strategicdefence INTELLIGENCE

Future of Portuguese Defense Industry – Market Attractiveness, Competitive Landscape and Forecasts to 2019

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. Introduction

1.1. What is this Report About?

This report offers insights into the market opportunities and entry strategies adopted by foreign OEMs (original equipment manufacturers) to gain a market share in the Portuguese defense industry. In particular, it offers in-depth analysis of the following:

- **Market opportunity and attractiveness:** detailed analysis of the current industry size and growth expectations during 2015–2019, including highlights of the key growth stimulators. It also benchmarks the industry against key global markets and provides detailed understanding of emerging opportunities in specific areas
- **Procurement dynamics:** trend analysis of imports and exports, together with their implications and impact on Portuguese defense industry
- **Industry structure:** five forces analysis to identify various power centers in the industry and how these are expected to develop in the future
- **Market entry strategy:** analysis of possible ways to enter the market, together with detailed descriptions of how existing companies have entered the market, including key contracts, alliances, and strategic initiatives
- **Competitive landscape and strategic insights:** analysis of the competitive landscape of the defense industry in Portugal, providing an overview of key defense companies (both domestic and foreign), together with insights such as key alliances, strategic initiatives, and a brief financial analysis
- **Business environment and country risk:** a range of drivers at country level, assessing business environment and country risk. It covers historical and forecast values for a range of indicators, evaluating business confidence, economic performance, infrastructure quality and availability, labor force, demographics, and political and social risk

1.2. Definitions

For the purposes of this report, the following timeframes apply:

- **Review Period:** 2010 to 2014
- **Forecast Period:** 2015 to 2019

The following are definitions of military expenditure:

- **Revenue expenditure** includes troop training, institutional education, construction, and maintenance of various undertakings. It also covers the salaries, allowances, pensions, transportation, food, insurance, welfare benefits, and miscellaneous expenditures pertaining to all unit allowances for training, contingency, and other grants for officers, non–commissioned officers, enlisted men, and contracted civilians

- **Capital expenditure (CAPEX)** covers research and development (R&D), procurement, maintenance, and the transportation and storage of weaponry and other equipment. It also

includes expenditure on aircraft and aero engines, heavy and medium vehicles, naval equipment, and expenditure on the purchase of land, construction plants, and machinery.

The following are definitions of defense categories:

- **Military hardware** refers to the broad range of machinery, systems, equipment, and weapons used by defense forces
- **Air defense systems** are defined as all measures designed to nullify or reduce the effectiveness of hostile air action. They include ground- and air-based weapon systems, associated sensor systems, command and control arrangements, and passive measures. This may be to protect naval, ground, and air forces wherever they are positioned, but does not include missile defense systems
- **Missile defense systems** are systems, weapons, or technologies involved in the detection, tracking, interception, and destruction of attacking missiles
- **Naval defense systems** are used to protect sea lanes, ferry troops, or attack other navies, ports, or shore installations. They include surface ships, amphibious ships, submarines, and seaborne aviation
- **Homeland security (HLS)** involves the protection of a country's civilians and critical infrastructure from natural or man-made disaster. Its margins extend to border and maritime patrol, customs checks in ports and airports, search and rescue operations, disaster recovery, and combating terrorism and cyber-attacks

The following are miscellaneous definitions:

- **Indirect offsets** involve both barter and counter trade deals, investment in the buying country, or the transfer of technology unrelated to the weapons being sold
- **Direct offsets** is defined as an arrangement wherein the purchaser receives work or technology directly related to the weapons sale, typically by producing the weapon system or its components under license
- **Multipliers** are additional credits assigned over and above the market value provided to offsets for a technology, product, or service being offered
- **Command, control and communications and intelligence system (C3I)** refers to an information system employed by a military's top command to direct its forces. This system provides the military with information on various parameters associated with executing a strategy during a military exercise. The parameters include reconnaissance and surveillance, troop positions, inventory levels, and weather conditions. The communication system enables the transfer of images and video captured by surveillance systems, and data and voice between the command and control center. In addition, the system aids in joint operations between the army, navy, and air force
- **Maintenance, repair and overhaul (MRO)** involves the servicing of a defense system with the objective of restoring it to a state where it can perform its intended function. It could be routine maintenance, replacement of faulty spare parts, or checking the entire system to ensure smooth functioning
- **Airborne early warning and control systems (AEW&C)** are airborne radar systems used by the military to detect the movement of aircraft in its airspace. Used at high altitudes, they are used in both defensive and offensive air operations and have the ability to help distinguish between civilian and military aircraft.

1.3. Summary Methodology

SDI's dedicated research and analysis teams consist of experienced professionals with a background in industry research and consulting in the defense sector. The following research methodology is followed for all databases and reports.

Secondary Research

The research process begins with exhaustive secondary research to source reliable qualitative and quantitative information related to the defense market. The secondary research sources that are typically referred to include, but are not limited to:

- Industry associations
- National government documents and statistical databases
- Company websites, annual reports, financial reports, broker reports, investor presentations
- Industry trade journals and other literature
- Internal and external proprietary databases
- News articles, press releases, and webcasts specific to the companies operating in the market

Primary Research

SDI conducts hundreds of primary interviews a year with industry participants and commentators, in order to validate its data and analysis. A typical research interview fulfills the following functions:

- Provides first-hand information on market size, market trends, growth trends, competitive landscape, and future outlook
- Helps to validate and strengthen secondary research findings
- Further develops the analysis team's expertise and market understanding
- Primary research involves e-mail interactions, telephone interviews, and face-to-face interviews for each market category, division, and sub-division across geographies

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, business development managers, market intelligence managers, and national sales managers
- External experts: investment bankers, valuation experts, research analysts, and key opinion leaders specializing in defense markets

Conventions

- Currency conversions are performed on the basis of average annual conversion rate format calculations
- All the values in tables, with the exception of compounded annual growth rate (CAGR) and compounded annual rate of change are displayed to one decimal place; therefore, growth rates may appear inconsistent with absolute values due to this rounding method
- The forecasted values are projected on the basis of nominal values; inflation was not taken into account

1.4. SDI Terrorism Index

The SDI Terrorism Index classifies countries across the world into one of the following categories, based on the risk of terrorism:

- Worst affected
- Highly affected
- Moderately affected
- Some risk
- Low risk

It takes into account the total number of terrorist incidents, the total number of people affected by these attacks, and the presence of foreign terrorist organizations in a country. Based on these parameters, the terrorism index is developed using a weighted average scorecard.

1.5. About Strategic Defence Intelligence

This report is one of a series that is available to subscribers of our premium research platform — Strategic Defence Intelligence. Strategic Defence Intelligence provides a stream of continuously updated customer and competitor intelligence, as well as detailed research reports providing an unrivalled source of global information on the latest developments in the defense industry.

Strategic Defence Intelligence's unique monitoring platform tracks global defense activity for over 2,500 companies and 65 product categories in real-time in a highly structured manner - giving a comprehensive and easily-searchable picture of all defense industry activity. The site features: daily updated analysis, comment and news; company and customer profiles; defense spending, tenders, and contracts; product and technology intelligence; a research and analysis database giving you access to industry and competitor reports to inform your business and market planning, as well as fully customizable tools, including instant personalized report generation and custom alerts.

2. Executive Summary

Portuguese defense budget to register a CAGR of 1.02% over the forecast period

Portugal has been severely affected by the debt crisis, which mandated the country to adopt harsh austerity measures such as reducing wages and salaries in public sectors and raising tax rates. These measures have affected the country's defense budget the most in 2012, which resulted in a decline of -3.93% in the Portuguese defense market over the forecast period. However, the country's military expenditure, valued at US$2.6 billion in 2014, is projected to grow at a CAGR of 1.02% over the period 2015-2019, to reach US$2.7 billion by 2019. The primary reason for the growth in the market is attributed to the country's participation in joint operations with the European Union (EU) and the peacekeeping operations of NATO and the United Nations (UN). However, the defense budget as a percentage of GDP is expected to decline from an average of 1.3% during the review period to 1.0% over the period 2015-2019.

The country's difficult fiscal condition forced its government to cut down the share of budget allocation towards capital expenditure from 20.1% in 2010 to 10.1% in 2014. Portugal is expected to allocate an average of 10.4% towards capital expenditure out of the total defense budget over the period 2015-2019. Portugal is expected to invest in procuring and modernizing its communication networks, transport aircraft and helicopters. The country's per capita defense expenditure is expected to increase from US$245.9 in 2014 to US$256.9 by 2019.

Portugal's homeland security (HLS) stands at US$2.5 billion in 2014 and is estimated to reach to US$2.6 billion by 2019, increasing at a CAGR of 1% during 2015-2019. The Portuguese government is expected to procure tablets, PDAs, biometric systems, and other advanced technology systems for strengthening its internal security forces.

Defense imports are expected to remain low over the forecast period

Portugal's defense imports were highest in 2010 owing to the procurement of submarines from Germany, but declined thereafter due to the budget cuts. Ships, aircraft, and armored vehicles accounted for the country's largest expenditure during the period 2009-2013 with Germany, the Netherlands, and the US emerging as the three largest suppliers. Over the forecast period, Portugal is expected to import C2/C4ISR systems and KC-390 military airlifters.

The Portuguese indigenous defense manufacturing industry is in its nascent stages of development and therefore the country's defense exports are minimal. The only notable weapons exports have been that of military aircraft to Belgium in 2009. The forecast period too is not expected to witness any significant increase in the country's exports.

The country mandates 100% offset for major contracts

Portugal's defense offsets form a mandatory condition in the awarding of a contract and all contracts above EUR10 million (US$13.6 million) require an offset equal to 100% of the contract value. The country accepts direct and indirect offsets and allows multipliers in the range of 1-5 for certain offset projects based on their economic relevance and strategic impact. The country's foreign direct investment (FDI) policy for defense requires government approval for non-EU defense companies wishing to invest in Portugal.

Technology transfers and setting up subsidiaries in Portugal provide effective entry opportunities

Foreign defense companies that wish to enter the Portuguese defense industry can do so by making technology transfers to Portuguese defense companies. An OEM can also sub-contract work such as MRO services to Portuguese businesses, or establish a long-term supply contract for certain components.

Foreign defense suppliers can also enter the market by setting up a subsidiary in Portugal and establishing global supply chains. The domestic defense industry is currently facing a challenge as the government is contracting in foreign companies, even when its domestic industry is capable of carrying out work such as maintenance, repair, and overhaul contracts.

Other challenges for defense suppliers include the Portuguese government‘s budget cuts, and the alleged corrupt practices employed by the country‘s defense ministry.

3. Market Attractiveness and Emerging Opportunities

With a defense budget of US$2.6 billion and a difficult fiscal condition, Portugal presents few opportunities for foreign defense companies. Participation in European joint operations and NATO's peacekeeping operations are expected to drive the country's military expenditure, which is expected to grow at a CAGR of 1.02% over the forecast period. Both defense imports and exports are expected to remain low owing to the country's focus on reducing public debt. However, over the forecast period, the Portuguese government is planning to invite foreign defense companies to partner with domestic companies in scientific and technological innovation and research.

3.1. Defense Market Size Historical and Forecast

3.1.1. Portuguese defense budget to register a growth rate of 1.02% over the forecast period

Portuguese defense expenditure is valued at US$2.6 billion in 2014 and registered a CAGR of -3.93% during 2010–2014. The country's military expenditure was mainly affected by fiscal debt and austerity measures adopted to meet the US$105 billion loan taken in an effort to even out its debt-ridden finances. However, the country's military contributions to the NATO operations, Timor-Leste peacekeeping mission and other joint operations are expected to drive its military expenditure over the period 2015-2019. The Portuguese defense expenditure is projected to grow at a CAGR of 1.02% during this period to reach US$2.7 billion by 2019.

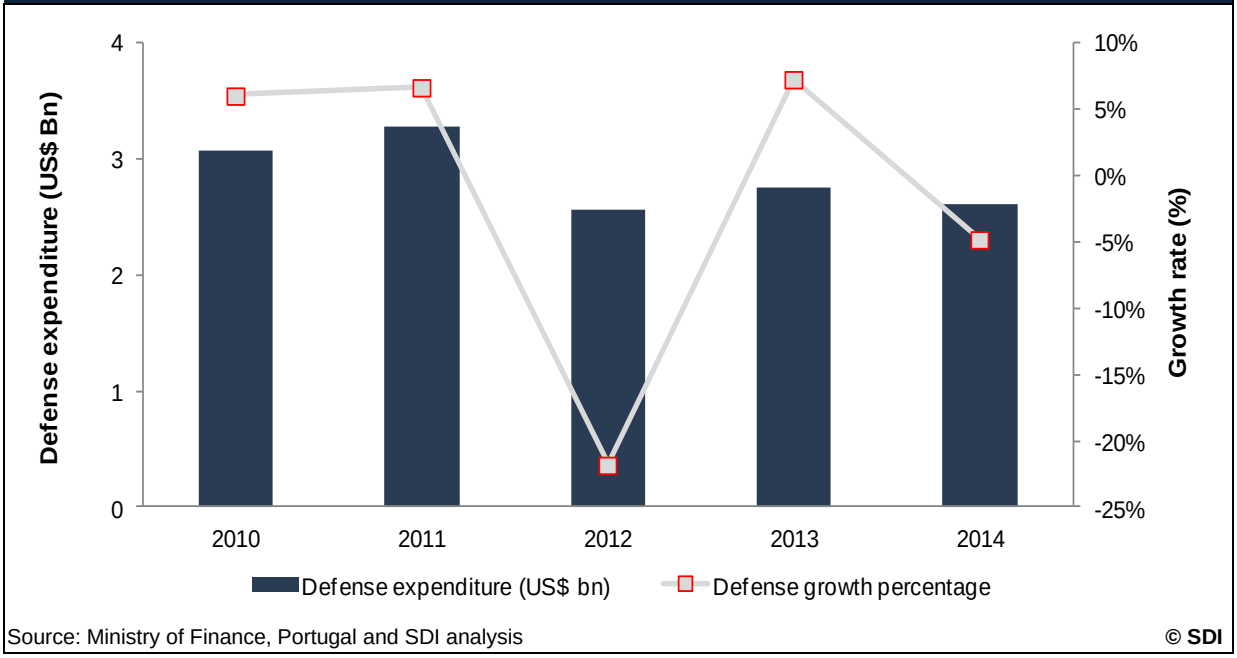
The following table and figure show Portuguese defense expenditure during 2010–2014:

Table 1: Portuguese Defense Expenditure (US$ Billion), 2010–2014

Year	Defense expenditure (US$ bn)	Defense growth percentage
2010	3.07	6.0%
2011	3.27	6.7%
2012	2.56	-21.8%
2013	2.74	7.3%
2014	2.61	-4.8%
	CAGR 2010-2014	**-3.93%**

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 1: Portuguese Defense Expenditure (US$ Billion), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

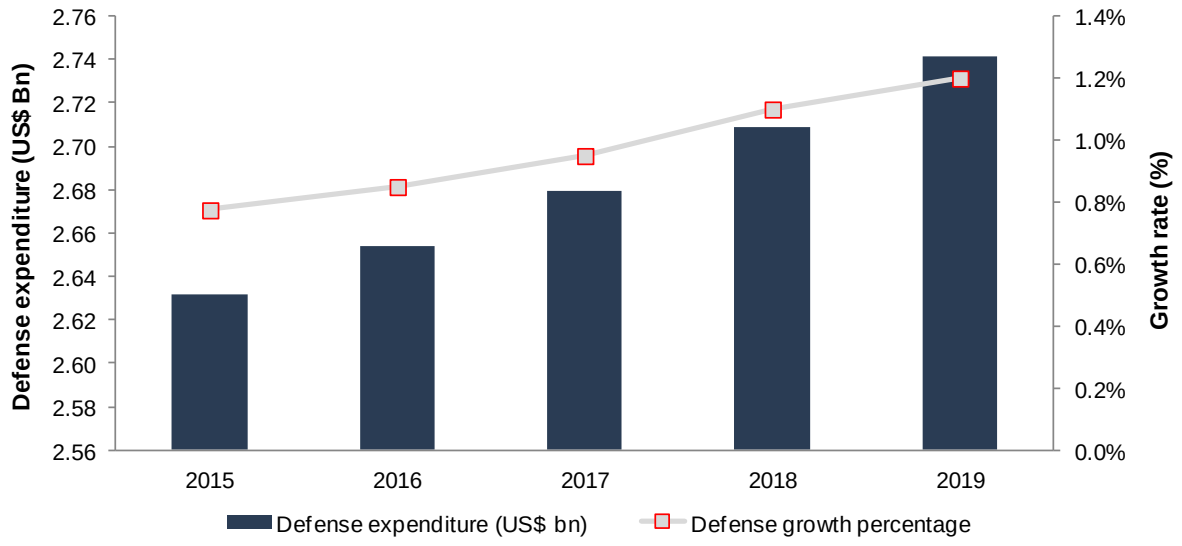
The following table and figure show the projected Portuguese defense expenditure over the forecast period:

Table 2: Portuguese Defense Expenditure (US$ Billion), 2015–2019

Year	Defense expenditure (US$ bn)	Defense growth percentage
2015	2.63	0.8%
2016	2.65	0.9%
2017	2.68	1.0%
2018	2.71	1.1%
2019	2.74	1.2%
	CAGR 2015–2019	1.02%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 2: Portuguese Defense Expenditure (US$ Billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

In terms of local currency, the Portuguese defense budget is EUR1.9 billion in 2014 and registered a CAGR of -3.93% during 2010–2014. However, the defense expenditure budget is forecast to grow at a CAGR of 1.02%.

