World Military Expenditure, Turkey and Greece

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Abstract

Purpose: This article looks at world military expenditure. The emphasis of the study is placed on examining Turkey and Greece in relation to military expenditure as well as military expenditure as percentage of gross domestic product between 1988 and 2012. The reasons that influenced the increase or decrease of military expenditure of both countries are highlighted.

Design/methodology/approach: The military expenditures of Africa, America, Asia and Oceania, Europe and Middle East are studied covering the period of 1988-2012. Moreover, the world's top 15 military spenders are examined in 2013.

Findings: This study showed that there is an increase of military expenditure for Turkey between 1988 and 2012. Moreover, it found that the military expenditures of Greece and Turkey will keep increasing in the period 2013-2022.

Originality/value: The forecast of military expenditure of Africa, America, Asia and Oceania, Europe, Middle East and the World is looked at for the years 2013-2022. In addition, forecast of military expenditure and military expenditure as percentage of gross domestic product of Turkey and Greece are studied between 2013 and 2022.

Keywords: Military Expenditure, Gross Domestic Product, Econometric Analysis, Forecast, Turkey, Greece

Paper Type: Research Paper

Introduction

The health sector is one of the growing sectors in the Turkish economy; for many professionals attempt to solve the problems that are inherent in this secto exploring the way

Introduction

The first acknowledged appliance of military in English, spelled *militarie*, happened in 1585. It comes from the Latin *militaris* (from Latin *miles* meaning "soldier") but is of unclear etymology, one suggestion being derived from **mil-it-* - departing in a body or mass. The word is now known as representing someone that is skilled in use of weapons, or engaged in military service or in warfare (Tucker, 2009).

In addition, as a noun the military regularly passes on to a country's armed forces or from time to time, more clearly, to the senior officers who command them. Usually, it refers to the physicality of armed forces, their staff, apparatus, and physical area which they live in.

It must be added that as an adjective military at first applied only to soldiers and soldiering, but it almost instantly broadened to relate to ground forces as a general rule and anything to do with their line of work. Conversely, at about the time of Napoleonic Wars "military" started to be used to fortified forces as a whole and in the 21st century terms similar to "military service", "military intelligence" and "military history" embrace naval, marine and air force individualities. Per se, it now indicates any motion carried out by the military personnel (Webster, 2013).

Additionally, for much of military history the equipped forces were considered to be for appliance by the leaders of their societies, until recently, the crowned chiefs of states. Consequently, in a democracy or other political organism run in the public significance, it is a public force.

The connection between the military and the society it provides is a complex and ever-evolving one. Much depends on the ordinary world of the society itself and whether it recognizes the military as fundamental, as for example in time of threat or war, or a heavy expense distinguished by defence cuts in time of peace.

One delicate issue in the association between military and society is control and lucidity. In numerous countries only slight information on military tasks and budgeting is accessible for the public. Nonetheless, transparency in the military segment is necessary to fight corruption. This established the Government Defence Anti-corruption Index Transparency International, put out in 2013 (Pyman, 2013).

These connections are seen from the perspective of political-military relations, the military-industrial complex analyzed above, and the socio-military association. The final can be separated between those fragments of society that put forward support for the military, those who influence opposition to the military, the voluntary and involuntary civilians in the military forces, the residents in a combat zone, and definitely the military's self-perception.

Militaries commonly function as societies within societies, by comprising their own military group of people, economies, education, medicine and other features of a functioning civilian society. Although a "military" is not limited to nations in of itself as many private military companies (or PMC's) can be engaged or "hired" by organisations and bodies as security, escort, or other ways of protection where police, agencies, or militaries are incomplete or not trusted.

It must be added that every nation in the history of humanity had dissimilar requirements for military forces. How these needs are set up shapes the basis of their composition, equipment and exercise of competences. Besides, it specifies what military does in relation to peacetime and wartime functions.

The path of action of assigning resources is carried out by determining a military budget which is directed by a military finance organisation within the military. Military procurement is then approved to gain or contract provision of goods and services to the military, whether in peacetime at a lasting base or in a combat region from local

population. A military budget (or military expenditure), also classified as a defense budget, is the total of financial resources allocated by a nation or a state, to raising and defending an armed forces.

Military budgets frequently reflect how powerfully an entity distinguishes the likelihood of threats against it, or the quantity of hostility it wishes to make use of. It also displays an idea of how much financing should be provided for the upcoming year. The size of a budget also illustrates the entity's ability to subsidize military operations. Features comprise the magnitude of that body's economy, other monetary burdens on that unit, and the eagerness of that entity's government or people to fund such military movement.

The purposes of the present study are:
- First, to look at the world military expenditure covering the period 1988-2011
- Second, to study the evolution of Greek and Turkish military expenditures between 1988 and 2011
- Thirdly, to examine reasons that influenced the Greek and Turkish military expenditures
- Finally, to conduct forecast of military expenditure of the world and its sub regions as well as Greece and Turkey in the period 2012-2021.

The hypotheses of this article are:

- First hypothesis: there is an increase of world military expenditure over the period 1988-2012
- Second hypothesis: the military expenditures of the world and its sub-regions will keep increasing between 2013 and 2022
- Third hypothesis: there is a boost of military overheads of Greece between 1988 and 2012
- Fourth hypothesis: there is an increase of military expenditure of Turkey between 1988 and 2012
- Fifth hypothesis: the military expenditures of Greece and Turkey will keep increasing in the period 2013-2022.

The outline of this paper is as follows:
- Section 2 discusses the definition of military expenditure and sources of data.
- Section 3 looks at the world and regional military expenditure covering the period 1988-1999.
- Section 4 considers the world and regional military expenditure between 2000 and 2012.
- Section 5 analyses the prediction of world and regional military expenditure over the period 2013-2022.
- Section 6 discusses the world's top 24 military spenders in 2012 and recent developments
- Section 7 scrutinizes the military expenditure of Greece and Turkey in the period 1988-2012 and forecast between 2013 and 2022
- Section 8 underlines the conclusions.

Definition and sources of data of world military expenditure
At present, the SIPRI database on military expenditure wraps 172 countries. It must be said that reliable data are available from 1988-2012 in the SIPRI military expenditure database

on line. Switch to constant 2011 US $ million has been made by the use of market exchange rates (MERs) for all countries (SIPRI, 2013).

Purpose of the data
The most important purpose of the data on military expenditure is to supply an easily identifiable measure of the scale of resources absorbed by the military. Military expenses are an input measure which is not straightforwardly associated to the 'output' of military activities, such as military capability or military security. Military expenditure data calculated in constant dollars are a trend meter of the volume of resources used for military activities, which permit comparisons to be completed over time for individual countries and between countries. The share of gross domestic product (GDP) is an irregular indicator of the proportion of national resources utilised for military activities, and therefore of the economic burden forced on the national economy.

Sources
The resources for military expenditure data are, in order of priority: (a) primary sources, that is, official data supplied by national governments, either in their official publications or in response to questionnaires; (b) secondary sources which quote primary data; and (c) supplementary secondary sources (SIPRI, 2013).

The primary sources category consists of national budget documents, defence white papers and public finance statistics available by ministries of finance and of defence, central banks and national statistical offices. In addition, it incorporates government responses to questionnaires about military expenditure sent out by SIPRI, the United Nations or the Organization for Security and Co-operation in Europe (OSCE), and expert scrutinies of government budgets by members of the SIPRI Military Expenditure and Arms Production Expert Network.

