Singapore

BRIC: Brazil, 'Russia', India, China

No data available:

China: 1949

South Korea: 1950-51

Soviet Union/Russian Federation: 1990-93

Because of geopolitical changes over this long period, such as the disappearance of the German Democratic Republic and the Soviet Union, and technical matters such as re-exports, this data is not precise. It should be viewed as high-level overview of change in share of world exports

Source: WTO Trade Statistics Database, downloaded 3 January 2011

Table A5: Provenance of patents filed in the US, 1996-2002

<i>year</i>	US	Foreign	<i>year</i>	US	Foreign
1996	56	44	2003	52	48
1997	55	45	2004	51	49
1998	54	46	2005	52	48
1999	55	45	2006	52	48
2000	54	46	2007	51	49
2001	53	47	2008	49	51
2002	52	48	2009	49	51

Source: "Patents By Country, State, and Year - Utility Patents (December 2009)." US Patent and Trademark Office, 21 April 2010.

Table A6: Top foreign country registrants of US patents*Ranked by change, 2000-2009*

	Pre 1996	2000	2009	All Years	rank	change 2000-9
China	528	119	1,655	6,817	19	1,291
India	493	131	679	4,759	22	418
Korea, South	4,649	3,314	8,762	66,729	7	164
Singapore	301	218	436	4,533	23	100
Israel	4,861	783	1,404	18,209	13	79
Australia	9,010	705	1,221	21,693	12	73
Hong Kong	845	179	305	4,110	24	70
Taiwan	9,245	4,667	6,642	77,285	6	42
Finland	4,844	618	864	15,134	16	40
Spain	2,797	270	317	6,472	20	17
Japan	313,267	31,295	35,501	761,367	1	13
Canada	43,077	3,419	3,655	87,976	5	7
Norway	2,890	248	265	6,102	21	7
Netherlands	22,611	1,241	1,288	39,435	11	4
Austria	8,656	505	503	15,480	15	0
Switzerland	38,555	1,322	1,208	55,557	8	-9
Denmark	5,026	436	390	10,729	17	-11
Germany	188,840	10,235	9,000	322,077	2	-12
United Kingdom	85,906	3,669	3,175	132,937	3	-13
Belgium	8,628	694	594	17,108	14	-14
South Africa	2,614	111	93	4,069	25	-16
France	72,160	3,819	3,140	120,273	4	-18
Italy	26,916	1,714	1,346	47,692	9	-21
Sweden	23,939	1,577	1,014	41,591	10	-36
U.S.S.R.	6,963	1	-	6,994	18	-100

Source: "Patents By Country, State, and Year - Utility Patents (December 2009)." US Patent and Trademark Office, 21 April 2010.

Notes:

Excluding countries whose total registrations was below 4,000

Registrations credited to USSR continue until 2002

Table A7: Patents in the two Koreas, 1963-200

Period	DPRK	ROK	Period	DPRK	ROK
1963-74	na	20,559	1989	13	23,315
1975	1,159	2,914	1990	38	25,820
1976	na	3,261	1991	8	28,133
1977	1,286	3,139	1992	8	31,073
1978	1,986	4,015	1993- 2004	na	1,071,113
1979	2,312	4,722	2005	5,927	160,921
1980-85	na	41,909	2006	6,406	166,189
1986	8	12,755	2007	6,922	172,469
1987	32	17,057	2008	na	170,632
1988	13	20,051	sum	26,118	1,980,047

Note:

ROK No data shown for 1964, 1967, or prior to 1963

DPRK Data only shown for specified years

Source: "Patent applications by patent office (1883-2008)." World Intellectual Property Organization 2011.

Table A 8: Military expenditure, 1988-2009

US\$ billion in constant 2000 dollars

(current values also given for 2009)