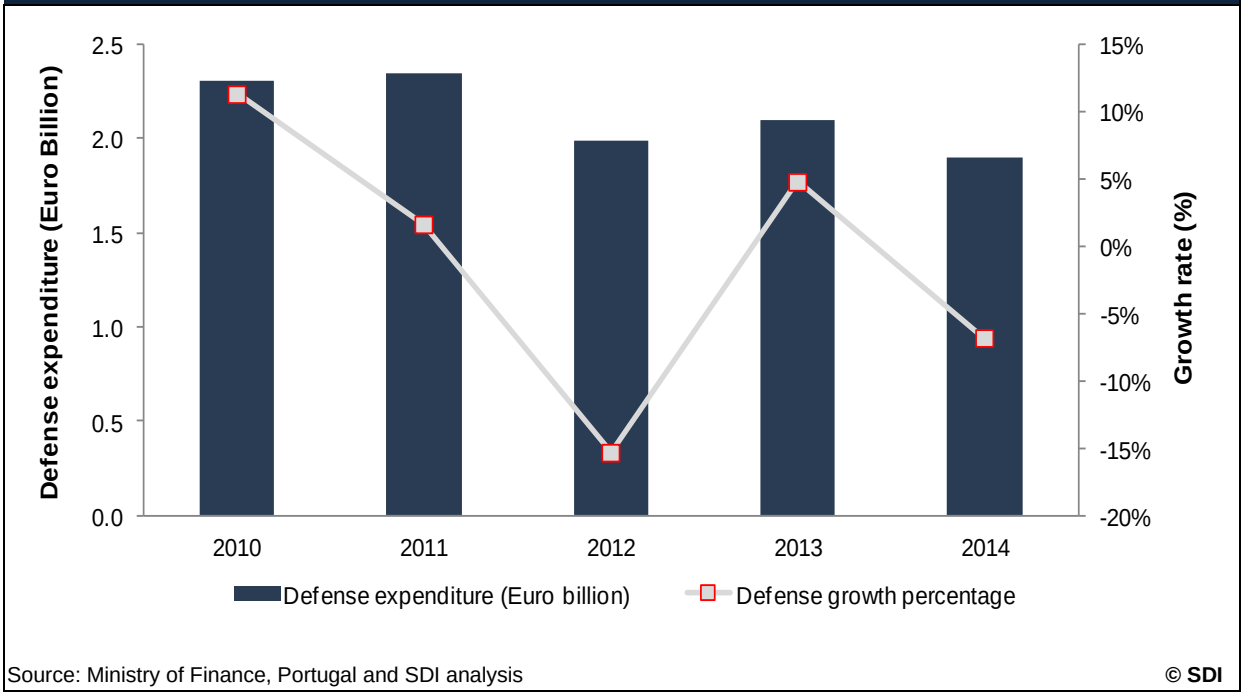
The following table and figure show Portuguese defense expenditure during 2010–2014:

Table 3: Portuguese Defense Expenditure (Euro Billion), 2010–2014

Year	Defense expenditure (Euro bn)	Defense growth percentage
2010	2.31	11.4%
2011	2.35	1.7%
2012	1.99	-15.3%
2013	2.01	4.8%
2014	1.94	-6.8%
	CAGR	**-3.93%**

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 3: Portuguese Defense Expenditure (Euro Billion), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

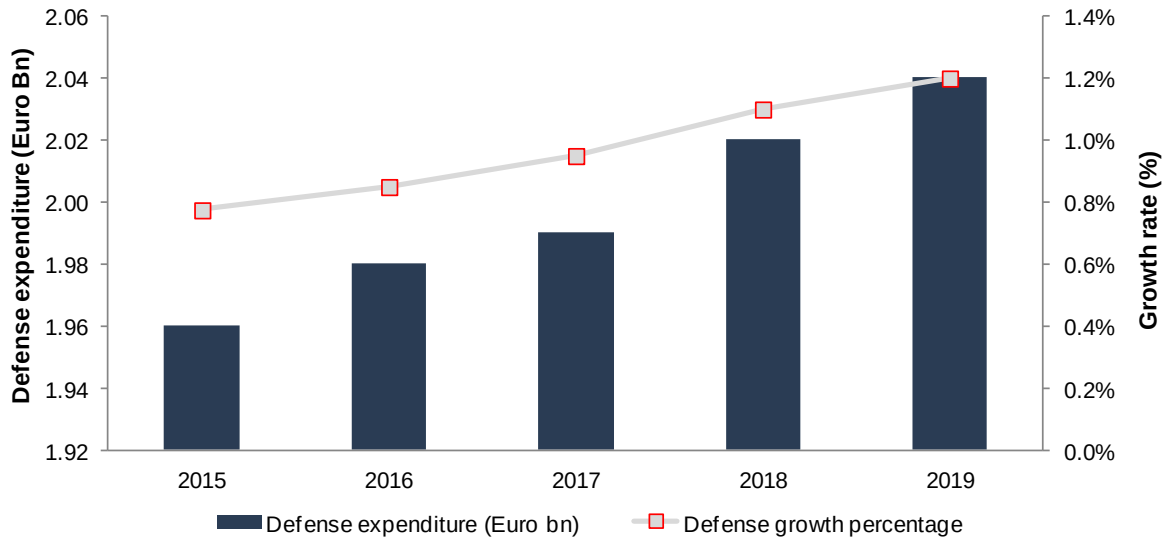
The following table and figure show the projected Portuguese defense expenditure over the forecast period:

Table 4: Portuguese Defense Expenditure (Euro Billion), 2015–2019

Year	Defense expenditure (Euro bn)	Defense growth percentage
2015	1.96	0.8%
2016	1.98	0.9%
2017	1.99	1.0%
2018	2.02	1.1%
2019	2.04	1.2%
	CAGR 2015–2019	**1.02%**

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 4: Portuguese Defense Expenditure (Euro Billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.1.2. International peacekeeping operations expected to drive defense expenditure over the forecast period

Defense expenditure in Portugal is primarily driven by international peacekeeping operations for the country's internal security.

Portugal's defense policies are formulated with a view of obtaining and maintaining influence and visibility within the UN, the NATO and the EU, as well as strengthening its position in the global political structure. To achieve these goals, the country has been participating and contributing military contingents to the NATO and the UN peacekeeping operations since 1990s.

International Peacekeeping missions: As a major contributor, Portugal committed several military personnel to the NATO's Kosovo Force (KFOR) peacekeeping force, and the UN's Timor- Leste peacekeeping mission. In addition, Portugal is assisting in the training of the Afghan security forces ahead of an eventual withdrawal of NATO troops planned towards the end of 2014.

As one of the founding members, Portugal also contributes to the NATO Rapid Deployable Corps Spain (NRDC SP), which along with Naval Striking and Support Forces NATO (STRIKFOR NATO) would respond to conflict situations in any part of the world within a short time period. The country is also a member of the European Maritime Force (EUROMARFOR), which allows its naval vessels to be assigned to either EU or NATO tasks. In April 2013, Portuguese frigate NRP Álvares Cabral joined the EU Naval Force (EU NAVFOR) for operations in Somalia called Operation Atlanta. As a UN member, the country has contributed to 20 peacekeeping missions around the world and was the first western country to contribute to the UN police force.

Thus, the military component has been increasingly becoming instrumental in executing the country's foreign policy and strengthening its position in the international organizations such as NATO and the UN. The Portuguese government aims to equip its armed forces with advanced equipment technology and adequate training, in order to further its position in these organizations as well as to abide by the directives of NATO with regards to military capabilities for its member countries. As such, these procurements and training are expected to drive the defense market in Portugal over the forecast period.

3.1.3. Portuguese defense expenditure as a percentage of GDP expected to decline to 0.9%

The Portuguese government's budget cuts during the period 2010-2014 resulted in decline of the defense expenditure as a percentage of GDP, from 1.3% in 2010 to 1.1% in 2014. The country's public debt and budgetary pressure were attributed as the primary reasons for this decline. However, the country's GDP is projected to grow at a CAGR of 3.6% over the forecast period, whereas its defense budget is expected to register a growth rate of 1.02% only. As a result, the Portuguese defense expenditure as a percentage of GDP is estimated to decline further during the period 2015-2019, to reach 0.9% by 2019.

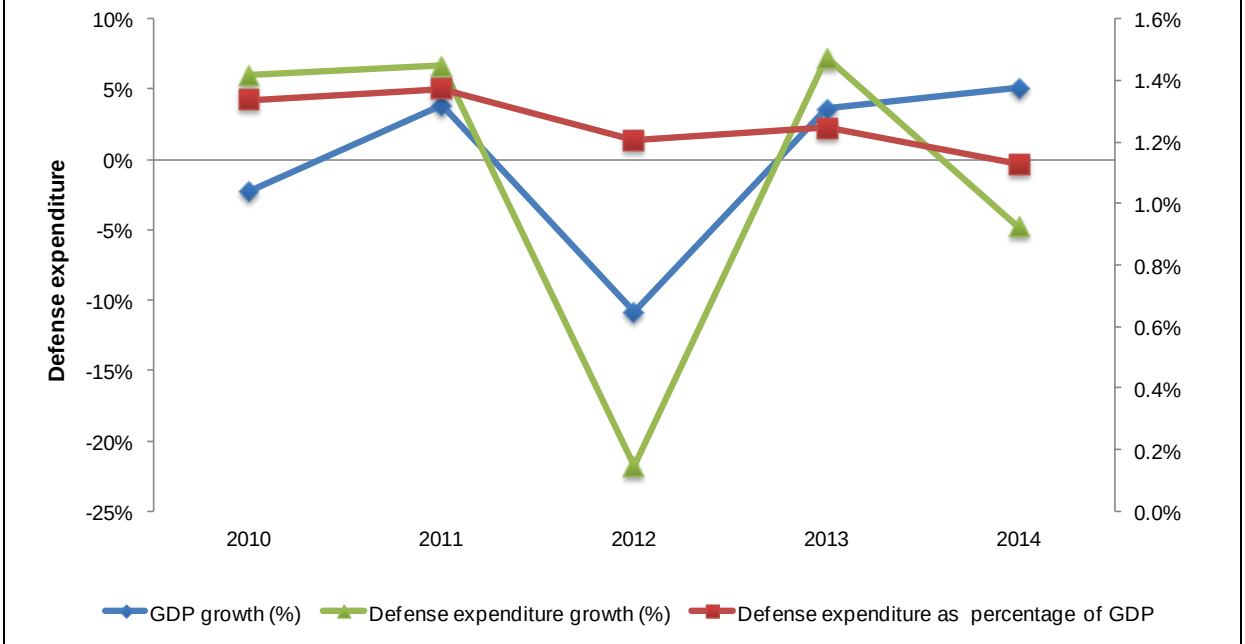
The following table and chart show Portuguese GDP growth vs. defense expenditure growth, and defense expenditure as a percentage of GDP during 2010–2014:

Table 5: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2010–2014

Year	GDP growth (%)	Defense expenditure growth (%)	Defense expenditure as percentage of GDP
2010	-2.3%	6.0 %	1.3%
2011	3.8%	6.7%	1.4%
2012	-10.9%	-21.8%	1.2%
2013	3.6%	7.3%	1.2%
2014	5.1%	-4.8%	1.1%

Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

Figure 5: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditures Percentage of GDP Growth, 2010–2014



Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

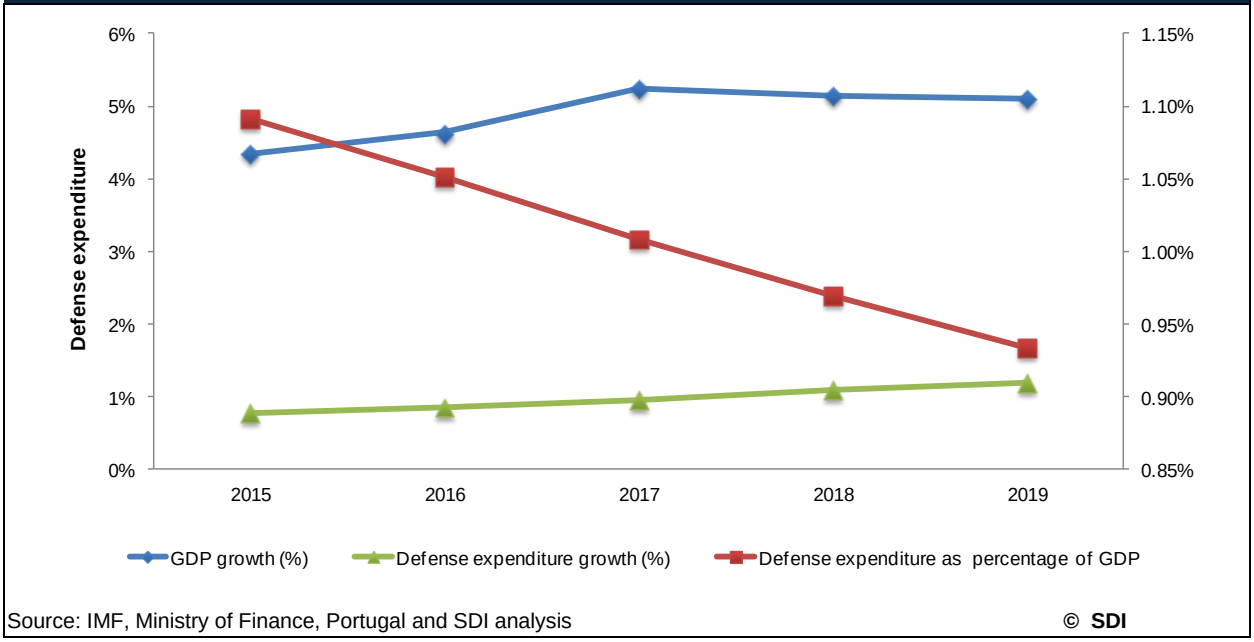
The following table and chart show Portuguese GDP growth vs. defense expenditure growth and defense expenditure as a percentage of GDP over the forecast period:

Table 6: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2015–2019

Year	GDP growth (%)	Defense expenditure growth (%)	Defense expenditure as percentage of GDP
2015	4.3%	0.8%	1.1%
2016	4.6%	0.9%	1.1%
2017	5.2%	1.0%	1.0%
2018	5.1%	1.1%	1.0%
2019	5.1%	1.2%	0.9%

Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

Figure 6: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2015–2019



Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

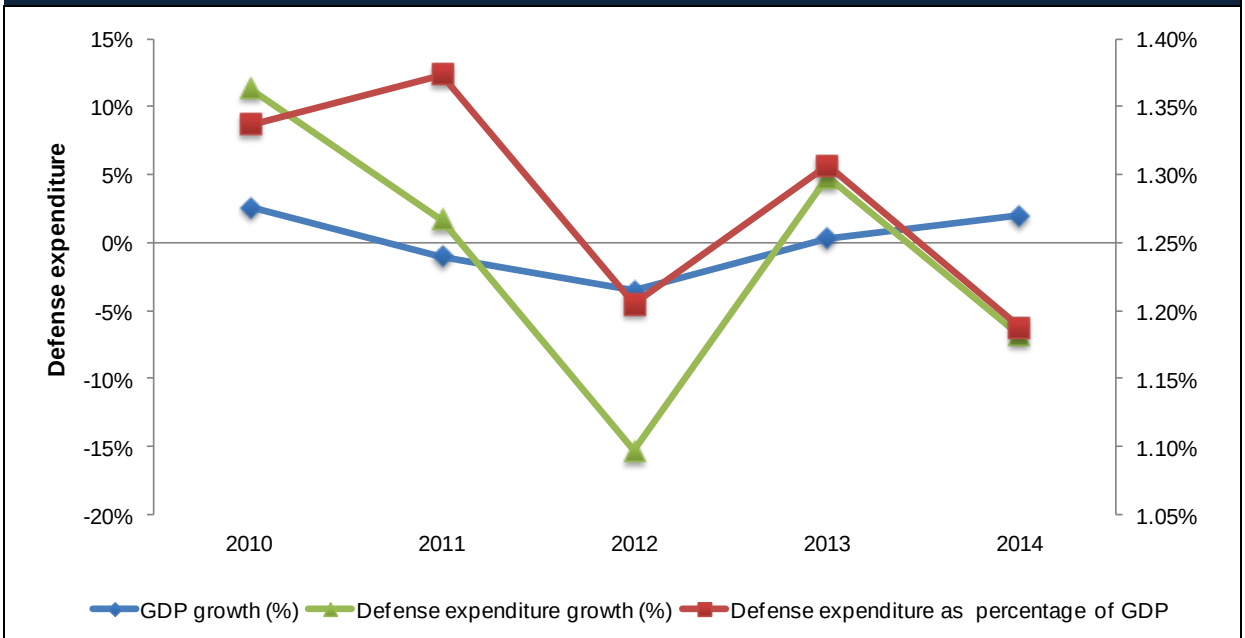
The following table and chart show Portuguese GDP growth vs. defense expenditure growth, and defense expenditure as a percentage of GDP during 2010–2014 in terms of local currency:

Table 7: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2010–2014

Year	GDP growth (%)	Defense expenditure growth (%)	Defense expenditure as percentage of GDP
2010	2.6%	11.4%	1.3%
2011	-1%	1.7%	1.4%
2012	-3.5%	-15.3%	1.2%
2013	0.3%	4.8%	1.2%
2014	2%	-6.8%	1.1%

Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

Figure 7: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditures Percentage of GDP Growth, 2010–2014



Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

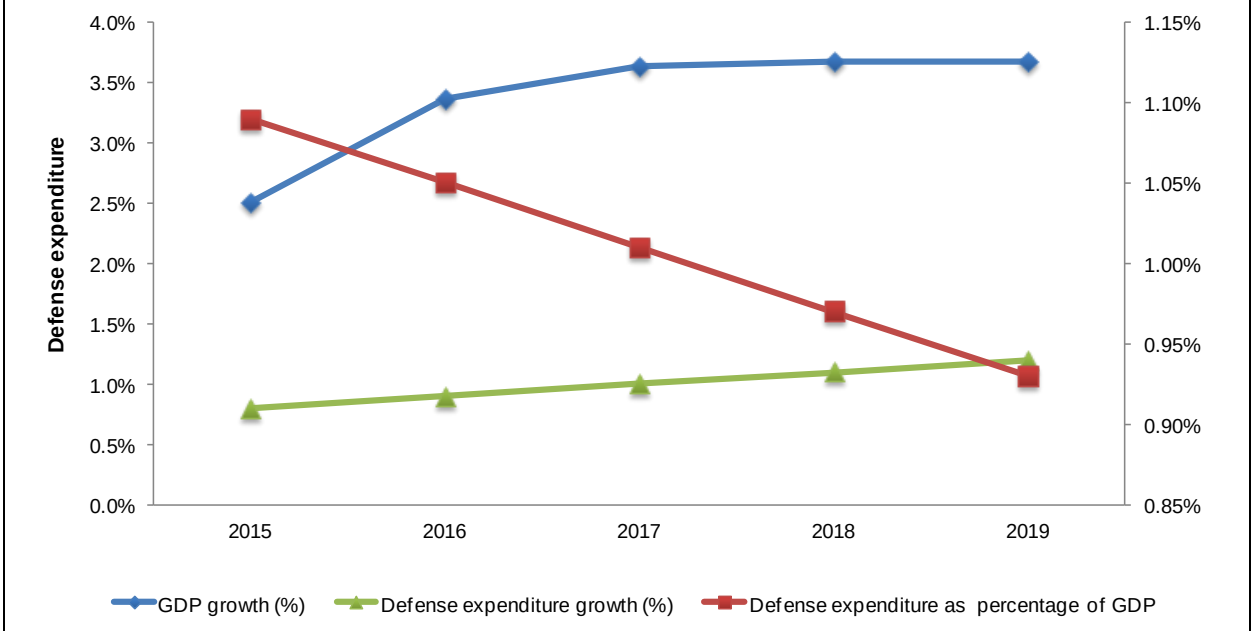
The following table and chart show Portuguese GDP growth vs. defense expenditure growth and defense expenditure as a percentage of GDP over the forecast period in terms of local currency:

Table 8: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2015–2019

Year	GDP growth (%)	Defense expenditure growth (%)	Defense expenditure as percentage of GDP
2015	2.5%	0.8%	1.1%
2016	3.4%	0.9%	1.1%
2017	3.6%	1.0%	1.0%
2018	3.7%	1.1%	0.0%
2019	3.7%	1.2%	0.9%

Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

Figure 8: Portuguese GDP Growth vs. Defense Expenditure Growth and Defense Expenditure as Percentage of GDP Growth, 2015–2019



Source: IMF, Ministry of Finance, Portugal and SDI analysis © SDI

3.2. Analysis of Defense Budget Allocation

3.2.1. Share of capital expenditure expected to remain low over forecast period

The country's capital expenditure allocation declined from 20.1% in 2010 to 10.5% in 2014 primarily due to austerity measures imposed on it, which resulted in the cancellation of procurement programs such as NH-90 helicopters and Pandur II armored vehicles. The allocation for capital expenditure is estimated to be low over the forecast period as the country reduces defense procurements in order to negate the debt burden that it currently carries. During the forecast period, the country is expected to allocate an average 10.4% of its total budget to capital expenditure.

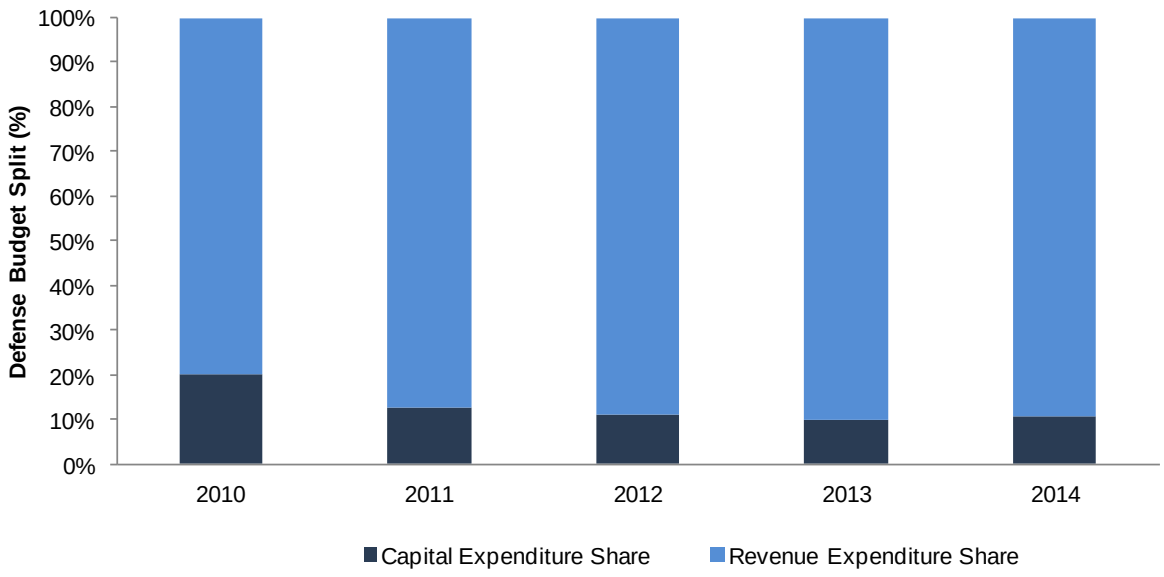
The following table and chart display the defense budget share of capital and revenue expenditure during 2010–2014:

Table 9: Portuguese Defense Budget Split Between Capital and Revenue Expenditure (%), 2010–2014

Year	Capital Expenditure Share	Revenue Expenditure Share
2010	20.1%	79.9%
2011	12.6%	87.4%
2012	11.0%	89.0%
2013	10.1%	89.9%
2014	10.5%	89.5%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 9: Portuguese Defense Budget Split Between Capital and Revenue Expenditure (%), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

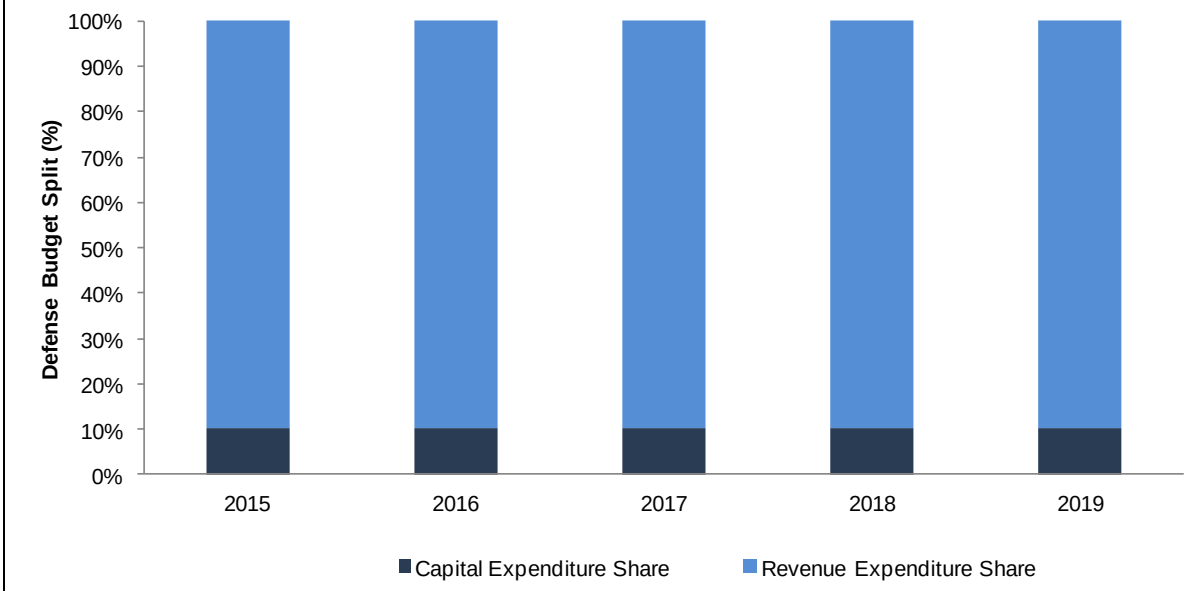
The following table and chart display the defense budget share of capital and revenue expenditure over the forecast period:

Table 10: Portuguese Defense Budget Split Between Capital and Revenue Expenditure (%), 2015–2019

Year	Capital Expenditure Share	Revenue Expenditure Share
2015	10.3%	89.7%
2016	10.4%	89.6%
2017	10.4%	89.6%
2018	10.4%	89.6%
2019	10.4%	89.6%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 10: Portuguese Defense Budget Split Between Capital and Revenue Expenditure (%), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.2. Austerity measures expected to affect Defense Capital Expenditure

Portuguese defense capital expenditure valued at US$615.5million in 2010 and registered a CAGR of -18.21% during 2010–2014. Owing to the budgetary pressures, the country slashed down its future defense procurement plan by 45.7% in 2013. As a result of this, the Portuguese government's budget allocation towards the defense procurement is estimated to at reduced levels over the period 2015-2019 than in the period 2010-2014. Cumulatively, the Ministry of National Defense allocated US$1.9 billion towards the capital expenditure during the review period, which is expected to reduce to US$1.4 billion over the forecast period.

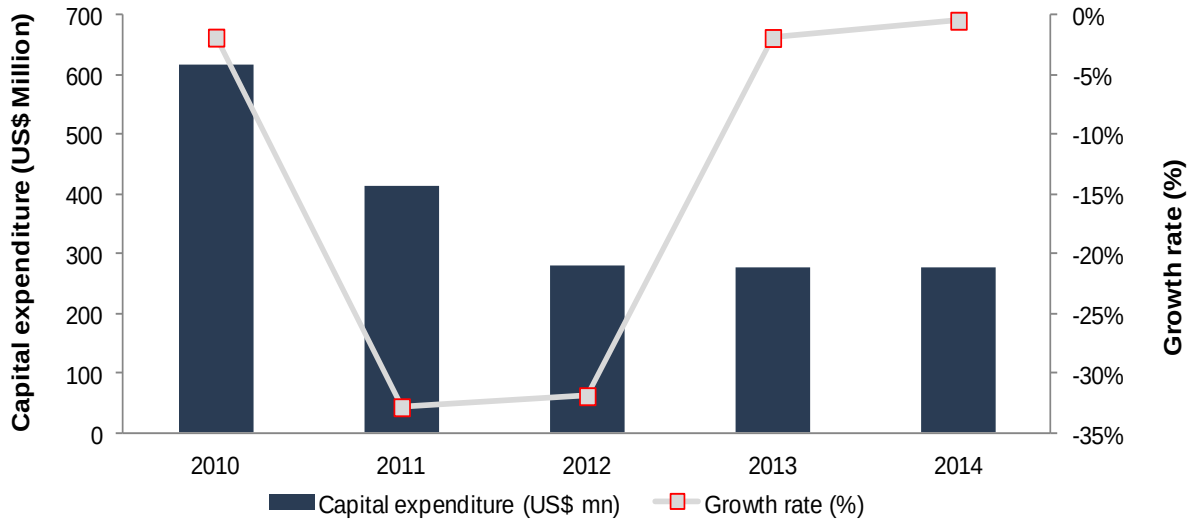
The following table and chart show Portugal's capital expenditure budget during 2010–2014:

Table 11: Portuguese Defense Capital Expenditure (US$ mn), 2010–2014

Year	Capital expenditure (US$ mn)	Growth rate (%)
2010	615.5	-1.8%
2011	413.6	-32.8%
2012	281.8	-31.9%
2013	276.6	-1.8%
2014	275.5	-0.4%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 11: Portuguese Defense Capital Expenditure (US$ million), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

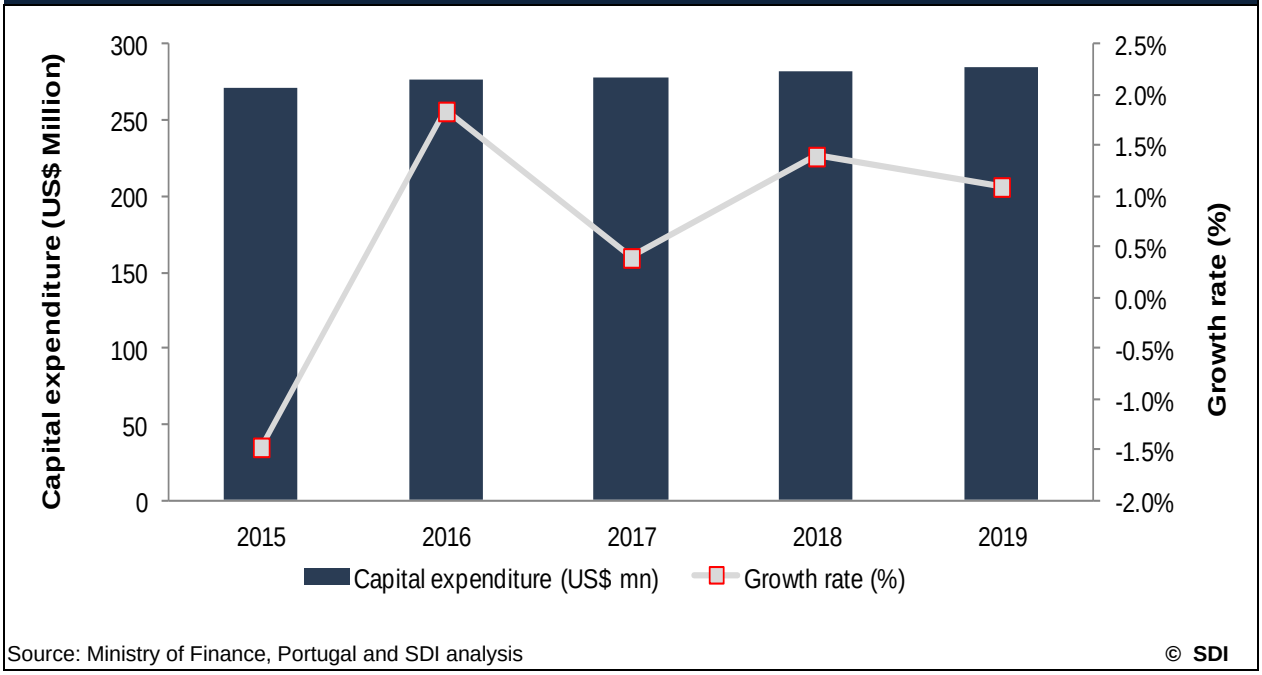
The following table and chart show Portugal's capital expenditure over the forecast period:

Table 12: Portuguese Defense Capital Expenditure (US$ Mn), 2015–2019

Year	Capital expenditure (US$ Mn)	Growth rate (%)
2015	271.5	-1.5%
2016	276.9	2.0%
2017	278.0	0.4%
2018	281.8	1.4%
2019	284.8	1.1%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 12: Portuguese Defense Capital Expenditure (US$ Mn), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

In terms of local currency, the budget allocation for capital expenditure declined from Euro 463.5 million in 2010 to Euro 218.7 in 2014 and registered a CAGR of -18.21%. However, reduction in planned procurement activity is expected to the primary reason for the country's allocation for capital expenditure to average US$279 million over the forecast period.