Furthermore, the second category incorporates international statistics, such as those formed by NATO and the International Monetary Fund (IMF). It must be said that data for most NATO countries are taken from NATO defence expenditure statistics as available in a number of NATO sources. Data for many developing countries are supplied from the IMF's Government Financial Statistics Yearbook that supplies a defence line for most of its member countries. This category also incorporates the publications of other organizations that give proper references to the primary sources utilised. It is vital to say that the three main sources in this category are the Europa Yearbook, Country Reports of the Economist Intelligence Unit London, and Country Reports by IMF staff. Finally, the third category of sources comprises specialist journals and newspapers.

Definition of military expenditure
Even though the absence of sufficiently detailed data makes it difficult to apply a common definition of military expenditure on a worldwide basis, SIPRI has followed a definition as a guideline. Where feasible, SIPRI military expenditure data comprise all current and capital expenditure on: (a) the armed forces, incorporating peacekeeping forces; (b) defence ministries and other government agencies occupied in defence projects; (c) paramilitary forces, when judged to be qualified and equipped for military engagements; and (d) military space actions. Such expenditures should comprise: (a) military and civil staff, including retirement pensions of military personnel and social services for personnel; (b) operations and preservation; (c) procurement; (d) military research and development; and (e) military aid (in the military expenditure of the donor country). Civil defence and present expenditures on previous military actions, such as veterans' benefits, demobilization, conversion and weapon destruction are disqualified (SIPRI, 2013).

However, in practice it is not possible to relate the above definition for all countries, since this would involve much more meticulous information than is available about what is integrated in military budgets and off-budget military expenditure matters. In many cases SIPRI cannot make autonomous estimates but is limited to using the national data provided. Priority is then agreed to the choice of a uniform definition over time for each country in order to attain consistency over time, rather than to adjusting the statistics for single years in line with a common definition. In cases where it is unfeasible to employ the same source and characterization for all years, the percentage change between years in the deviant source is used to the existing series so as to make the trend as precise as possible. Due to the above, military expenditure data are not appropriate for close comparison between individual countries and are more suitably used for comparisons over time (Europa, Yearbook 2014).

Methods
SIPRI data reveals the official data supplied by governments. It must be said that, SIPRI considers national data to be precise until there is convincing information to the contrary. Calculations are made principally when the coverage of official data does not match up to the SIPRI definition or when there are no consistent time series accessible. In the first case, estimates are completed on the grounds of an analysis of official government financial plan and expenditure accounts. The most inclusive estimates, for China and Russia, have been offered in detail in previous Yearbooks (SIPRI, 2013).
Other countries where the whole series is calculated are Israel and the United Arab Emirates. In the second case, differing time series are connected together. In order not to establish assumptions into the military expenditure statistics, estimates are constantly founded on empirical evidence and never based on assumptions or extrapolations. Thus, no calculations are conducted for countries which do not make public any official data. These countries are presented without figures.
However, additional allocations made during the course of the year to cover losses in purchasing power often go unreported and recent military expenditure can emerge to be falling in real terms when it is in fact growing.
Data for the latest years embrace two types of estimates which apply to all countries: (a) figures for the most recent years are for adopted budgets, budget estimates or revised calculations, and are revised, more often than not, in subsequent years; and (b) unless outstanding doubt is involved with these estimates, they are not bracketed.

Regional Coverage
Stockholm International Peace Research Institute considers the regional coverage as follows: Africa, Americas, Asia and Oceania, Europe and Middle East. Africa is divided into North Africa and Sub-Saharan Africa.
North Africa: Algeria, Libya, Morocco, Tunisia.
Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo (Republic of), Congo (Democratic Republic of, DRC), Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

Besides, Stockholm International Peace Research Institute splits Americas' region into North America, Central America & the Caribbean and South America.

North America: Canada, USA.
Central America and the Caribbean: Belize, Cuba, Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama and Trinidad and Tobago.
South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, Venezuela.

As far as Asia and Oceania area is concerned, the information given by Stockholm International Peace Research Institute covers Central Asia, East Asia, South Asia and Oceania.
Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.
East Asia: Brunei, Cambodia, China, Indonesia, Japan, North Korea, South Korea, Laos, Malaysia, Mongolia, Myanmar (Burma), Philippines, Singapore, Taiwan, Thailand, Timor Leste, Viet Nam.
South Asia: Afghanistan, Bangladesh, India, Nepal, Pakistan, Sri Lanka.
Oceania: Australia, Fiji, New Zealand, Papua New Guinea.

Stockholm International Peace Research Institute divides Europe into Western Europe, Eastern Europe and Central Europe.
Western Europe: Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, UK.
Eastern Europe: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, USSR/Russia.
Central Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czechoslovakia (–1992), Czech Republic, Estonia, German Democratic Repulic (GDR, –1990), Hungary, Latvia, Lithuania, Macedonia (Former Yugoslav Republic of Macedonia, FYROM), Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Yugoslavia (former, –1991).

Furthermore, Stockholm International Peace Research Institute provides information covering the military expenditure of Middle East.
Middle East: Bahrain, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, North Yemen (–1990), South Yemen (–1990),Yemen.

Military expenditure by region in the period 1988-1999
Table 1 exhibits the world military expenditure by geographical regions in constant 2011 US dollars covering the period 1988-2012. The date sets were taken from Stockholm International Peace Research Institute, 2013.
It is obvious that world military expenditure reduced between 1988 and 1999. Due to the collapse of Berlin Wall in 1991, there are no complete data for that year since many countries seized to exist and other countries were only created then.

Table 1
Military expenditure by region in constant (2011) US $ billion, 1988–1999

Geographical regions	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Africa	17,5	17,8	17,5	15,2	14,1	16,8	15,9	14,8	13,9	14,6	15,4	21,7
North Africa	3,8	3,9	3,9	3,8	4,3	4,6	4,9	4,6	4,9	5,3	5,6	5,2
Sub-Saharan Africa	13,7	13,9	13,6	11,4	9,9	12,2	11,0	10,2	9,1	9,3	9,8	16,5
Americas	620	614	617	515	538	519	494	473	449	445	439	441
North America	578	572	548	482	508	482	454	429	405	402	394	395
Central America & the Caribbean	3,8	3,9	3,9	3,9	4,2	4,4	5,2	4,5	4,6	4,7	4,8	5,0
South America[a]	37,9	37,7	65,0	29,0	26,1	32,6	35,4	39,2	39,0	38,2	40,2	40,6
Asia and Oceania	141	146	151	154	164	170	172	176	181	184	188	198
Central Asia	xxx	xxx	xxx	xxx	. .	0,9	0,6	0,6	0,6	0,7	0,7	0,6
East Asia	100	105	110	113	124	125	128	130	135	137	138	144
South Asia	22,9	24,1	24,2	23,4	23,1	25,3	25,5	26,8	27,1	28,9	30,0	33,6
Oceania	17,6	17,2	17,2	17,4	17,7	18,3	18,5	18,0	17,8	18,1	18,8	19,7
Europe	777	738	657	. .	419	396	388	352	350	355	342	348
Western Europe	329	331	336	332	320	309	301	291	293	293	295	301
Eastern Europe	371	344	291	. .	73,8	65,5	65,2	39,7	35,2	39,4	25,8	26,5
Central Europe	76,6	62,8	30,0	22,1	25,7	20,7	21,4	21,8	21,5	22,2	21,3	20,8
Middle East	58,6	55,4	81,5	91,8	72,2	66,9	65,7	59,2	58,8	64,9	69,7	69,4
World total	1613	1572	1524	. .	1208	1168	1136	1075	1052	1063	1053	1078

Source: Stockholm International Peace Research Institute, 2013.

a. The figure for South America in 1990 is highly uncertain due to the uncertainty of the figure for Brazil, which is due to the very high rate of inflation.