	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>
USA	533.6	528.1	504.5	443.1	468.2	443.6
Korea, South	13.1	13.5	13.8	14.2	15.0	15.7
Japan	40.3	41.6	42.8	43.8	44.9	45.4
France	71.0	71.9	71.6	72.0	69.8	69.0
Germany	69.4	69.2	72.9	69.0	65.6	59.0
UK	71.3	70.2	68.7	70.5	66.3	63.8
Israel	12.3	10.4	10.7	14.2	11.3	12.0
Saudi Arabia	17.8	16.9	21.2	20.2	19.0	20.1
Iran	1.5	1.9	2.1	2.0	1.8	2.5
China	na	16.3	17.5	18.2	22.0	20.4
Russia	339.1	314.4	266.0	na	66.0	58.3
sum	1,477.1	1,449.0	1,394.0	1,061.2	1,135.5	1,097.5
	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>
USA	416.6	394.0	372.6	370.6	362.3	363.2
Korea, South	16.2	17.0	17.9	18.4	17.7	17.2
Japan	45.6	46.1	47.0	47.2	47.1	47.2
France	69.4	65.9	64.3	64.6	62.9	63.4
Germany	55.0	54.1	53.0	51.1	51.3	52.3
UK	61.8	57.5	57.2	54.6	54.0	53.8
Israel	11.1	10.8	11.6	11.6	12.1	12.5
Saudi Arabia	17.4	15.3	15.3	20.8	24.0	21.3
Iran	3.8	2.7	3.1	3.4	3.6	5.0
China	19.4	19.9	22.0	22.6	25.9	29.4
Russia	56.8	33.7	29.7	33.0	21.0	21.8
sum	1,062.4	1,006.9	986.6	1,004.9	991.5	1,010.1
	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
USA	377.2	380.3	427.0	486.0	529.7	554.9
Korea, South	18.3	18.8	19.4	20.0	20.9	22.6
Japan	47.5	48.0	48.5	48.6	48.2	47.9
France	62.7	62.5	63.8	65.7	67.5	66.1

Germany	51.5	50.6	50.8	50.1	48.6	47.8
UK	54.1	55.9	59.3	62.6	62.4	62.4
Israel	12.9	13.4	14.9	14.0	13.4	13.7
Saudi Arabia	23.5	25.1	22.0	22.2	24.6	29.7
Iran	7.4	8.2	6.1	7.2	9.1	11.3
China	31.2	38.4	44.4	48.5	53.1	59.0
Russia	29.7	33.0	36.6	39.0	40.6	44.2
sum	1,048.4	1,071.5	1,137.5	1,211.6	1,277.0	1,329.8
	2006	2007	2008	2009	2009	
					(<i>cur</i>)	
USA	563.5	578.3	616.1	663.3	661.0	
Korea, South	23.4	24.5	26.1	27.1	24.1	
Japan	47.3	47.1	46.3	46.9	51.0	
France	66.4	66.7	66.0	67.3	63.9	
Germany	46.7	46.7	46.8	48.0	45.6	
UK	62.3	63.0	65.6	69.3	58.3	
Israel	14.6	14.4	14.1	14.3	13.5	
Saudi Arabia	33.8	38.9	38.2	39.3	41.3	
Iran	12.2	10.2	9.2	na	na	
China	68.8	77.9	86.2	98.8	100.4	
Russia	48.4	52.5	58.3	61.0	53.3	
sum	1,371.9	1,416.9	1,467.4	1,539.6	1,497.9	

Source: "SIPRI Military Expenditure Database." Stockholm International Peace Research Institute, 2010. Downloaded 29 December 2010

Notes; No data for China in 1988, Iran in 2009

Sum is the arithmetical sum of the data given for the 164 countries. Coverage is patchy (no data for DPRK for instance)

Table A 9: Military expenditure as % of GDP, US and selected countries and groups, 1988-2009

Country Name	1988	1990	2000	2009
United States	5.8	5.3	3.1	4.6
China	na	2.7	1.8	2.0
Korea, Rep.	4.3	3.8	2.6	2.9
High income: OECD	3.5	3.2	2.2	2.8
Japan	1.0	1.0	1.0	1.0
Germany	2.6	2.5	1.5	1.4

Source: World Development Indicators 2010. Washington: World Bank, 2010.

Downloaded 4 January 2011

Original source: Stockholm International Peace Research Institute (SIPRI), Yearbook: Armaments, Disarmament and International Security.

Table A10: Arms imports, 2000-2008

Top 20 importers plus New Zealand and DPRK

Sum of arm imports over period in constant 1990 US\$ millions

Area/Country	rank	\$ millions	%
World		187,588	100
China	1	23,165	12.3
India	2	14,571	7.8
Korea, Rep.	3	9,682	5.2
Greece	4	8,980	4.8
United Arab Emirates	5	8,505	4.5
Turkey	6	6,179	3.3
Egypt.	7	5,918	3.2
Australia	8	5,827	3.1
Israel	9	5,631	3.0
United Kingdom	10	5,488	2.9
United States	11	5,004	2.7
Pakistan	12	4,352	2.3
Algeria	13	4,082	2.2
Japan	14	3,980	2.1
Singapore	15	3,802	2.0
Poland	16	3,282	1.7
Chile	17	3,229	1.7
Canada	18	3,076	1.6
Italy	19	2,981	1.6
Iran	20	2,684	1.4
New Zealand	68	308	0.2
Korea, Dem. Rep.	90	98	0.1

Source: World Development Indicators 2010. Washington: World Bank, 2010.