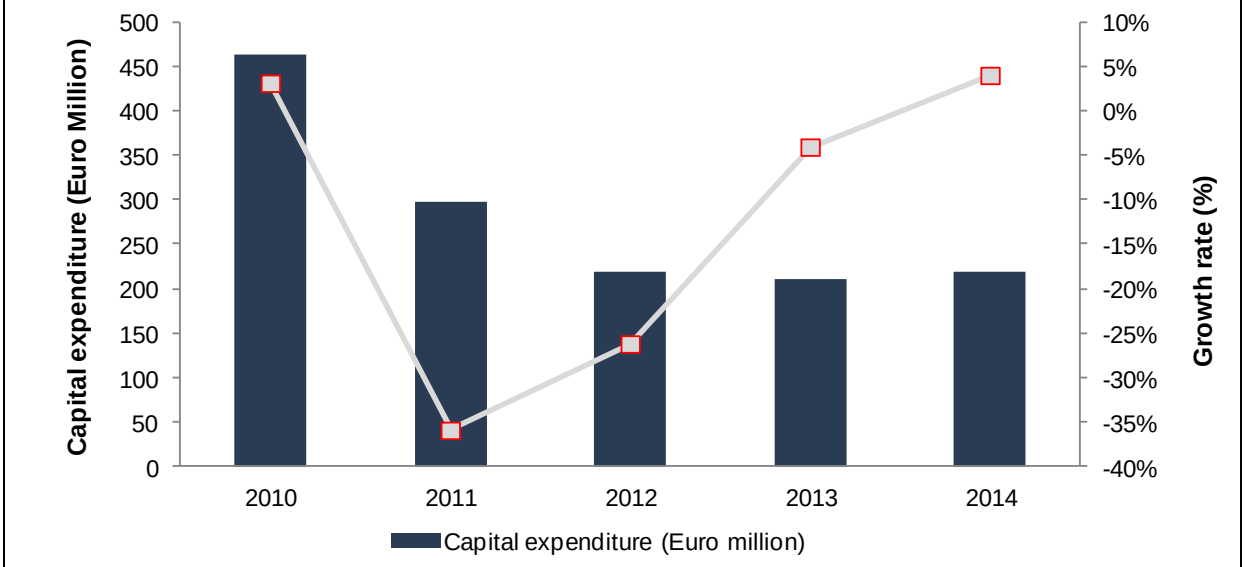
The following table and chart show Portugal's capital expenditure budget during 2010–2014:

Table 13: Portuguese Defense Capital Expenditure (Euro Million), 2010–2014

Year	Capital expenditure (Euro Million)	Growth rate (%)
2010	463.5	3.1%
2011	297.0	-35.9%
2012	219.1	-26.2%
2013	210.2	-4.1%
2014	218.7	4.0%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 13: Portuguese Defense Capital Expenditure (Euro Million), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

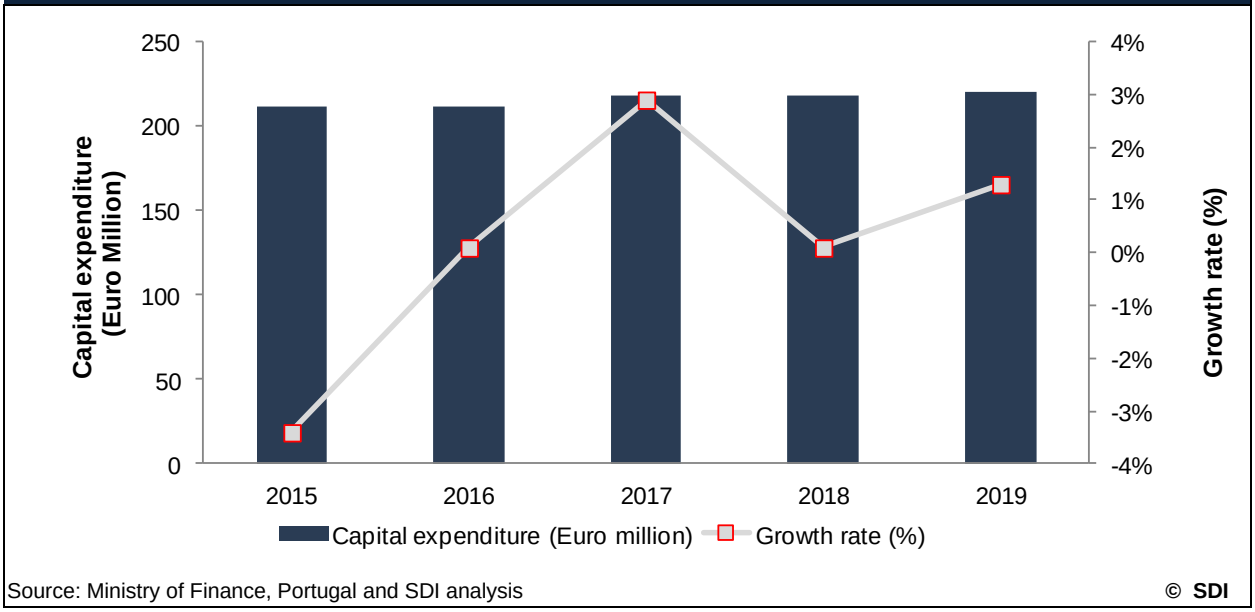
The following table and chart show Portugal's capital expenditure over the forecast period:

Table 14: Portuguese Defense Capital Expenditure (Euro Mn), 2015–2019

Year	Capital expenditure (Euro Mn)	Growth rate (%)
2015	211.2	-3.4%
2016	211.5	0.1%
2017	217.6	2.9%
2018	217.8	0.1%
2019	220.5	1.3%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 14: Portuguese Defense Capital Expenditure (Euro Mn), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.3. Army to garner highest share of defense budget over the forecast period

Portuguese budget allocation for army accounted for 31.4% during the review period and is projected to remain stable during the forecast period. Navy and air force got the second and third highest allocation with 25.7% and 18.1% share. The share of central services support during the review period was 22.5% during 2010-2014 and is estimated to increase to 23.4% during the forecast period.

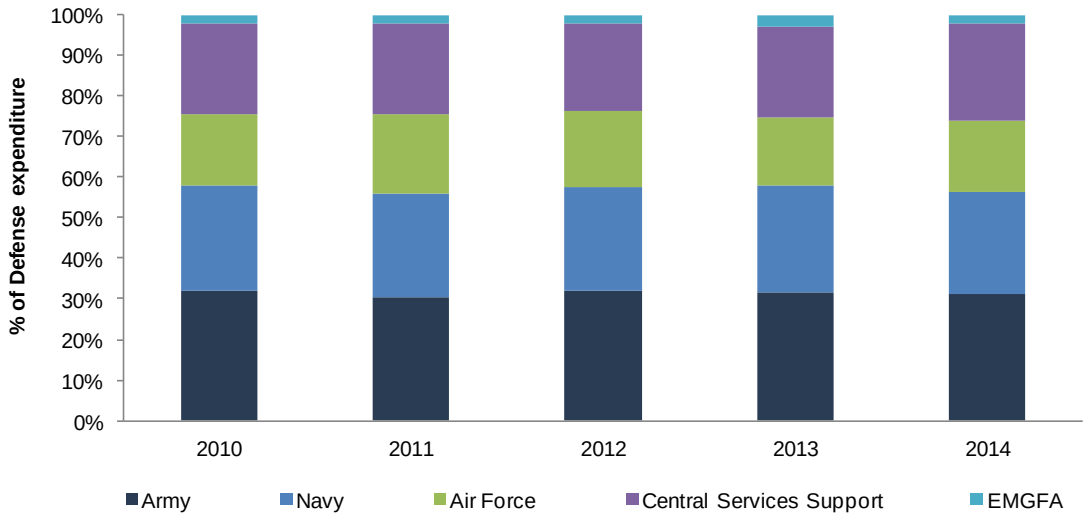
The following table and chart show Portugal's defense expenditure during 2010–2014:

Table 15: Portuguese Defense Expenditure Breakdown (%), 2010–2014

Year	Army	Navy	Air Force	Central Services Support	Others
2010	31.9%	25.9%	17.8%	22.1%	2.3%
2011	30.3%	25.6%	19.6%	22.6%	2.1%
2012	32.1%	25.4%	18.8%	21.6%	2.2%
2013	31.6%	26.4%	16.8%	22.4%	2.9%
2014	31.2%	25.1%	17.6%	23.9%	2.3%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 15: Portuguese Defense Expenditure Breakdown (%), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

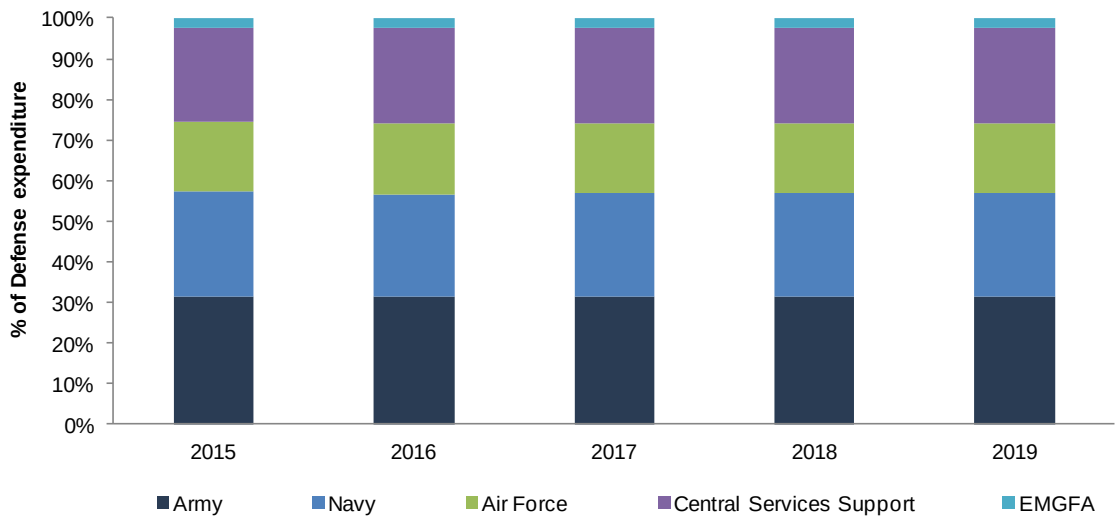
The following table and chart show the Portugal's defense expenditure over the forecast period:

Table 16: Portuguese Defense Expenditure Breakdown (%), 2015–2019

Year	Army	Navy	Air Force	Central Services Support	Others
2015	31.4%	25.7%	17.2%	23.1%	2.6%
2016	31.3%	25.4%	17.4%	23.5%	2.4%
2017	31.3%	25.6%	17.3%	23.3%	2.5%
2018	31.3%	25.5%	17.3%	23.4%	2.5%
2019	31.3%	26.5%	17.3%	23.4%	2.5%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 16: Portuguese Defense Expenditure Breakdown (%), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.4. Army Expenditure to remain stable over the forecast period

Portuguese expenditure on army declined from US$0.98 billion in 2010 to US$0.82 billion in 2014 and registered a CAGR -4.44% during the review period, primarily due to the budget cuts which propelled the country to reduce the salaries and pensions of the military personnel. However, the country's expenditure on its army is projected to follow the trend of its defense budget and register a CAGR of 0.98% during 2015-2019.

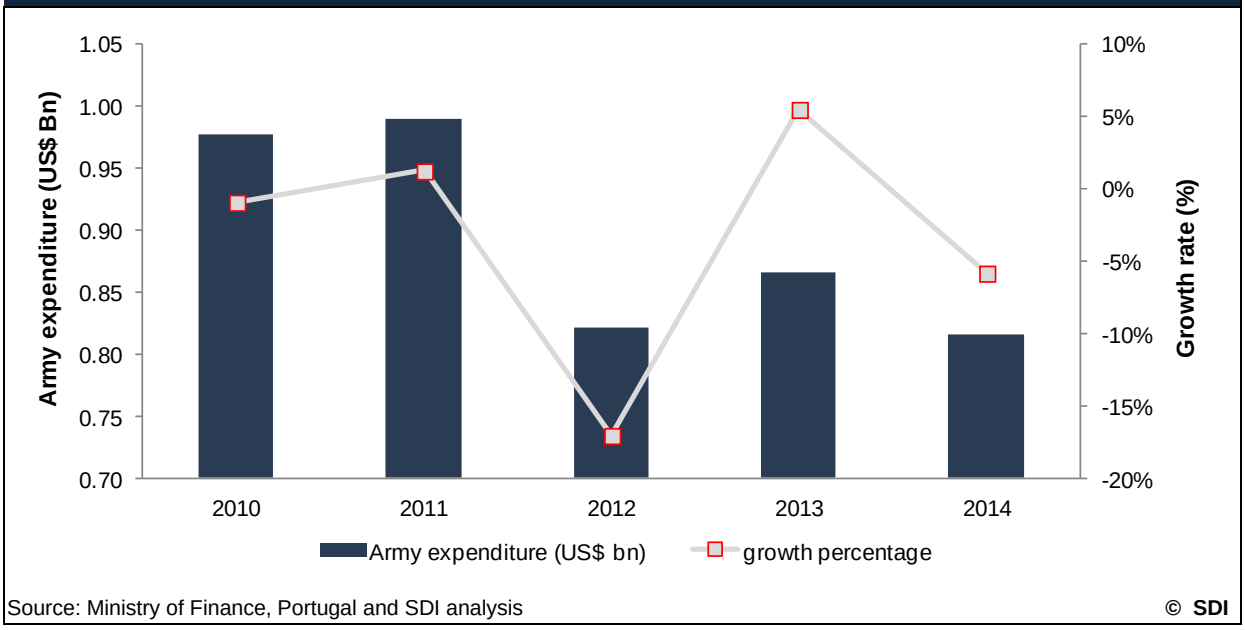
The following table and chart show the Portuguese expenditure budget for the army during 2010–2014:

Table 17: Portuguese Defense Expenditure budget for Army (US$ Bn), 2010–2014

Year	Army expenditure (US$ bn)	Growth rate (%)
2010	0.98	-0.9%
2011	0.99	1.2%
2012	0.82	-17.1%
2013	0.87	5.5%
2014	0.82	-5.8%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 17: Portuguese Defense Expenditure budget for Army (US$ Bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

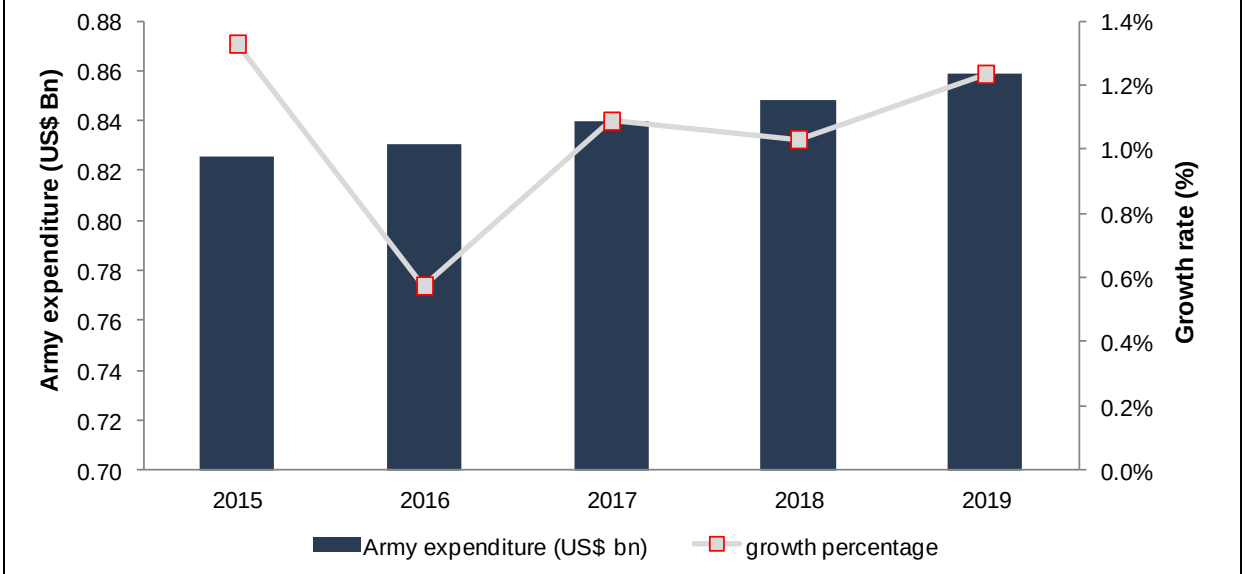
The following table and chart show the Portuguese expenditure budget for the army over the forecast period:

Table 18: Portuguese Defense Expenditure budget for Army (US$ Bn), 2015–2019

Year	Army expenditure (US$ Bn)	Growth rate (%)
2015	0.83	1.3%
2016	0.83	0.6%
2017	0.84	1.1%
2018	0.85	1.0%
2019	0.86	1.2%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 18: Portuguese Defense Expenditure budget for Army (US$ Bn), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

In terms of local currency, the defense budget expenditure for the army witnessed a decreasing trend between 2010 and 2014 and registered a CAGR of -4.44%. However, it is projected to value EUR0.64 billion in 2019 and register a CAGR of 0.98% between 2015 and 2019.