The symbol " . ." indicates that data is unavailable, or that the world or regional estimate is considered too uncertain to be reliable.

The symbol "xxx" indicates that none of the countries in the relevant sub-region (Central Asia) were independent at this time. Figures in red indicate highly uncertain data.

The excluded countries are: Afghanistan, Honduras, Iraq, and Qatar. There is also an effect on the totals for the Americas, Central America & the Caribbean, Asia & Oceania and South Asia, but separate series are not shown for those as the effect is very small.

Considering table 2 and graph 1, Africa is the region with the smallest presentation in world military expenditure during the above mentioned period of time. North Africa spends less money on military expenditure than Sub-Saharan countries. The greatest spender in North Africa has been Algeria while South Africa is the equivalent country in the Sub-Saharan region.

The region Americas comprises North America, Central America & the Caribbean and South America. As we see from table 2 and graph 2 Americas' area holds the largest military expenditure. USA is the greatest military power not only in Americas but in the world. In Central America & the Caribbean, Mexico is the key leader when it comes to military expenditure. In South America Brazil is the greatest spender on military.

Asia and Oceania area include Central Asia, East Asia, South Asia and Oceania. Table 2 and graph 1 demonstrate that in the period 1988-1999 the average of military expenditure of the entire region averaged annually 15%.

The annual average military expenditure of Asia and Oceania as a whole represent 15%. This area comprises Central Asia with Turkmenistan as the greatest spender on military. Then, it is East Asia with firstly Japan and then China as the greatest military spenders. India is the greatest buyer of military in South Asia and Australia as far as Oceania in concerned.

As we see in table 2 and graph 1 Europe represents 35.7 % annual average military expenditure between 1988 and 1999. Europe includes Western Europe, Eastern Europe and Central Europe. In the entire Europe the greatest military expenditure has taken place by France and then by UK.

Finally, Middle East representing 5.7% of world military expenditure as we see in table 2 and graph 1 incorporates Saudi Arabia that is one of the greatest buyers of military commodities not only in the region but also in the world.

	Table 2										
	Military Expenditure by region in percentages, constant US dollars, 1988–1999										
	1988	**1989**	**1990**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**
Africa	1,09	1,13	1,15	1,17	1,43	1,40	1,38	1,32	1,38	1,46	2,01
Americas	38,42	39,06	40,47	44,55	44,45	43,52	43,99	42,66	41,84	41,65	40,91
Asia and Oceania	8,72	9,32	9,93	13,60	14,53	15,16	16,36	17,17	17,33	17,81	18,35
Europe	48,14	46,97	43,11	34,71	33,86	34,14	32,77	33,26	33,35	32,46	32,28
Middle East	3,63	3,53	5,35	5,97	5,73	5,78	5,51	5,59	6,10	6,61	6,44
World total	100,00	100	100	100	100	100	100	100	100	100	100

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.
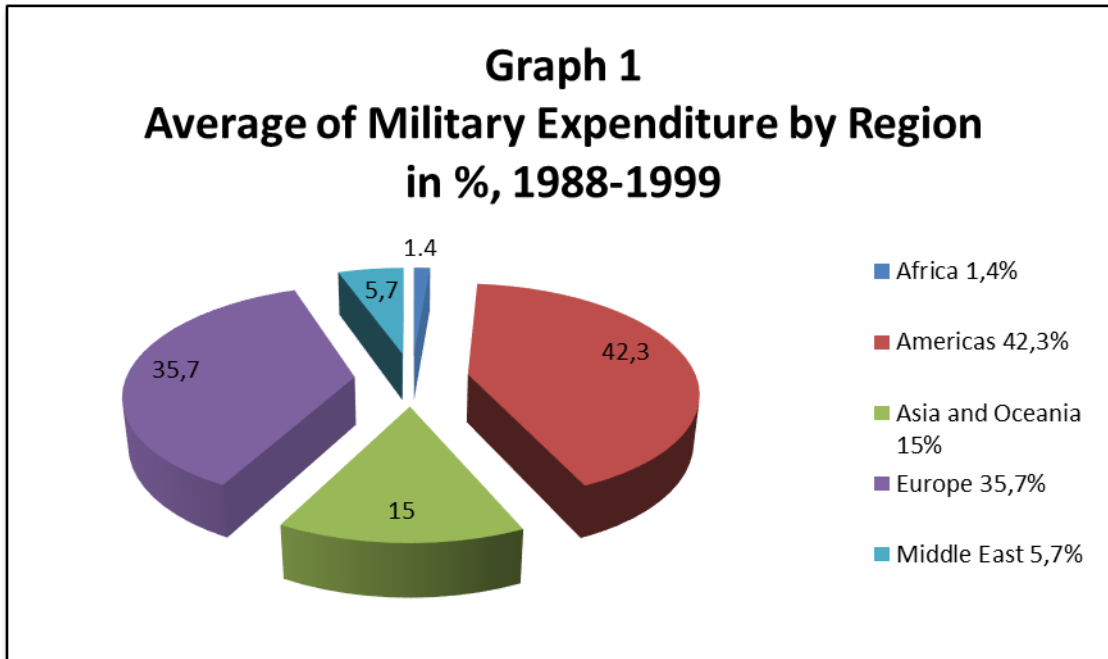
Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.

4. Military expenditure by region in the period 2000-2012

Table 3 shows that there has been an increase of world military expenditure in the period 2000 and 2012. There was a minor fall of world military expenditure between 2011 and 2012. In the period 2000-2012 Africa has increased its average annual military expenditure in the world from 1.4% to 1.8% as we see in table 4 and graph 2. In North Africa, Algeria has been the greatest buyer while South Africa is in the Sub-Saharan region.

Considering table 4 and graph 2, Americas' area has increased its military spending to 44.6% in the world. USA is the greatest military spender not only in North America but also in the world. Furthermore, in Central America and the Caribbean region, Mexico is the greatest military spender while Brazil is in the South America region.

Asia & Oceania region has augmented its average military spending from 15% between 1988 and 1999 to 19.3% in the period 2000-2012. In Central Asia region Kazakhstan is the greatest military spender, while China is in East Asia area. In addition, in South Asia India has been the greatest military spender and Australia in Oceania.

Europe is the only district that reduced the average military expenditure from 35.7% that was during 1988-1999 to 27.4% in the period 2000-2012. The greatest military spender in Europe has been Russia since 2008 while France was in the period 2000-2007.

Middle East has increased its average military spending to 6.9% having Saudi Arabia the greatest military buyer in the area and one of the greatest in the world.