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Original data from Stockholm International Peace Research Institute (SIPRI), Yearbook: Armaments, Disarmament and International Security

Table A11 Arms exports, 1960-2008

Top 20 exporters

1990 constant \$

Country Name	rank	\$ billion	%
United States	1	506.8	54.1
France	2	98.4	10.5
United Kingdom	3	81.8	8.7
Russian Federation	4	73.7	7.9
China	5	39.5	4.2
Italy	6	29.3	3.1
Netherlands	7	17.7	1.9
Sweden	8	10.3	1.1
Israel	9	8.5	0.9
Canada	10	8.1	0.9
Poland	11	7.2	0.8
Ukraine	12	6.8	0.7
Spain	13	6.7	0.7
Switzerland	14	5.4	0.6
Brazil	15	2.8	0.3
Norway	16	2.5	0.3
Korea, Dem. Rep.	17	2.3	0.2
Belarus	18	2.0	0.2
Korea, Rep.	19	2.0	0.2
Denmark	20	1.7	0.2

Source: World Development Indicators 2010. Washington: World Bank, 2010.

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Original data from Stockholm International Peace Research Institute (SIPRI), Yearbook: Armaments, Disarmament and International Security

Table A 12: US Foreign Military Sales Agreements, 2000-9

Fiscal year	\$b	Fiscal year	\$b
2000	10.7	2005	9.5
2001	12.4	2006	17.9
2002	11.8	2007	18.4
2003	12.7	2008	28.8
2004	13.4	2009	30.7

Source: "Historical Facts Book." Department of Defense Security Cooperation Agency, 30 September 2009.

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Table A 13: Allocation of US discretionary budget, 2009

Category and Program	\$b	%
National defense:	656.8	53.1
International affairs	43.1	3.5
Total General science, space and technology	29.4	2.4
Energy	5.8	0.5
Natural resources and environment	35.1	2.8
Agriculture	6.2	0.5
Commerce and housing credit	7.8	0.6
Transportation	82.3	6.6
Community and regional development	25.1	2.0
Education, training, employment and social services	101.5	8.2
Health	56.7	4.6
Medicare	5.0	0.4
Income security:	63.5	5.1
Social security	5.2	0.4
Veterans benefits and services	46.8	3.8
Administration of justice	49.7	4.0
General government	17.7	1.4
Total outlays for discretionary programs	1,237.7	100.0
subtotals		
Defence	656.8	53.1
Other	581.0	46.9

Source: Office of Management and Budget. "Budget of the United States Government: Historical Tables Fiscal Year 2011." US Government, <http://www.gpoaccess.gov/usbudget/fy11/hist.html>.

Table A14: Military expenditure by country, 2009

Country	rank	US billion	%	cum US ally
USA	1	661.0	44.1	44.1
China,	2	100.4	6.7	
France	3	63.9	4.3	48.4
UK	4	58.3	3.9	52.3
Russia	5	53.3	3.6	
Japan	6	51.0	3.4	55.7
Germany	7	45.6	3.0	58.7
Saudi Arabia	8	41.3	2.8	61.5
India	9	36.3	2.4	63.9
Italy	10	35.8	2.4	66.3
Brazil	11	26.1	1.7	
Korea, South	12	24.1	1.6	67.9
Canada	13	19.2	1.3	69.2
Australia	14	19.0	1.3	70.5
Spain	15	18.3	1.2	71.7
Turkey	16	17.0	1.1	
Israel	17	13.5	0.9	72.6
Greece	18	13.2	0.9	73.5
Netherlands	19	12.1	0.8	74.3
Colombia	20	9.5	0.6	74.9

Taiwan	21	9.3	0.6	75.5
Rest of world		169.6	11.3	na
Total 119 countries		1,497.9	100	

Source: Derived from

SIPRI Military Expenditure Database. Stockholm International Peace Research Institute, 2010.

<http://milexdata.sipri.org/files/?file=SIPRI+milex+data+1988-2009.xls>

Downloaded 29 December 2010

Note: The final column, 'cum US ally' gives a cumulative percentage for the United States and countries which might be considered allies.