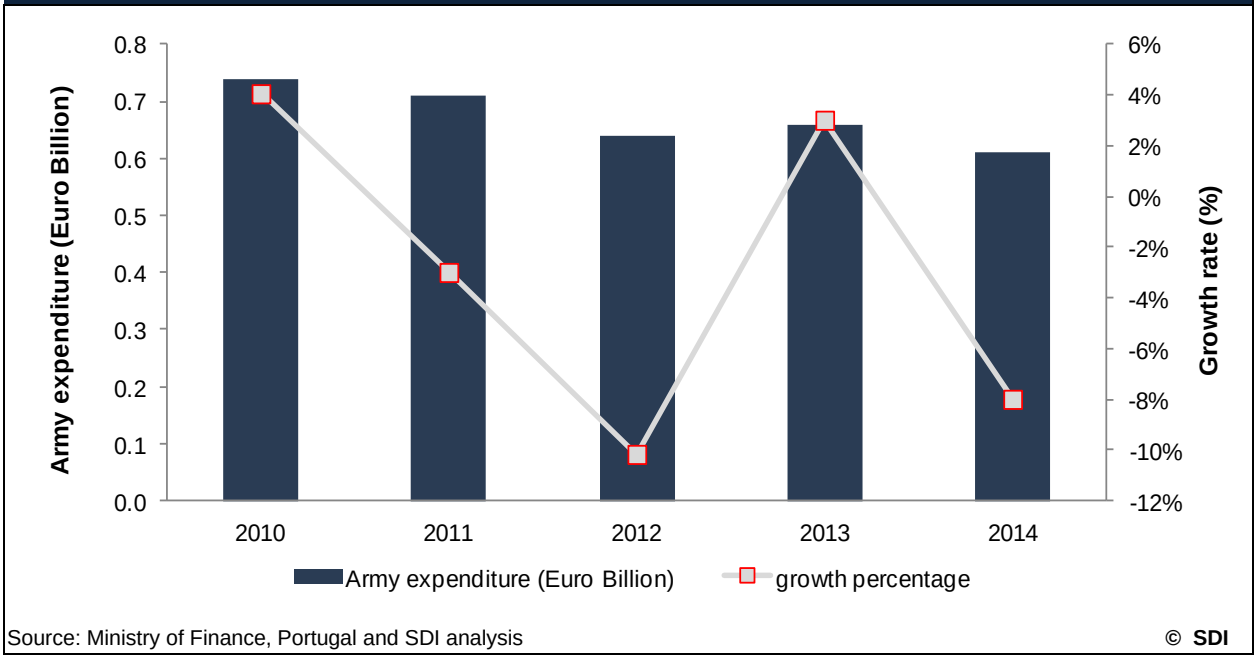
The following table and chart show Portugal's expenditure budget for the army during 2010–2014:

Table 19: Portuguese Defense Expenditure budget for Army (EUR Bn), 2010–2014

Year	Army expenditure (EUR bn)	Growth rate (%)
2010	0.74	4.0%
2011	0.71	-3.5%
2012	0.64	-10.2%
2013	0.66	3.1%
2014	0.61	-7.8%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 19: Portuguese Defense Expenditure budget for Army (EUR bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

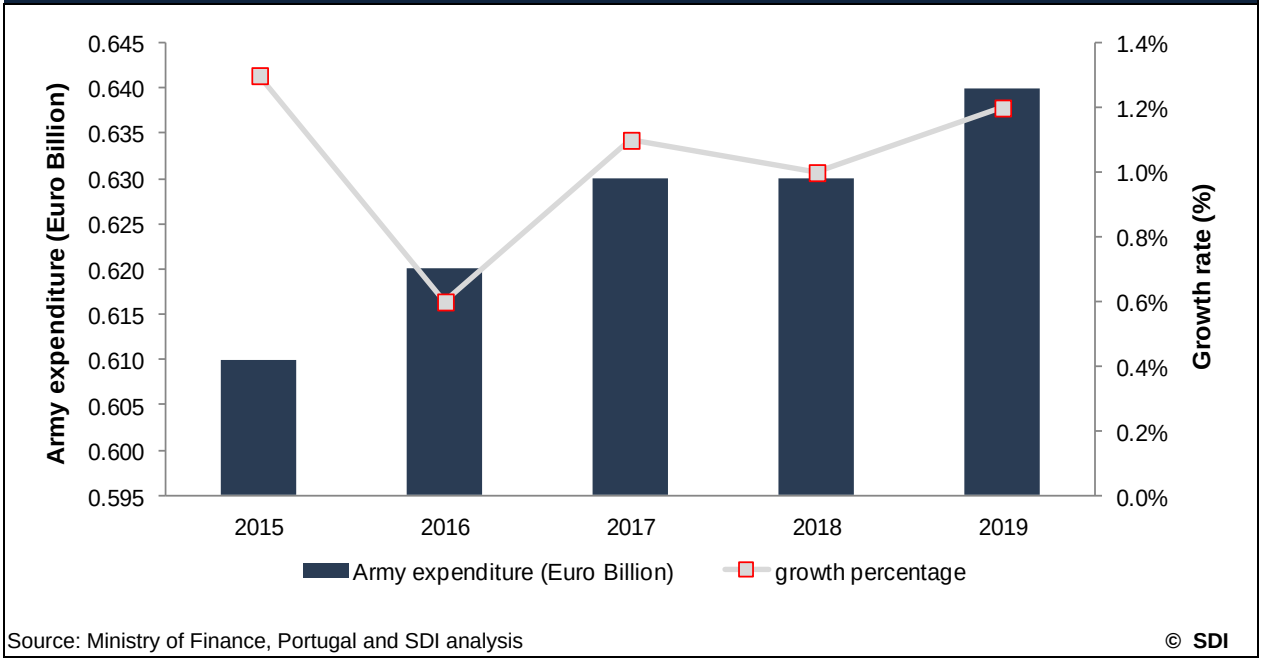
The following table and chart show Portugal's expenditure budget for the army over the forecast period:

Table 20: Portuguese Defense Expenditure budget for Army (EUR Bn), 2015–2019

Year	Army expenditure (EUR Bn)	Growth rate (%)
2015	0.61	1.3%
2016	0.62	0.6%
2017	0.63	1.1%
2018	0.63	1.0%
2019	0.64	1.2%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 20: Portuguese Defense Expenditure budget for Army (EUR Bn), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.5. Naval Expenditure to grow at 0.83% over the forecast period

Portugal's expenditure on its naval forces recorded a CAGR of -4.66% to value US$0.65 billion in 2014. The country's expenditure on its navy is forecast to hover around US$0.7 billion between 2015 and 2019, registering a CAGR of 0.83%. Portugal's Navy consists of about 10,000 personnel including 1,400 marines along with seven offshore patrol craft, six frigates, and three submarines. The share of expenditure on the navy out of the country's total defense budget is expected to average at 25.5% over the forecast period.

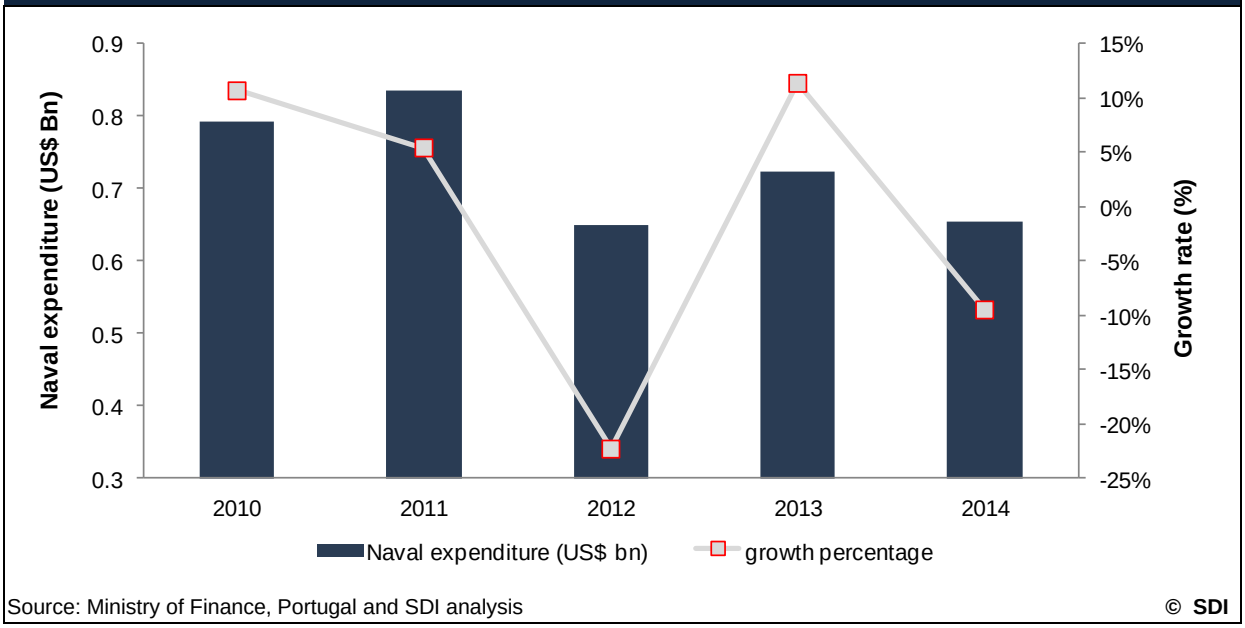
The following table and chart show Portugal's expenditure budget for the navy during 2010–2014:

Table 21: Portuguese Defense Expenditure budget for Navy (US$ bn), 2010–2014

Year	Naval expenditure (US$ bn)	Growth rate (%)
2010	0.79	10.7%
2011	0.84	5.5%
2012	0.65	-22.3%
2013	0.72	11.4%
2014	0.65	-9.5%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 21: Portuguese Defense Expenditure budget for Navy (US$ bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

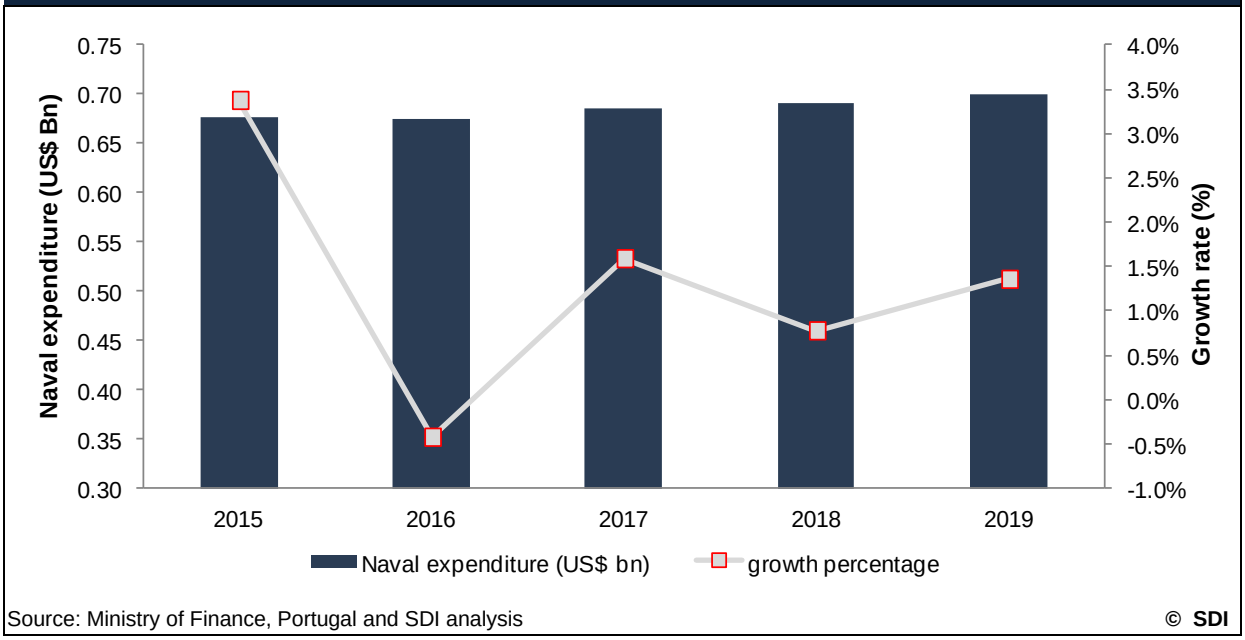
The following table and chart show Portugal's expenditure budget for the Navy over the forecast period:

Table 22: Portuguese Defense Expenditure budget for the Navy (US$ bn), 2015–2019

Year	Naval expenditure (US$ bn)	Growth rate (%)
2015	0.68	3.4%
2016	0.67	-0.4%
2017	0.68	1.6%
2018	0.69	0.8%
2019	0.70	1.4%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 22: Portuguese Defense Expenditure budget for Navy (US$ billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

The naval expenditure in terms of local currency registered a CAGR of -4.66% between 2010 and 2014 to stand at EUR0.49 billion in 2014. It is projected that naval expenditure will register a CAGR of 0.83% to value EUR0.52 billion in 2019.

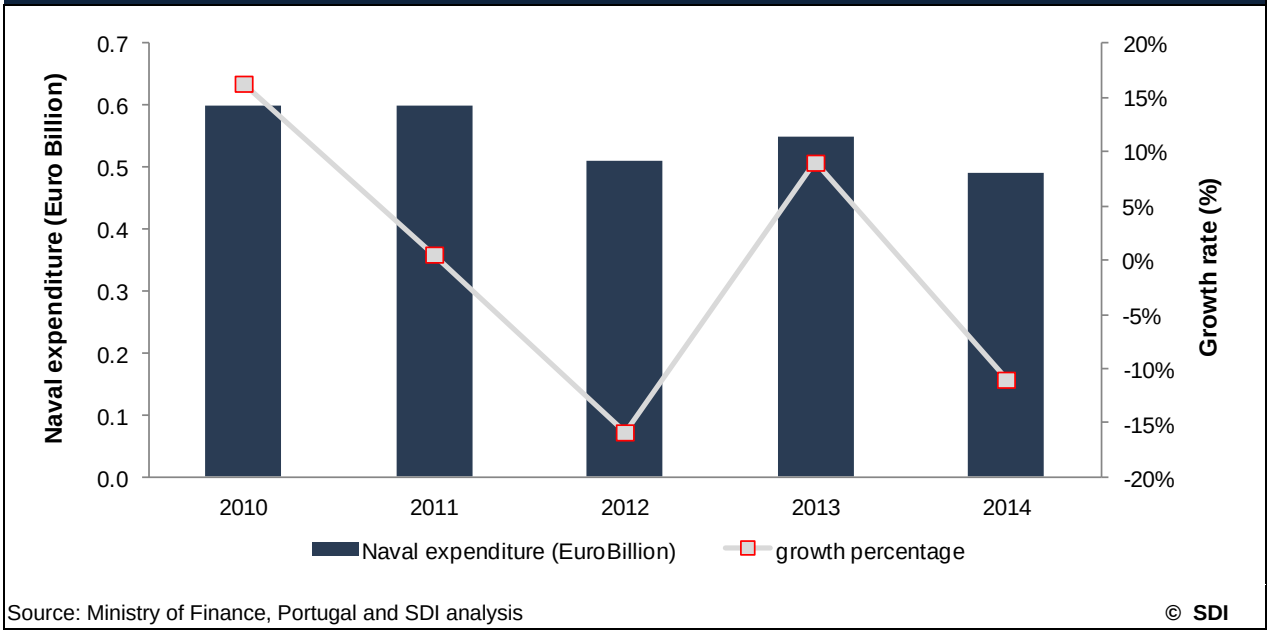
The following table and chart show the Portuguese expenditure budget for the navy during 2010–2014:

Table 23: Portuguese Defense Expenditure budget for Navy (EUR Billion), 2010–2014

Year	Naval expenditure (EUR bn)	Growth rate (%)
2010	0.60	16.3%
2011	0.60	0.5%
2012	0.51	-15.9%
2013	0.55	8.9%
2014	0.49	-11.3%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 23: Portuguese Defense Expenditure budget for Navy (EUR Billion), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

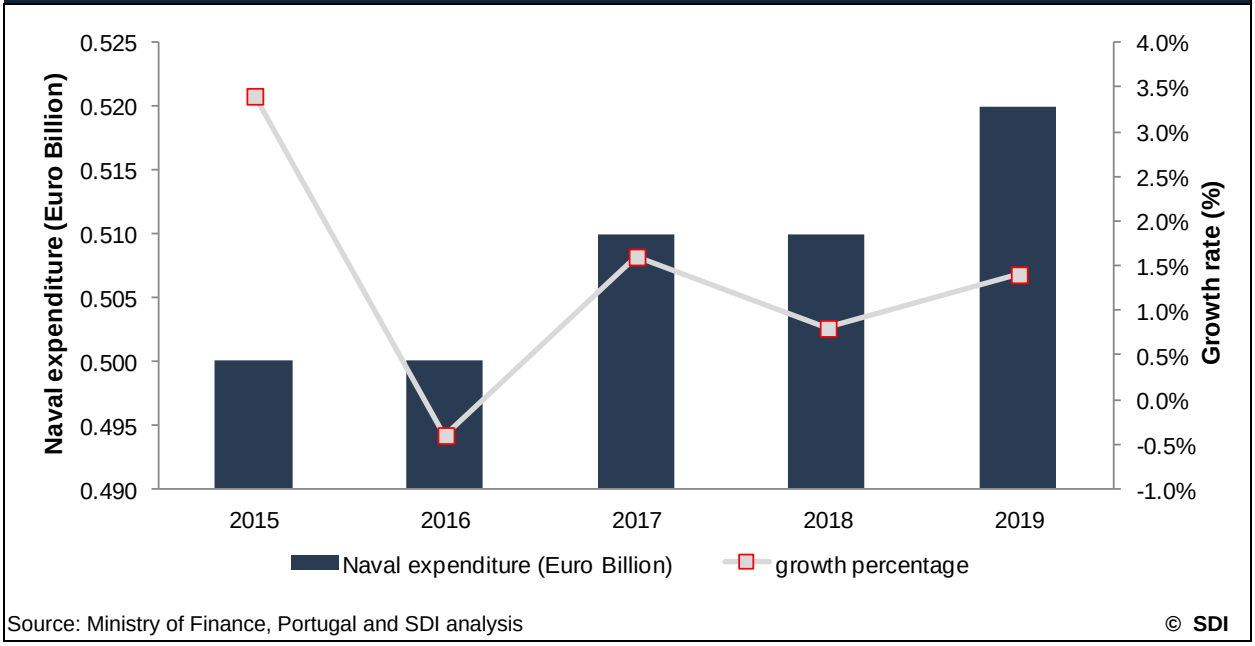
The following table and chart show the Portuguese expenditure budget for the navy over the forecast period:

Table 24: Portuguese Defense Expenditure budget for Navy (EUR Billion), 2015–2019

Year	Naval expenditure (EUR bn)	Growth rate (%)
2015	0.50	3.4%
2016	0.50	-0.4%
2017	0.51	1.6%
2018	0.51	0.8%
2019	0.52	1.4%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 24: Portuguese Defense Expenditure budget for Navy (EUR Billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.6. Air Force Expenditure expected to increase by 1.20% over the forecast period

Between 2010 and 2014, Portuguese expenditure on the air force registered a CAGR of -4.30% to value US$0.46 billion in 2014. However, in the forecast period it is projected that the air force expenditure would increase due to the country's procurement of six KC-390 airlifters. The defense expenditure of the air force is expected to slightly increase to US$0.5 billion, registering a CAGR of 1.20% during 2015-2019.