Table 3
Military expenditure by region in constant (2011) US $ billion, 2000–2012
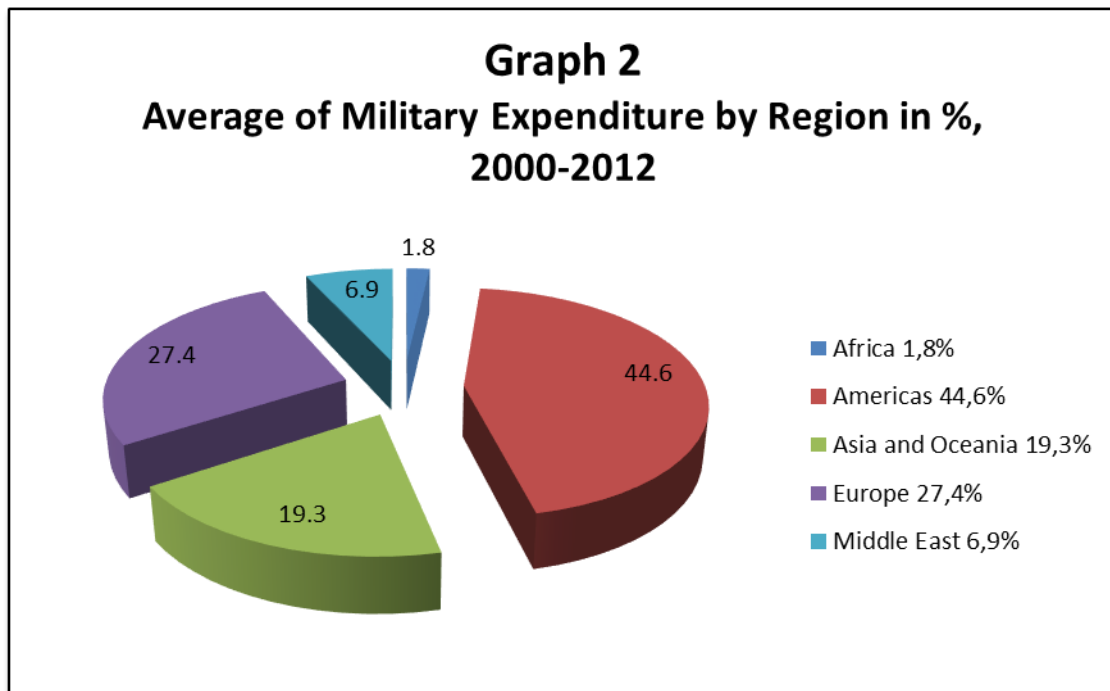
Geographical regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Africa	19,3	19,6	21,0	20,7	23,2	24,2	25,9	26,6	30,3	31,6	33,6	37,1	38,3
North Africa	5,2	6,6	6,7	7,0	7,6	7,9	7,9	8,5	10,1	11	12,0	15,1	16,2
Sub-Saharan Africa	14,0	13,0	14,3	13,7	15,6	16,3	18,0	18,0	20,2	20,5	21,6	22,0	22,0
Americas	458	466	515	571	620	652	665	685	737	793	817	808	768
North America	410	413	462	524	571	598	607	625	671	724	743,2	734,7	691
Central America & the Caribbean	5,3	5,4	5,2	5,1	4,7	5,1	5,6	6,2	6,3	7,1	7,7	8,0	8,6
South America[a]	43,1	47,7	47,3	41,9	44,8	48,8	52,1	54,7	59,6	62,3	66,4	65,3	67,7
Asia and Oceania	202	213	224	234	247	260	275	296	312	348	355	369	382
Central Asia	0,6	0,8	0,9	1,0	1,1	1,3	1,5	2,1	2,1	2,0	2,2	2,4	2,9
East Asia	147	156	166	175	181	191	205	222	233	260	265	278	292
South Asia	35,0	36,0	36,1	37,0	42,1	44,5	44,9	45,7	50,5	58,3	58,8	59,7	58,2
Oceania	19,6	20,3	21,0	21,4	22,3	23,0	24,3	25,7	26,6	28,6	29,0	28,5	27,5
Europe	360	362	374	380	383	387	397	408	419	428	419	411	419
Western Europe	303	301	309	311	312	308	310	312	318	326	316	302	296
Eastern Europe	35,7	39,0	43,2	46,2	48,3	55,5	63,0	70,0	76,6	78,9	80,2	87,0	100
Central Europe	20,9	21,6	22,2	22,6	22,5	23,6	24,0	25,5	24,2	23,6	22,6	22,0	21,9
Middle East	80,4	84,7	80,2	83,6	89,4	97,5	105	110	106	109	115	117	128
World total	1120	1146	1215	1289	1362	1420	1468	1525	1605	1711	1739	1741	1733

Source: Stockholm International Peace Research Institute, 2013.
The excluded countries are: Afghanistan, Honduras, Iraq, and Qatar. There is also an effect on the totals for the Americas, Central America & the Caribbean, Asia & Oceania and South Asia, but separate series are not shown for those as the effect is very small. Figures in red indicate highly uncertain data.

	Table 4												
	Military Expenditure by region in percentages, 2000-2012												
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Africa	1,72	1,71	1,73	1,60	1,71	1,71	1,76	1,74	1,89	1,85	1,93	2,13	2,21
Americas	40,93	40,70	42,38	44,30	45,52	45,87	45,30	44,94	45,91	46,37	46,98	46,41	44,30
Asia and Oceania	18,03	18,61	18,48	18,17	18,12	18,31	18,75	19,39	19,46	20,37	20,43	21,22	22,02
Europe	32,14	31,59	30,81	29,44	28,09	27,25	27,05	26,73	26,12	25,04	24,07	23,58	24,16
Middle East	7,19	7,39	6,60	6,48	6,56	6,86	7,14	7,20	6,62	6,38	6,59	6,72	7,37
World total	100	100	100	100	100	100	100	100	100	100	100	100	100

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.

Graph 2
Average of Military Expenditure by Region in %, 2000-2012

Africa 1,8%
Americas 44,6%
Asia and Oceania 19,3%
Europe 27,4%
Middle East 6,9%

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.

Graph 3 highlights the world total military expenditure in constant (2011) US million $ covering the period 1988-2012. It is evident that there has been an increase of world total military expenditure in the specific examined period. Hence, the first hypothesis is fully supported.
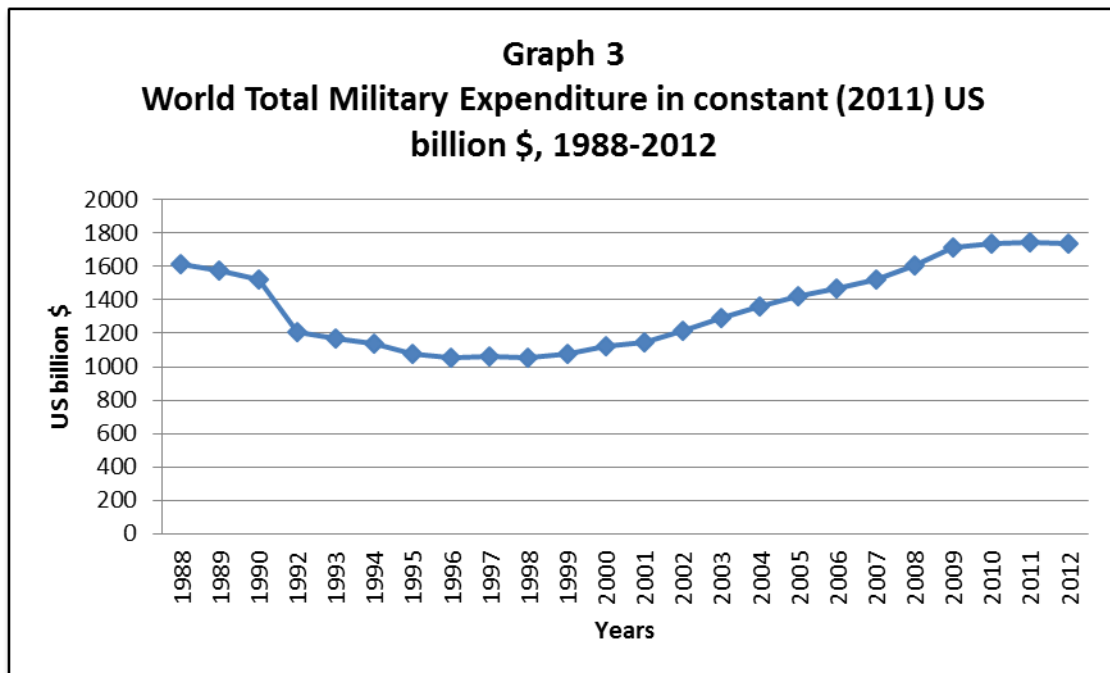
Graph 3
World Total Military Expenditure in constant (2011) US billion $, 1988-2012