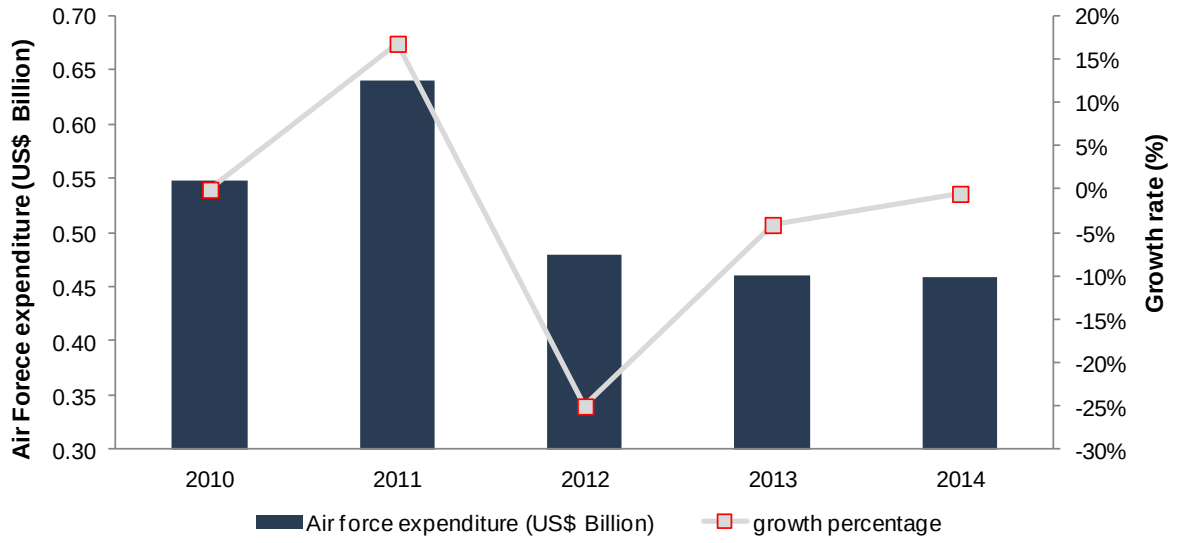
The following table and chart show Portugal's expenditure budget for the air force during 2010–2014:

Table 25: Portuguese Defense Expenditure Budget for Air Force (US$ bn), 2010–2014

Year	Air force expenditure (US$ bn)	Growth rate (%)
2010	0.55	0.1%
2011	0.64	16.9%
2012	0.48	-24.9%
2013	0.46	-4.0%
2014	0.46	-0.4%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 25: Portuguese Defense Expenditure Budget for Air Force (US$ bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

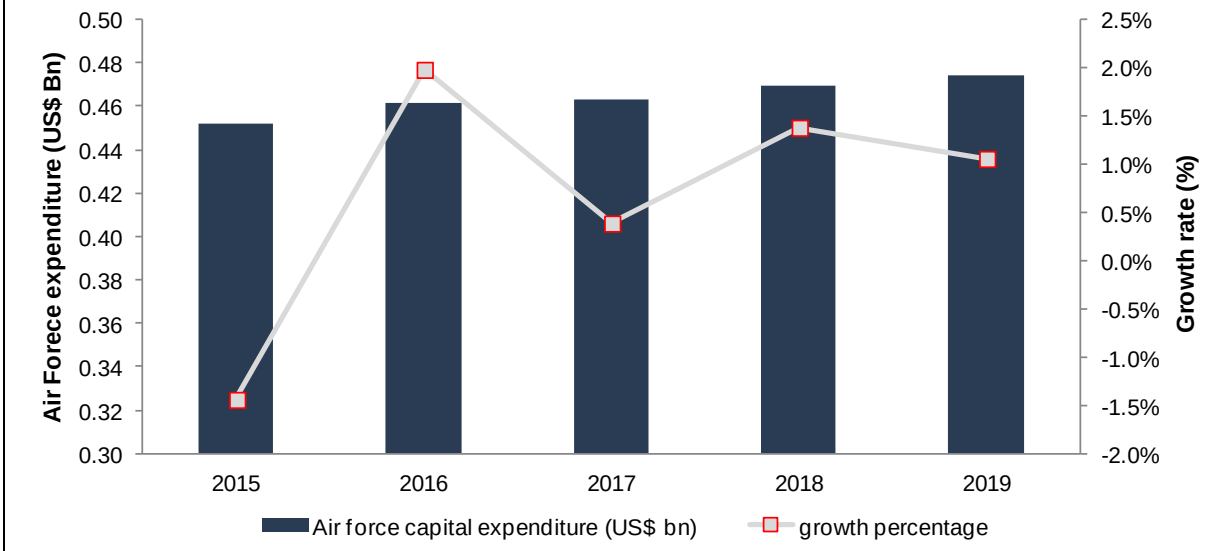
The following table and chart show Portugal's expenditure budget for the air force over the forecast period:

Table 26: Portuguese Defense Expenditure Budget for Air Force (US$ Billion), 2015–2019

Year	Air force expenditure (US$ bn)	Growth rate (%)
2015	0.45	-1.4%
2016	0.46	2.0%
2017	0.46	0.4%
2018	0.47	1.4%
2019	0.47	1.1%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 26: Portuguese Defense Expenditure Budget for Air Force (US$ Billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

Portugal's budget for the air force is valued at EUR0.34 billion in 2014, registering a CAGR of -4.30% between 2010 and 2014. However, it is projected that the expenditure budget for the air force will be EUR0.35 billion in 2019, registering a CAGR of 1.20% during the forecast period.

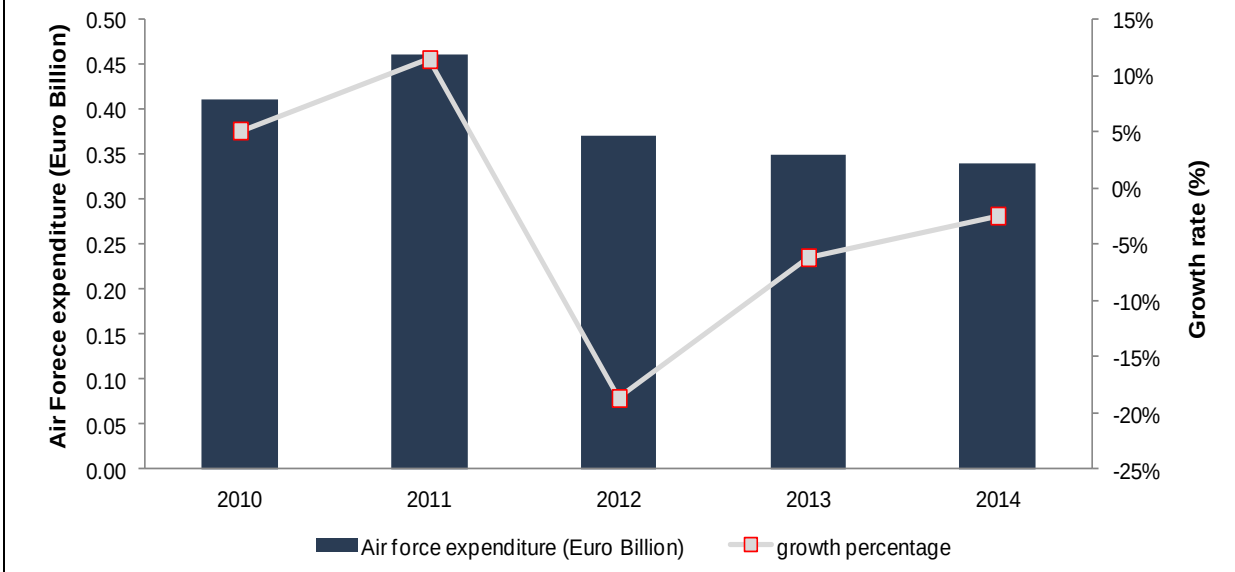
The following table and chart show Portugal's expenditure budget for the Air Force during 2010–2014:

Table 27: Portuguese Defense Expenditure Budget for Air Force (EUR Bn), 2010–2014

Year	Air force expenditure (EUR Bn)	Growth rate (%)
2010	0.41	5.1%
2011	0.46	11.4%
2012	0.37	-18.7%
2013	0.35	-6.2%
2014	0.34	-2.5%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 27: Portuguese Defense Expenditure Budget for Air Force (EUR Bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

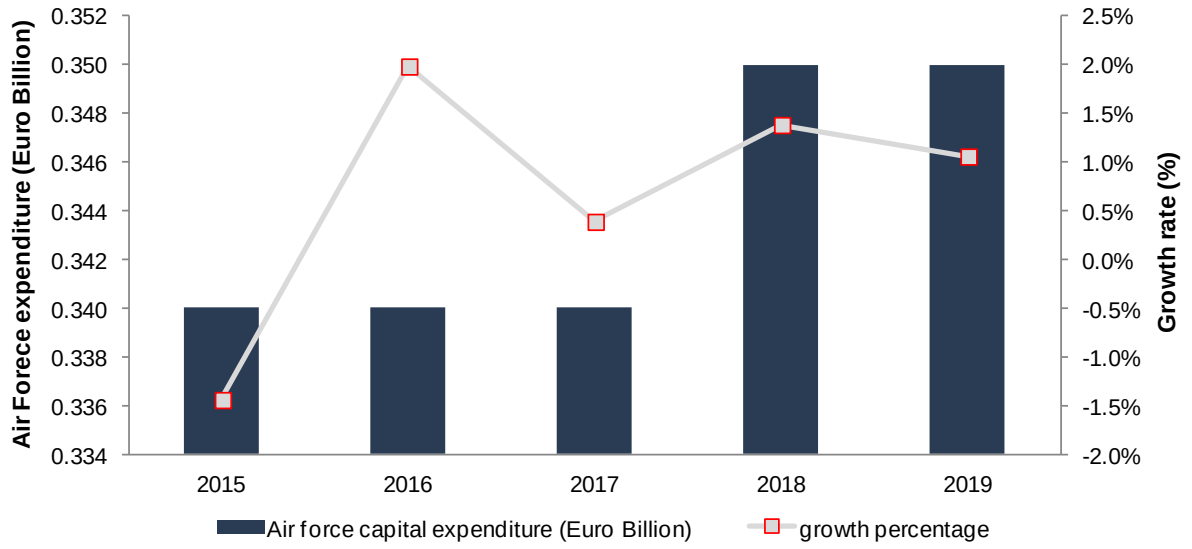
The following table and chart show Portugal's expenditure budget for the Air Force over the forecast period:

Table 28: Portuguese Defense Expenditure Budget for Air Force (EUR Bn), 2015–2019

Year	Air force expenditure (EUR Bn)	Growth rate (%)
2015	0.34	-1.4%
2016	0.34	2.0%
2017	0.34	0.4%
2018	0.35	1.4%
2019	0.35	1.1%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 28: Portuguese Defense Expenditure Budget for Air Force (EUR Bn), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.7. Central services support expenditure expected to increase marginally

As part of the austerity measures, the country completed the Reduction Plan and Improvement Central Administration (PREMAC) to rationalize structures and resources in the Ministry of National Defense and its armed forces. As a result of this, Central Services Support expenditure, which was US$0.68 billion in 2010 declined to US$0.62 billion in 2014 at a CAGR of -2.03% during 2010–2014. However, the Central Services Support expenditure is expected to increase slightly by registering a CAGR of 1.28% during 2015-2019.

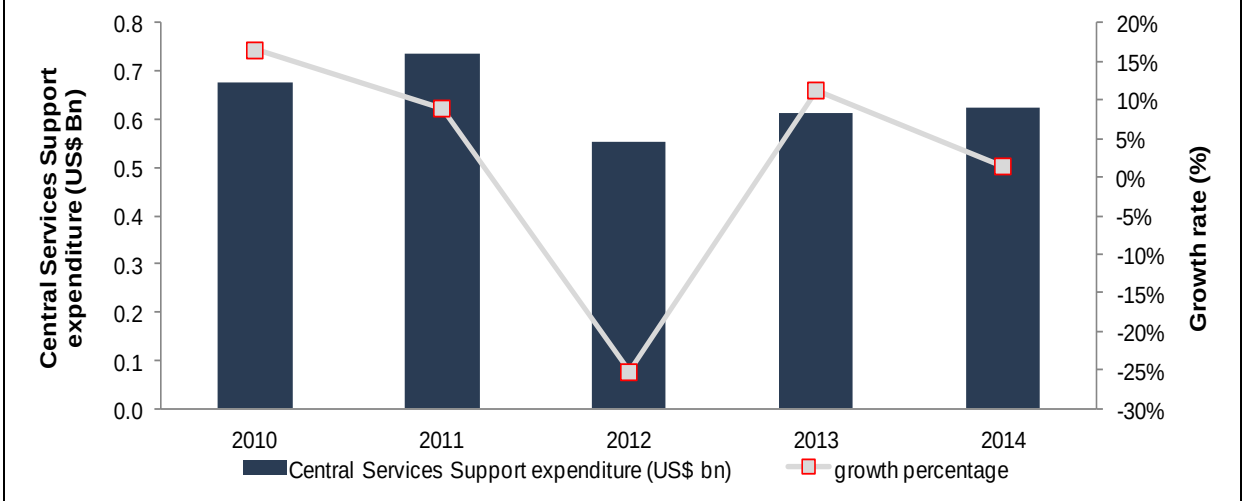
The following table and chart show the Portuguese expenditure budget for Central Services Support during 2010–2014:

Table 29: Portuguese Defense Central Services Support Expenditure (US$ bn), 2010–2014

Year	Central Services Support expenditure (US$ bn)	Growth rate (%)
2010	0.68	16.5%
2011	0.74	9.0%
2012	0.55	-25.2%
2013	0.61	11.3%
2014	0.62	1.5%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 29: Portuguese Defense Central Services Support Expenditure (US$ bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

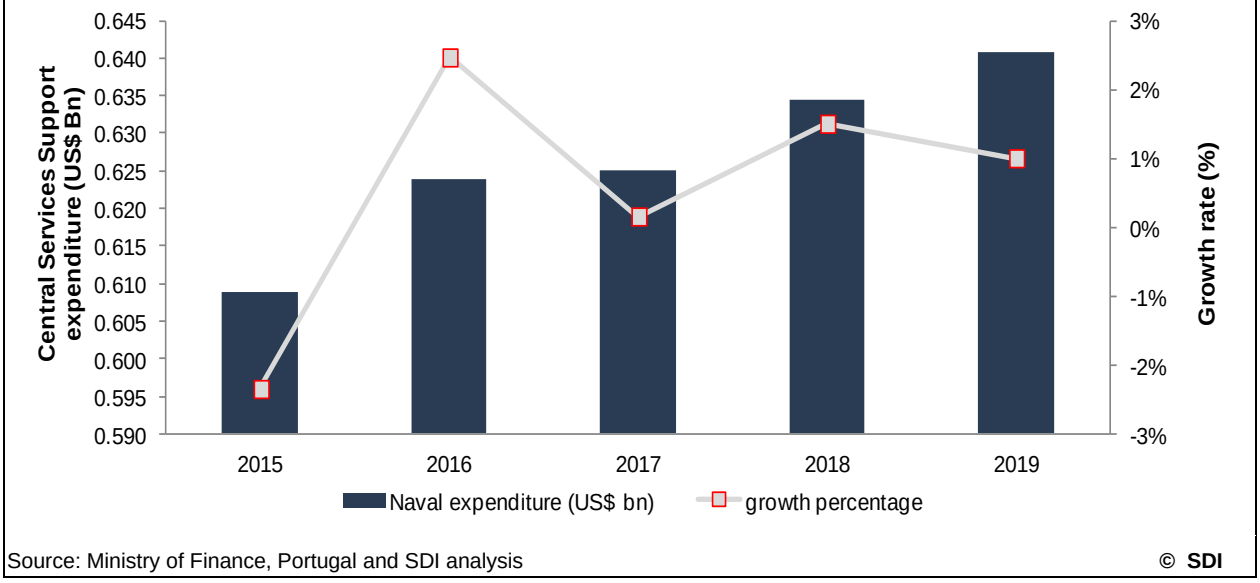
The following table and chart show the Portuguese expenditure budget for Central Services Support over the forecast period:

Table 30: Portuguese Defense Central Services Support Expenditure (US$ bn), 2015–2019

Year	Central Services Support expenditure (US$ bn)	Growth rate (%)
2015	0.61	-2.3%
2016	0.62	2.5%
2017	0.62	0.2%
2018	0.63	1.5%
2019	0.64	1.0%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 30: Portuguese Defense Central Services Support Expenditure (US$ billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

Central Services Support expenditure registered a CAGR of -2.03% during 2010–2014 to stand at EUR0.46 billion in 2014. However, it is projected to increase to EUR0.48 billion by 2019 and register a CAGR of 1.28% during the forecast period.