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.

Prediction of World and Regional Military Expenditure over the Period 2013-2022

Forecasting is the process of estimation in unknown situations. Forecasting is usually utilised in conversation of time-series data. The categories of forecasting methods incorporate:

- ▪ Time series methods
- ▪ Causal / Econometric methods
- ▪ Judgmental methods
- ▪ Other methods

It must be said that one of the most frequently used forecasting methods is time-series analysis or the analysis of time-series data (Salvatore 2007). Time series methods use historical data as the starting point of calculating future outcomes. Time series analysis deals with a variable that is changed with time and which can be said to rely only upon the current time and the previous values that it took (i.e. not dependent on any other variables or external factors). Therefore, if Y_t is the value of the variable at time t then the equation for Y_t is:

$$Y_t = f(Y_{t-1}, Y_{t-2}, ..., Y_0, t)$$

i.e. the value of the variable at time t is entirely some function of its previous values and time, no other variables/factors are of relevance. The purpose of time series analysis is to discover the nature of the function f and hence allow us to forecast values for Y_t (Paris, 2009).

Some forecasting methods such as Causal / econometric methods exercise the assumption that it is possible to distinguish the underlying factors that might impact the variable that is being forecast. Judgmental forecasting methods incorporate intuitive judgments, opinions and probability assessments. In addition, there are also other methods of forecasting such as Simulation, Prediction market, Probabilistic

forecasting and Ensemble forecasting as well as Reference class forecasting (Salvatore 2007).

The analysis of forecast in this article is based on time series analysis.

Table 5 shows the World and Regional Military Expenditure covering the period 1988-2012 and Prediction of World and Regional Military Expenditure between 2013 and 2022. It must be said that the forecast of World and Regional Military Expenditure have been estimated following time-series analysis (Salvatore 2007).

Table 5 and graph 4 show that the military expenditures of the world and its sub-regions, with the exemption of Europe, will keep increasing between 2013 and 2022. Hence, the second hypothesis is partially accepted.

The economic downturn following the 2008 global financial crisis and the subsequent austerity measures imposed in North America and Western Europe began to have an impact on sales in the world's arms industry in 2011–12 as we see on Table 5. As a result of the global financial and economic crisis that started in 2008, budget deficits increased across most of Europe, and in 2011 discussions on military expenditure in Europe were conquered by the impact of the austerity measures enacted by governments in an attempt to reduce these deficits. On the one hand, sharp debt crises in Greece, Italy and Spain have led to the imposition of mainly severe austerity measures—with major cuts to public spending and increases in taxation—in some cases as a clause of international bailout packages. On the other hand, countries such as the United Kingdom that have not countenance such about to happen debt problems have also reduced public spending, based on the belief that cutting deficits is the overwhelming economic right of way following the crisis (SIPRI Yearbook, 2012).

Table 5 World and Regional Military Expenditure 1988-2012, Prediction 2013-2022 in constant (2011) billion $						
Years	Africa	Americas	Asia and Oceania	Europe	Middle East	World total
1988	17,5	620	141	777	59	1613
1989	17,8	614	146	738	55	1572
1990	17,5	617	151	657	81	1524
1992	14,1	538	164	419	72	1208
1993	16,8	519	170	396	67	1168
1994	15,9	494	172	388	66	1136
1995	14,8	473	176	352	59	1075
1996	13,9	449	181	350	59	1052
1997	14,6	445	184	355	65	1063
1998	15,4	439	188	342	70	1053
1999	21,7	441	198	348	69	1078
2000	19,3	458	202	360	80	1120
2001	19,6	466	213	362	85	1146
2002	21,0	515	224	374	80	1215
2003	20,7	571	234	380	84	1289
2004	23,2	620	247	383	89	1362

2005	24,2	652	260	387	97	1420
2006	25,9	665	275	397	105	1468
2007	26,6	685	296	408	110	1525
2008	30,3	737	312	419	106	1605
2009	31,6	793	348	428	109	1711
2010	33,6	817	355	419	115	1739
2011	37,1	808	369	411	117	1741
2012	38,3	768	382	419	128	1733
2013	39,7	776	397	419	133	1766
2014	41,2	785	413	419	138	1799
2015	42,8	793	429	419	143	1834
2016	44,4	802	446	419	149	1869
2017	46,1	811	464	419	155	1904
2018	47,9	820	483	420	161	1940
2019	49,7	829	502	420	167	1977
2020	51,6	838	522	420	173	2015
2021	53,5	847	543	420	180	2053
2022	55,6	856	565	420	187	2092

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013. Figures in bleu have been calculated following the way explained above. Figures in red indicate highly uncertain data.