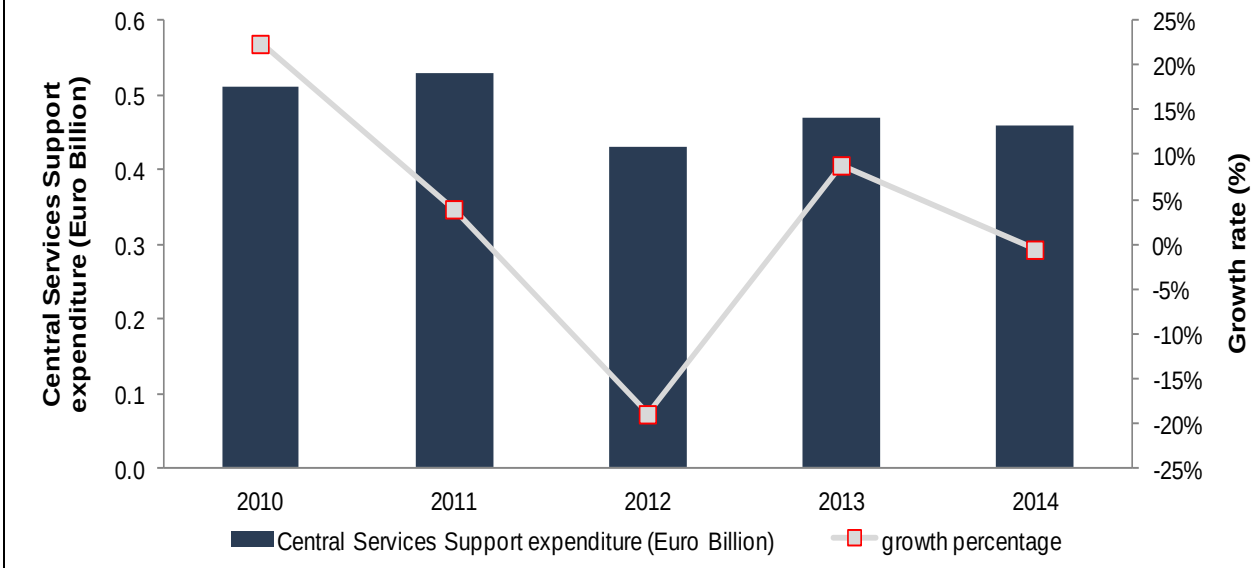
The following table and chart show the Portuguese expenditure budget for Central Services Support during 2010–2014:

Table 31: Portuguese Defense Central Services Support Expenditure (EUR bn), 2010–2014

Year	Central Services Support expenditure (EUR bn)	Growth rate (%)
2010	0.51	22.4%
2011	0.53	3.9%
2012	0.43	-18.9%
2013	0.47	8.8%
2014	0.46	-0.6%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 31: Portuguese Defense Central Services Support Expenditure (EUR bn), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

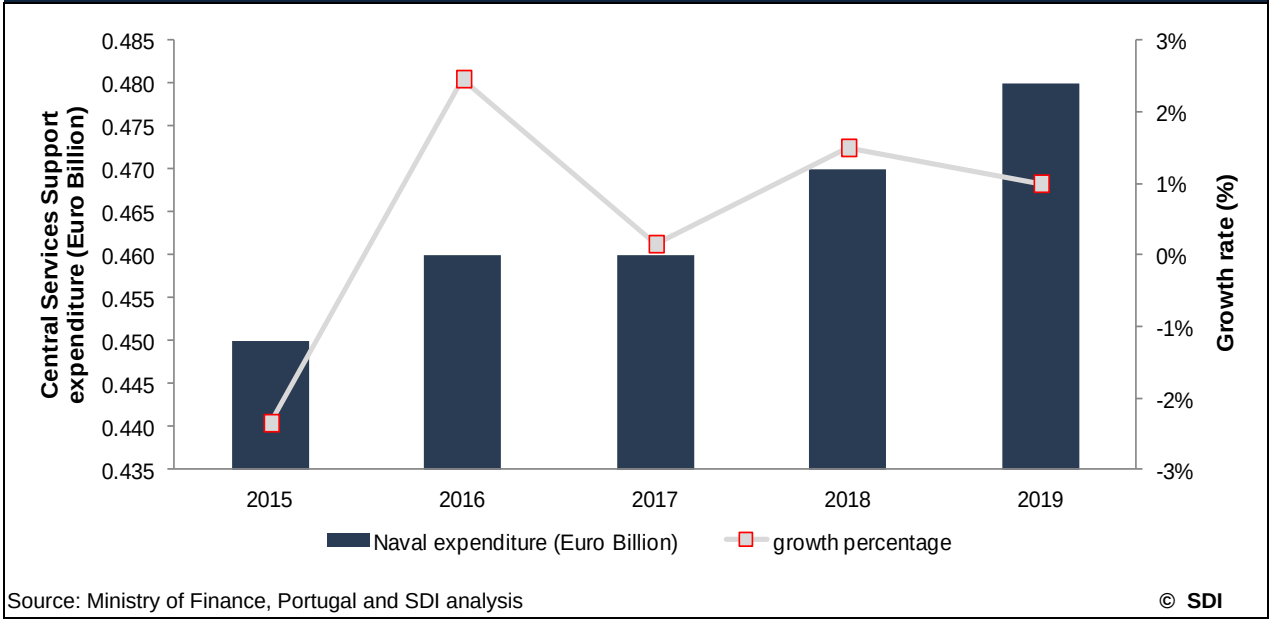
The following table and chart show the Portuguese expenditure budget for Central Services Support over the forecast period:

Table 32: Portuguese Defense Central Services Support Expenditure (EUR bn), 2015–2019

Year	Central Services Support expenditure (Euro bn)	Growth rate (%)
2015	0.45	-2.3%
2016	0.46	2.5%
2017	0.46	0.2%
2018	0.47	1.5%
2019	0.48	1.0%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 32: Portuguese Defense Central Services Support Expenditure (EUR billion), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.2.8. Per capita defense expenditure expected to increase over the forecast period

Portuguese per capita defense expenditure valued US$245.9 in 2014 and registered a CAGR of -3.89% during 2010–2014. During the forecast period, the country's per capita defense expenditure is projected to increase from US$247.6 in 2015 to US$256.9 in 2019.The reason for this increase is primarily attributed to the slow population growth in the country.

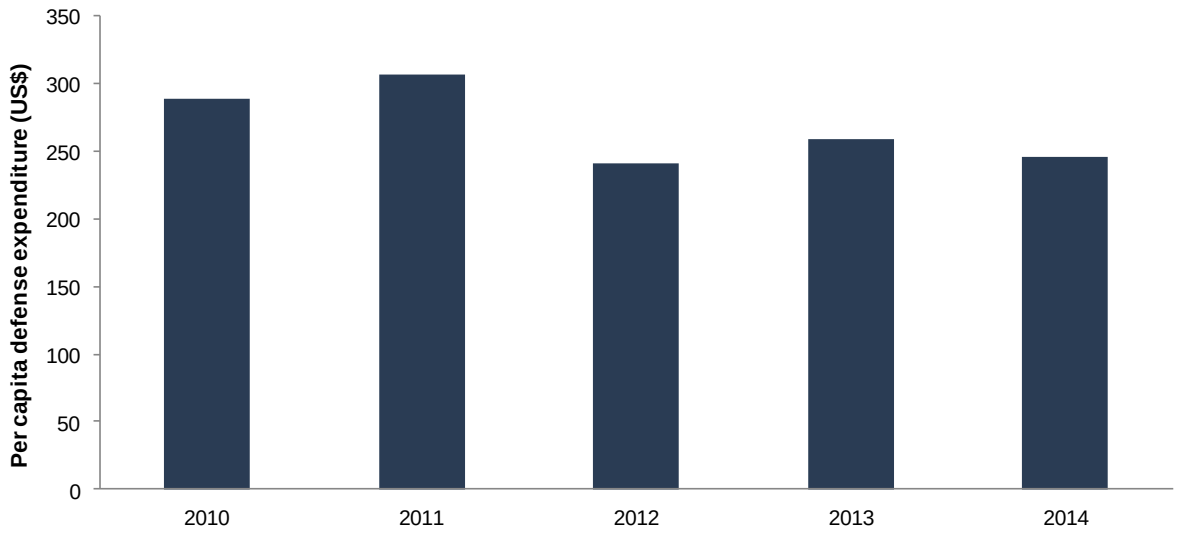
The following table and chart show Portuguese per capita defense expenditure during 2010–2014:

Table 33: Portuguese per capita defense expenditure (US$), 2010–2014

Year	Per capita defense expenditure (US$)
2010	288.2
2011	307.0
2012	241.3
2013	258.6
2014	245.9

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 33: Portuguese per capita defense expenditure (US$), 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

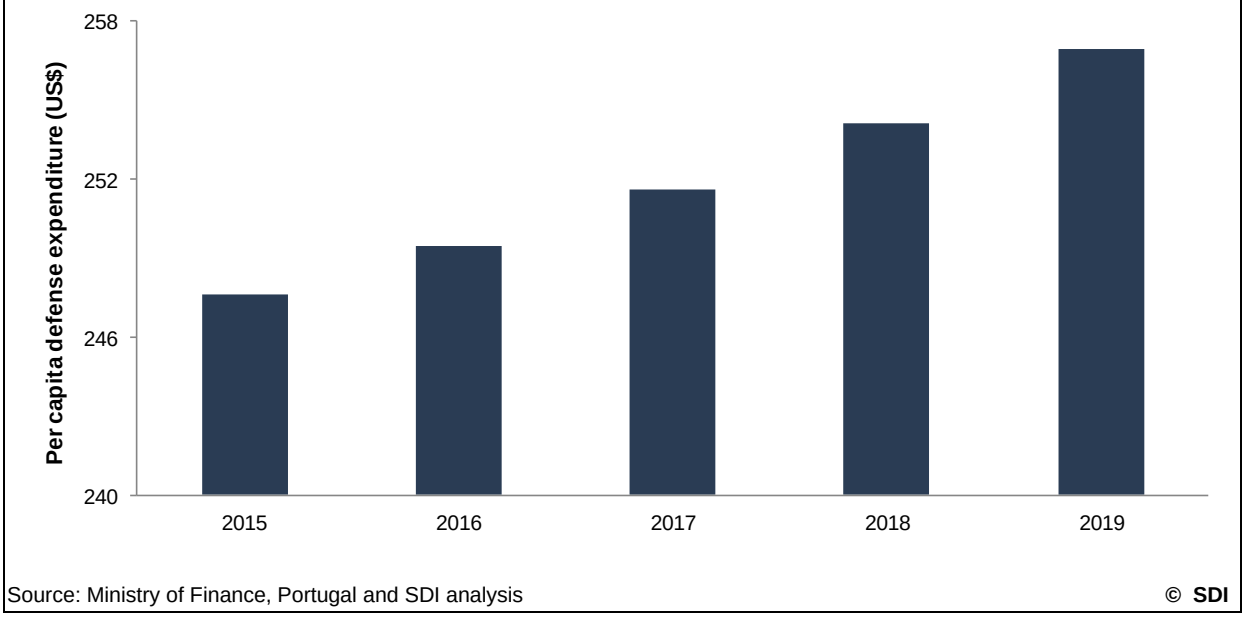
The following table and chart show Portuguese per capita defense expenditure over the forecast period:

Table 34: Portuguese per capita defense expenditure (US$), 2015–2019

Year	Per capita defense expenditure (US$)
2015	247.6
2016	249.5
2017	251.6
2018	254.1
2019	256.9

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 34:Portuguese per capita defense expenditure (US$), 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.3. Homeland Security Market Size and Forecast

3.3.1. Portuguese homeland security expected to grow at a steady pace

Portugal's homeland security expenditure decreased marginally from US$2.8 billion in 2010 to US$2.5 billion in 2014 and registered a CAGR of -2.54%. However, the Portuguese government's focus on combating cyber attacks and preventing its maritime are expected to drive homeland security expenditure over the forecast period. The country's homeland security budget is projected to increase from US$2.5 billion in 2015 to US$2.6 billion in 2019, at a CAGR of 0.95% during the forecast period.

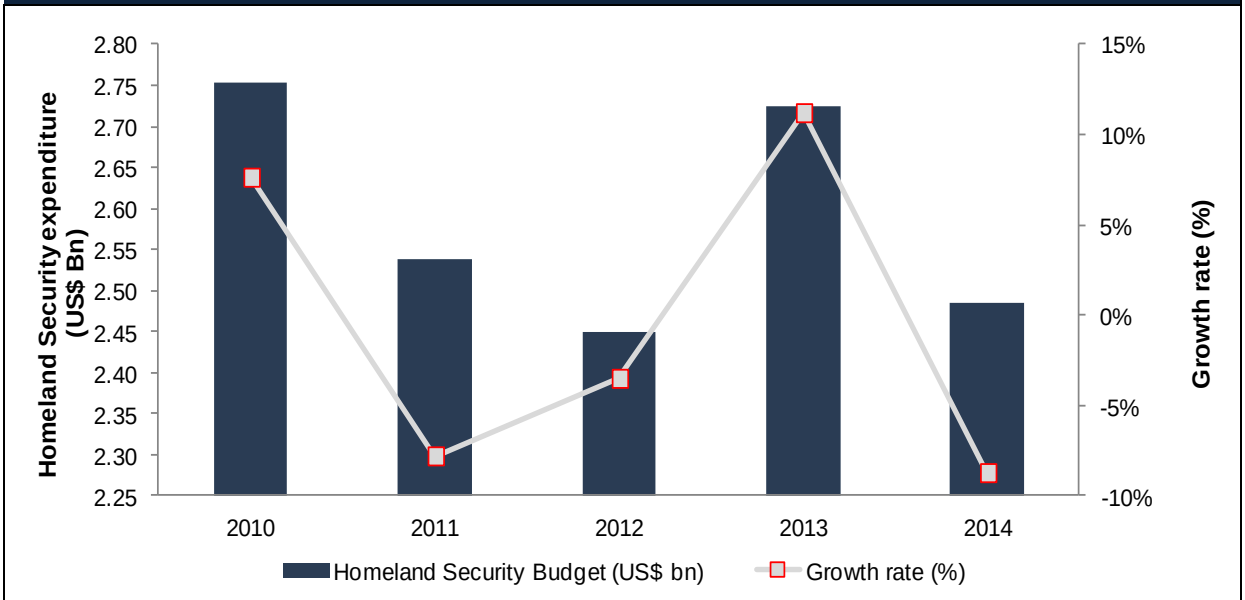
The table and chart below show the Portuguese homeland security budget during 2010–2014:

Table 35: Portuguese Homeland Security Budget, 2010–2014

Year	Homeland Security Budget (US$ bn)	Growth rate (%)
2010	2.75	7.6%
2011	2.54	-7.8%
2012	2.45	-3.5%
2013	2.72	11.2%
2014	2.49	-8.7%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 35: Portuguese Homeland Security Budget, 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

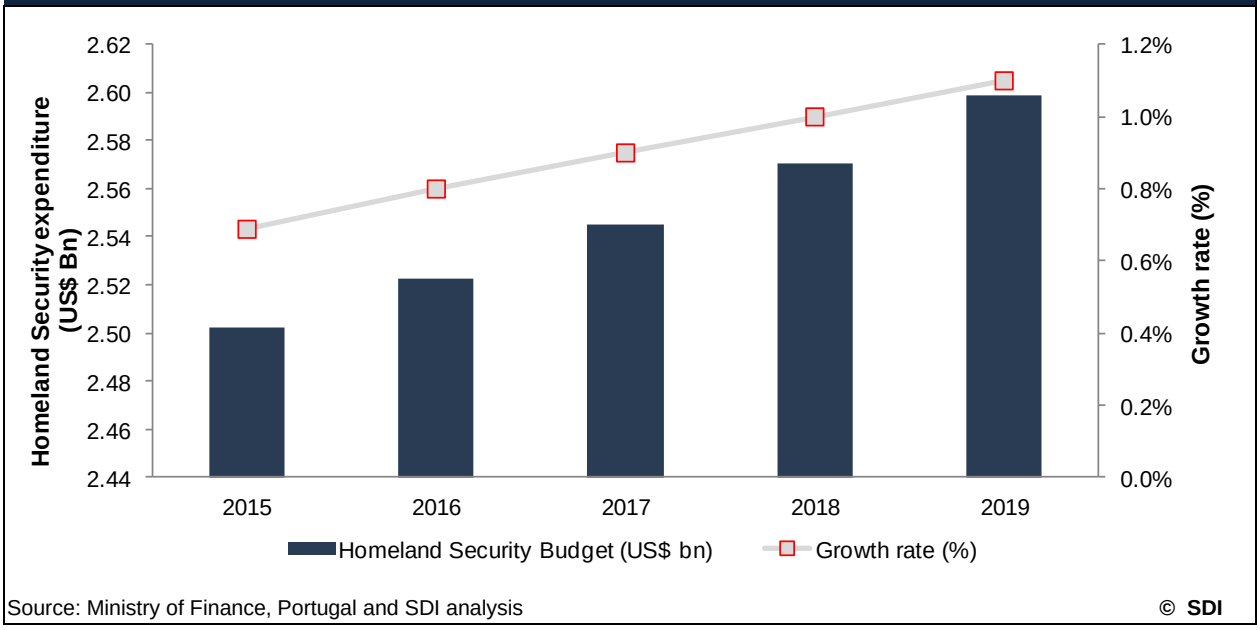
The following table and chart show the Portuguese homeland security budget allocation over the forecast period:

Table 36: Portuguese Homeland Security Budget, 2015–2019

Year	Homeland Security Budget (US$ bn)	Growth rate (%)
2015	2.50	0.7%
2016	2.52	0.8%
2017	2.55	0.9%
2018	2.57	1.0%
2019	2.60	1.1%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 36: Portuguese Homeland Security Budget, 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

In terms of local currency, the homeland security budget stood at EUR1.85 billion in 2014 and registered a CAGR of -2.54% during 2010–2014. However, it's projected to slightly increase to EUR1.93 billion by 2019, registering a CAGR of 0.95%.