Graph 4
World and Regional Military Expenditure 1988-2012, Prediction 2013-2022 in constant (2011) billion $
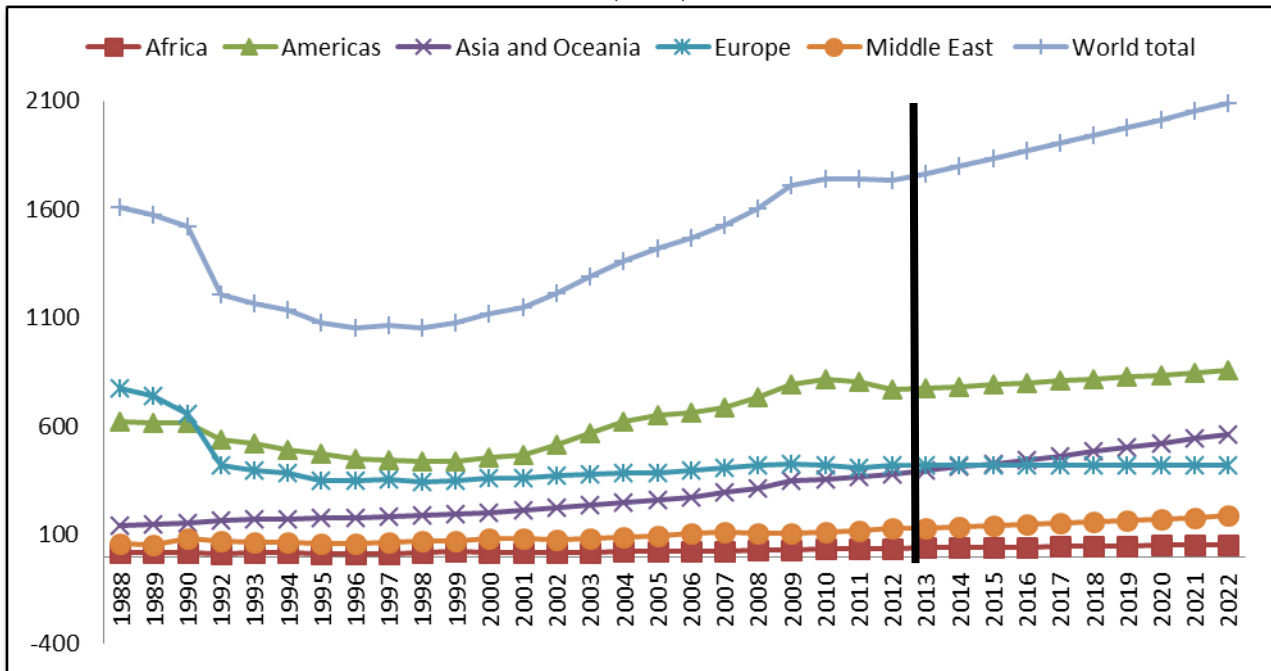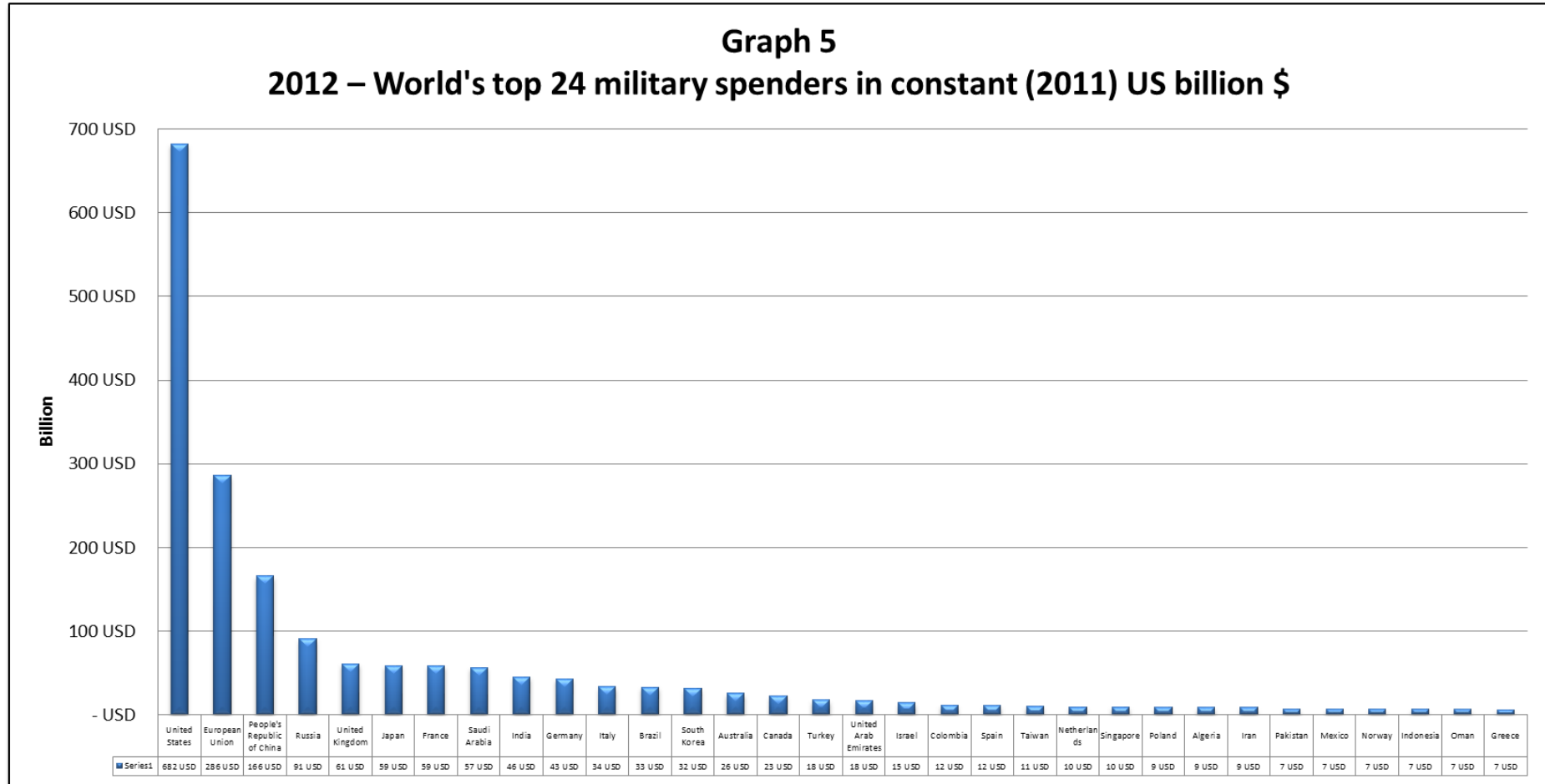

Source: Calculations based on information taken from Stockholm International Peace Research Institute, 2013.

World's Top 24 Military Spenders in 2012 and Recent Developments
World's Top 24 Military Spenders in 2012
Graph 5 shows the world's top 24 military spenders in 2012 in constant (2011) US billion $. USA is the top world military power. Only in 2012, USA spent on military 682 billion dollars in 2011 constant prices. The second place holds Europe as a whole incorporating Russia, UK and France. Considering individual countries, China is behind USA having spent on military 166 billion USD in 2012. In the same year, Russia has the third place, having exhausted on military 91 billion USD. Then, on the fourth place is UK having spent 61 billion USD. Japan and France keep the fifth place since each one of them has spent on military 59 billion USD. Saudi Arabia has the next place having exhausted on military 57 billion USD. Saudi Arabia has been concerned with Syria War and the Arab Spring. Turkey keeps the 15th place having exhausted 18 billion USD and Greece the 31st place having spent 7 billion USD.

Graph 5
2012 – World's top 24 military spenders in constant (2011) US billion $

	United States	European Union	People's Republic of China	Russia	United Kingdom	Japan	France	Saudi Arabia	India	Germany	Italy	Brazil	South Korea	Australia	Canada	Turkey	United Arab Emirates	Israel	Colombia	Spain	Taiwan	Netherlands	Singapore	Poland	Algeria	Iran	Pakistan	Mexico	Norway	Indonesia	Oman	Greece
■ Series1	682 USD	286 USD	166 USD	91 USD	61 USD	59 USD	59 USD	57 USD	46 USD	43 USD	34 USD	33 USD	32 USD	26 USD	23 USD	18 USD	18 USD	15 USD	12 USD	12 USD	11 USD	10 USD	10 USD	9 USD	9 USD	9 USD	7 USD	7 USD	7 USD	7 USD	7 USD	7 USD

Source: Stockholm International Peace Research Institute, 2013.

Recent Developments in largest arms suppliers

The level of international transfers of key conventional weapons grew by 17 per cent in the period 2003–2007 and between 2008 and 2012. The five greatest suppliers in 2008–12—the United States, Russia, Germany, France and China—represented 75 per cent of the level of exports. It must be emphasized that this is the first time since the end of the cold war that China has positioned itself among the five largest arms exporters, which had consisted exclusively of the USA and European states. China could symbolize the vanguard of a growth in the worth of Asian suppliers in the international arms trade, as South Korea is a rising arms supplier and Japan and Singapore have prospective to become major suppliers. Other noteworthy changes in 2008–12 comprise the absence from the top five suppliers of the United Kingdom for the first five-year period since 1950; the exodus of the Netherlands from the 10 leading suppliers; and the standing of Ukraine as the ninth largest supplier. The size of international transfers of key conventional weapons grew by 17 % during 2003-2007 and in the period 2008-2012. The five greatest arms dealers in 2008–12—the United States, Russia, Germany, France and China—accounted for 75 per cent of the size of exports. It must be said that this is the first time since the end of the cold war that China has ranked among the five largest arms exporters, which had consisted exclusively of the USA and European countries.

China might symbolize the forefront of an increase in the significance of Asian suppliers in the international arms trade, as South Korea is an emerging arms supplier and Japan and Singapore have prospective to turn into key suppliers.

Other noteworthy alterations in 2008–12 embrace the lack from the top five suppliers of the United Kingdom for the first five-year period since 1950; the exit of the Netherlands from the 10 principal suppliers; and the standing of Ukraine as the ninth major supplier.

One of the consequences of the brunt of the financial crisis in the USA and Europe has been the supplementary strain to seek new export markets. This has directed the USA and European states to streamline bureaucratic dealings and to be more enthusiastic to appoint in licensed production, technology transfer and cooperative production agreements.

While SIPRI data on international arms transfers does not signify their financial significance, a number of states also circulate figures on the financial worth of their arms exports. Founded on national data, SIPRI approximates that the total value of the global arms deal in 2011 was at least $43 billion.

At the start of 2013 eight states—the United States, Russia, the United Kingdom, France, China, India, Pakistan and Israel—held roughly 4400 operational nuclear weapons. Practically 2000 of these are reserved in a state of high operational alert. If all nuclear warheads are added up, these states together hold a total of approximately 17 265 nuclear weapons... as measured up to 19 000 at the beginning of 2012.

The decline is due chiefly to Russia and the USA further cutting their inventories of tactical nuclear weapons under the terms of the Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START) as well as retiring old and out of date weapons.

At the same time, all five officially documented nuclear weapon states—China, France, Russia, the United Kingdom and the United States—are either deploying fresh nuclear weapon delivery arrangements or have pronounced programmes to do so, and emerge determined to keep their nuclear arsenals for an indefinite period of time. Of the five, only China appears to be developing its nuclear arsenal. India and Pakistan are both

enlarging their nuclear weapon supplies and missile delivery competence (SIPRI Yearbook, 2012).

The military expenditure of Greece and Turkey in the period 1988-2012 and Forecast between 2013 and 2022
Turkey
Turkey, according to its armament policy is governed by a revisionist attitude to become a regional power in the Mediterranean Sea-Caspian-Black Sea. Furthermore, there is a clear attempt from Turkey to attract all the Muslim forces in order to create an alliance of military importance with Turkey as a strong civil-military factor in the above region, even with aspirations for an international role.

The above trends are demonstrated by Turkey's participation in numerous campaigns under NATO or UN in many parts of the world. Hence, Turkey is considered by large organisations a Muslim country with great military power which can act more easily in sensitive areas where the Muslim population acts and would be more acceptable.

The armament investments in Turkey, although the country went through a very difficult economic period, have not decreased significantly since the Turkish generals until the last few years have the first say in management-administration of the country operating essentially undisturbed and without any control by the political forces.

This allowed Turkey to continue its rally to military investments even via smart and direct investments to create such infrastructure in the country in order to have the ability to produce or coproduce various weapon systems even able to sell to third parties, particularly to Muslim countries.

This frantic tension of financials demonstrates statistically that Turkey, despite its economic difficulties, has had an increase in armament expenditures. This shows that this country has a purely aggressive attitude in contrast to Greece.

Greece
Since 1953, there has been a constant borrowing of Greece from USA for purchase of redundant material of American Army.

The Greek governments for the sake of the interests of the Allies had foregone national interests such as diminishing unemployment and underemployment, reduction of illegal migration, increase of people's standard of living and decrease of country's trade deficit, at least until 1974 (Kollias, 1998).

Since 1974 with the invasion of the Turks in Cyprus and establishment of democracy in Greece, the Greek Government has pursued an armament program that is possessed by many obstacles. The same year there was a temporary withdrawal of the country from the military wing of NATO. The aim of the Greek policy was production of domestic trucks, light vehicles infantry, armored infantry and reduction of dependence on USA. The exorbitant defense spending continues to hold even today a high percentage of gross domestic product.

In 1976 with the signing of the "text" authorities between Greece and the USA there was found a formula for the ratio of 7-to-10 of military assistance that was going to be given to Greece and Turkey in order to maintain balance. In other words, there was going to be given seven to Greece against ten to Turkey.

During the period 1981-1995 the Turkish side receives a special treatment from USA. It must be said that 97% of the money given to Greece were loans and only 3% were

given free. When 56% of the money given to Turkey was loans and the remaining 44% was in the form of free assistance (Syrmas, 2008).

The rapprochement of Greece and Turkey under the "Helsinki Agreement" that was signed in December 1999 led to a better climate and a reduction of tension between the two countries.

Turkey and Greece

As we see at tables 6, 7 and graph 6 there has been a continuous boost of military expenditure of Turkey as well as against its gross domestic product until 1999. Then, there was a deceleration of growth. Since 2007 there has been an increase of Military expenditure of Turkey.
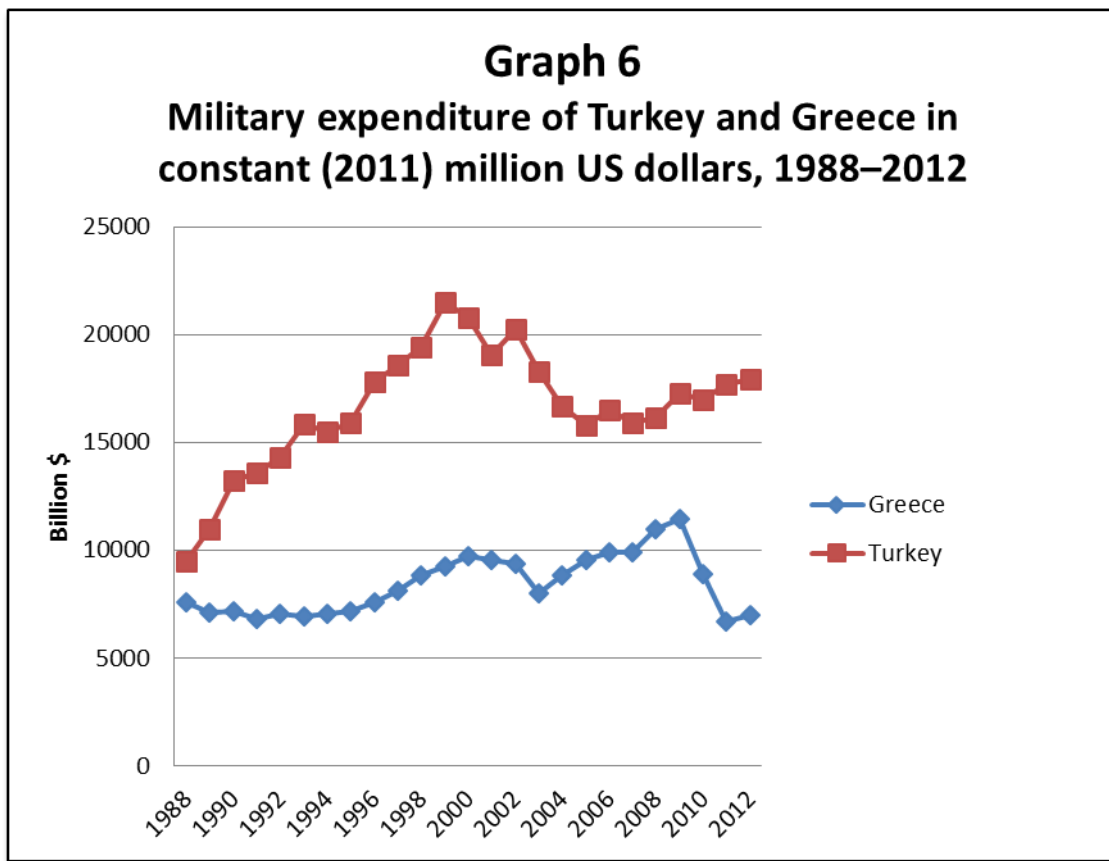
Looking at Tables 6, 7 and graph 6, there has been an increase of Greek military expenditure as well as Greek military expenditure as % of gross domestic product in the period 1988-2009. Then there was a drop due to the severe economic crisis. Since 2009 Greece respecting the financial situation and the difficulties of the Greek people, moved in the armament sector with more careful and rational movements while Turkey has spent more than ordinary in support of its doctrine.

Hence, the third hypothesis that there was a boost of military overheads of Greece between 1988 and 2012 is rejected. On the other hand, there has been an increase of military expenditure of Turkey in the period 1988-2012. Therefore, the fourth hypothesis that there was a boost of military overheads of Turkey between 1988 and 2012 is accepted.

The annual average growth of military expenditure of Turkey was 3% in the period 1988-2012 while in the same period the boost of military expenditure of Greece was only 0,1%. This proves that Greece is a peaceful country that is only interested in maintaining intact its state while Turkey has without question a purely aggressive attitude.

Table 6 Military expenditure of Turkey and Greece in constant (2011) million US dollars, 1988–2012					
Year	Greece	Turkey	Year	Greece	Turkey
1988	7562	9475	**2000**	9743	20773
1989	7090	10966	**2001**	9528	19043
1990	7169	13246	**2002**	9347	20261
1991	6799	13607	**2003**	8008	18287
1992	7065	14328	**2004**	8804	16689
1993	6896	15833	**2005**	9520	15799
1994	7015	15483	**2006**	9898	16511
1995	7165	15905	**2007**	9891	15924
1996	7594	17808	**2008**	10995	16119
1997	8093	18553	**2009**	11455	17275
1998	8818	19441	**2010**	8869	16976
1999	9232	21464	**2011**	6709	17690
			2012	6972	17906

Source: Stockholm International Peace Research Institute, 2013.

Graph 6
Military expenditure of Turkey and Greece in constant (2011) million US dollars, 1988–2012

Source: Stockholm International Peace Research Institute, 2013.

| Year	Greece	Turkey	Year	Greece	Turkey
Table 7 Military expenditure of Turkey and Greece as % of GDP, 1988–2012					
1988	4,2	2,9	**2000**	**3,6**	**3,7**
1989	3,8	3,1	**2001**	**3,4**	**3,7**
1990	3,8	3,5	**2002**	**3,2**	**3,9**
1991	3,5	3,8	**2003**	**2,6**	**3,4**
1992	3,6	3,9	**2004**	**2,7**	**2,8**
1993	3,6	3,9	**2005**	**2,9**	**2,5**
1994	3,6	4,1	**2006**	**2,9**	**2,5**
1995	3,2	3,9	**2007**	**2,8**	**2,3**
1996	3,3	4,1	**2008**	**3,1**	**2,3**
1997	3,4	4,1	**2009**	**3,3**	**2,6**
1998	3,5	3,3	**2010**	**2,7**	**2,4**
1999	3,6	4	**2011**	**2,2**	**2,3**
			2012	**2,5**	**2,3**

Source: Stockholm International Peace Research Institute, 2013.

➢ Forecast of military expenditure of Turkey and Greece

Time series analysis was conducted in order to evaluate the forecast of military expenditure of Turkey and Greece over the period 2013-2022 (Salvatore, 2007). The

findings can be seen in graph 7. There is barely going to be an increase of military overheads of Greece over the period 2013-2022 while Turkey will have a significant boost of its military over the same period of time. Hence, the fifth hypothesis that the military expenditures of Greece and Turkey will keep growing in the period 2013-2022 is supported.

Graph 7
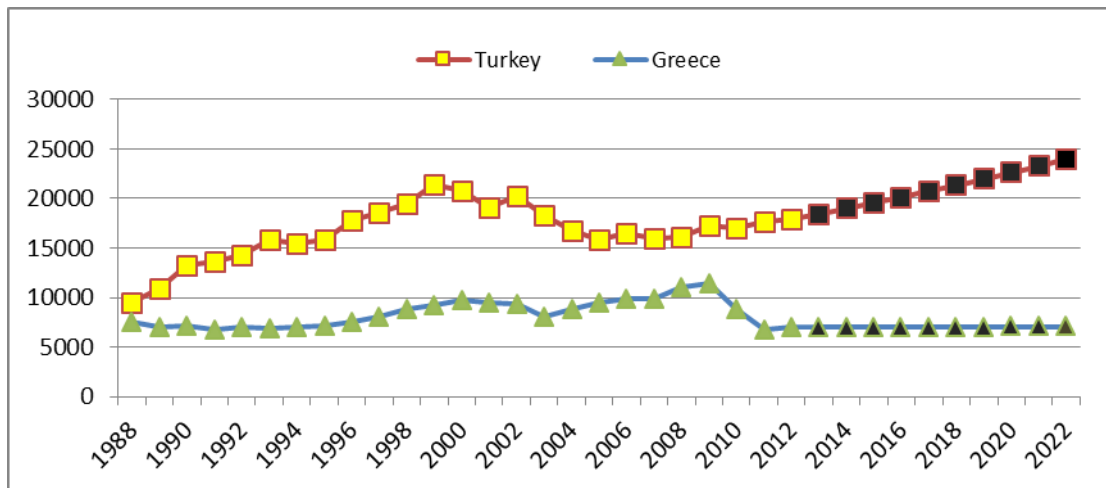
Conclusions

This article looked at world military expenditure as well as military expenditure of Turkey and Greece over the period 1988-2012. Furthermore, the forecast of world military expenditure as well as Turkey and Greece were studied between 2013 and 2022. The five hypotheses that were set and their findings are as follows:

Hypotheses	Decision
First Hypothesis: there is an increase of world military expenditure over the period 1988-2012	Supported
Second hypothesis: the military expenditures of the world and its sub-regions will keep increasing between 2013 and 2022	Partially accepted
Third hypothesis: there is a boost of military overheads of Greece between 1988 and 2012.	Rejected
Fourth hypothesis: there is an increase of military expenditure of Turkey between 1988 and 2012	Accepted
Fifth hypothesis: the military expenditures of Greece and Turkey will keep increasing in the period 2013-2022.	Accepted

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