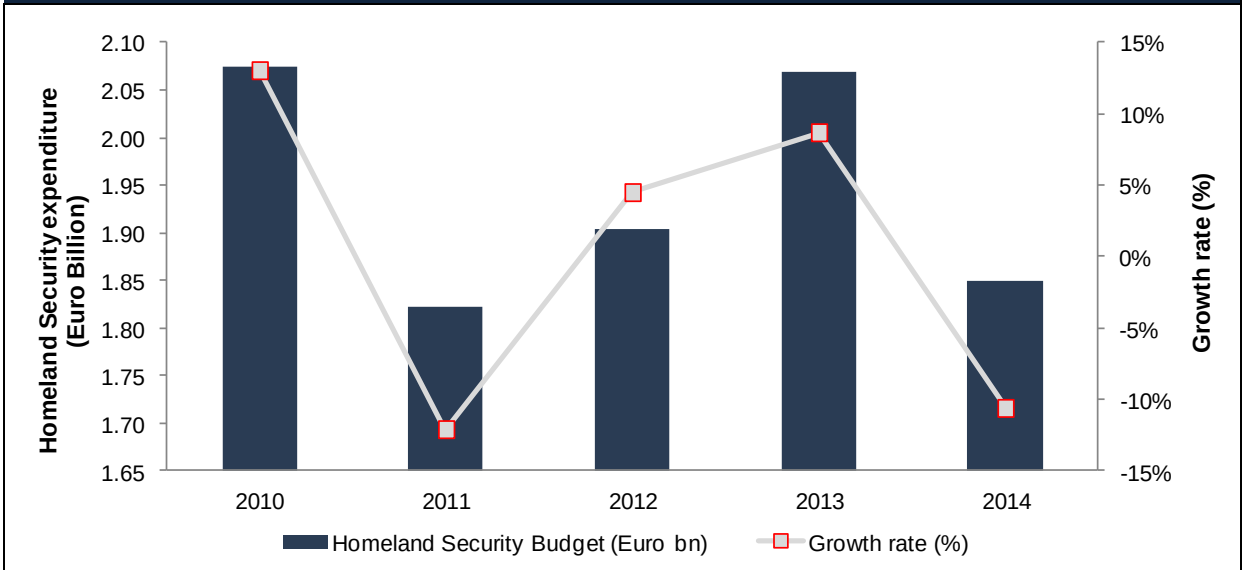
The table and chart below show the Portuguese homeland security budget during 2010–2014:

Table 37: Portuguese Homeland Security Budget, 2010–2014

Year	Homeland Security Budget (Euro bn)	Growth rate (%)
2010	2.07	13%
2011	1.82	-12.1%
2012	1.90	4.5%
2013	2.07	8.7%
2014	1.85	-10.6%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 37: Portuguese Homeland Security Budget, 2010–2014



Source: Ministry of Finance, Portugal and SDI analysis © SDI

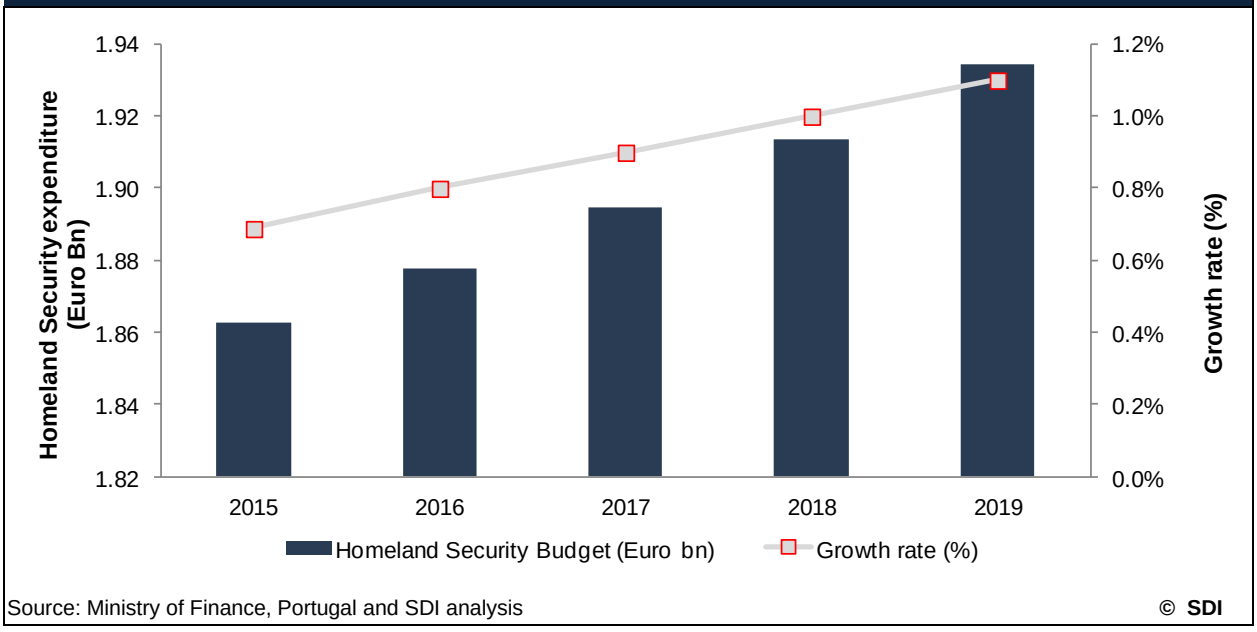
The following table and chart show the Portuguese homeland security budget allocation over the forecast period:

Table 38: Portuguese Homeland Security Budget, 2015–2019

Year	Homeland Security Budget (Euro bn)	Growth rate (%)
2015	1.86	0.7%
2016	1.88	0.8%
2017	1.89	0.9%
2018	1.91	1.0%
2019	1.93	1.1%

Source: Ministry of Finance, Portugal and SDI analysis © SDI

Figure 38: Portuguese Homeland Security Budget, 2015–2019



Source: Ministry of Finance, Portugal and SDI analysis © SDI

3.3.2. Cyber-attacks and maritime security set to drive homeland security expenditure over the forecast period

Portugal's homeland security (HLS) expenditure is primarily driven by illegal immigration, cyber security threats, and threats from terrorist organizations.

Cyber-attacks: Cybercrimes have been increasing in the past few years and pose a major threat to highly industrialized economies. The Portuguese government was also affected by cyber-attackers attempting to gain access to classified government documents. In April 2013, hacker group Anonymous attacked the Portuguese government's websites similar to its attack in 2011. Portugal has moved up in the international register for spam attacks from cybercriminals from 44th position in 2012 to 38th position in 2013. The Portuguese government is now investing in cyber security and is planning to procure laptops and advanced software to integrate the operations of its domestic forces.

Maritime Security: Portugal's jurisdiction includes 91,760 sq. km of land and 1.7 million sq. km maritime area including inland waters, territorial sea and exclusive economic zone. The country's foreign trade is dependent on sea transport with about 70% of its imports including oil and natural gas transported by sea. Of Portugal's foreign trade, 60% is performed through the sea forcing the government to place high priority on maritime security. Portugal and Japan have recently collaborated to combat pirates for the security and protection of maritime trade routes. In addition, the country committed itself to guarantee search and rescue services in a maritime area of about 6 million sq. km through international agreements. The strategic location of Portugal is the reason behind 53% of the European Union's foreign trade passing through the sea under the country's jurisdiction. Moreover, the country committed its frigate NRP Álvares Cabral to the EU Naval Force (EU NAVFOR) Somalia maritime security operation called Operation Atlanta. As such, the country is anticipated to focus on enhancing its maritime security capabilities over the forecast period and direct necessary funds towards the procurement of associated equipment.

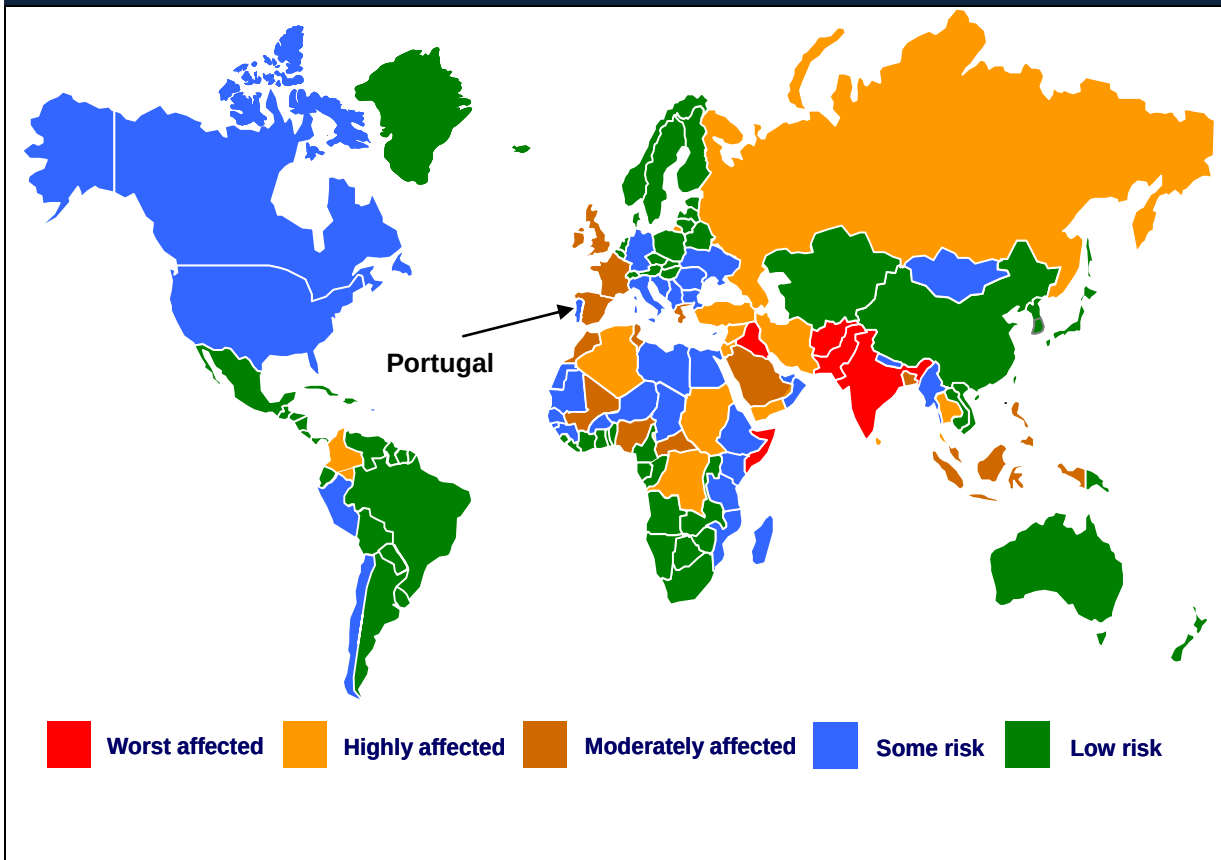
These factors epitomize the need for Portugal to spend on its homeland security and enhance the capabilities of its police forces.

3.3.3. Portugal falls under "some risk" of terrorism category

According to the SDI Terrorism Index, Portugal falls under "some risk" of terrorism, with a global rank of 84. Neighboring countries such as Spain fall in to the "moderately affected" category, offering an environment with low terrorist activity.

The following figure displays a heat map based on the SDI Terrorism Index, which indicates the threat level faced by countries across the world:

Figure 39: SDI Terrorism Heat Map, 2014



Source: SDI Terrorism Index

© SDI

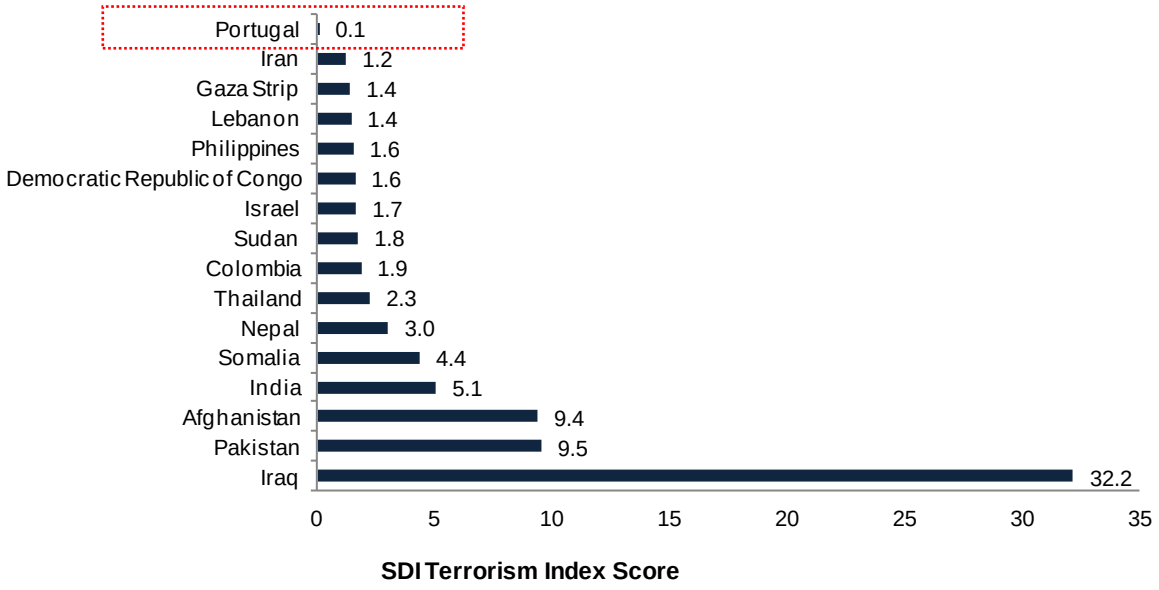
The terrorism index is calculated on the basis of the following factors:

- The number of terrorist attacks the country has faced
- The total number of people victimized
- The number of foreign terrorist organizations operating in the country

While the top 15 countries display an average of 5.2 on the terrorism index score, Portugal's score is estimated to be 0.1, indicating some level of terrorist activity.

The following figure displays the terrorism index score of the top 15 countries in the SDI Terrorism Index:

Figure 40: SDI Terrorism Index, 2014



Index score classification: >4 - Worst affected, between 4 and 1 - Highly affected, between 1 and 0.5 - Moderately affected, between 0.5 and 0.1 - Some risk, and <0.1 - Low risk

Source: SDI Terrorism Index

© SDI

3.4. Benchmarking with Key Global Markets

3.4.1. Portuguese defense budget expected to increase marginally over the forecast period

Portugal's defense budget is expected to increase at a CAGR of 1.02% over the period 2015–2019, compared to the CAGR of -3.93% it registered during 2010–2014. The US and China continue to be the top defense spenders and have budgets of US$531 billion and US$105 billion in 2014 respectively. Moreover, they are expected to remain at the top of the defense spenders list until 2019. However, Russia, India, and Brazil are expected to be fast-growing defense spenders with budgets growing at CAGRs of 18.00%, 13.35%, and 8.49%, respectively, over the period 2015–2019.

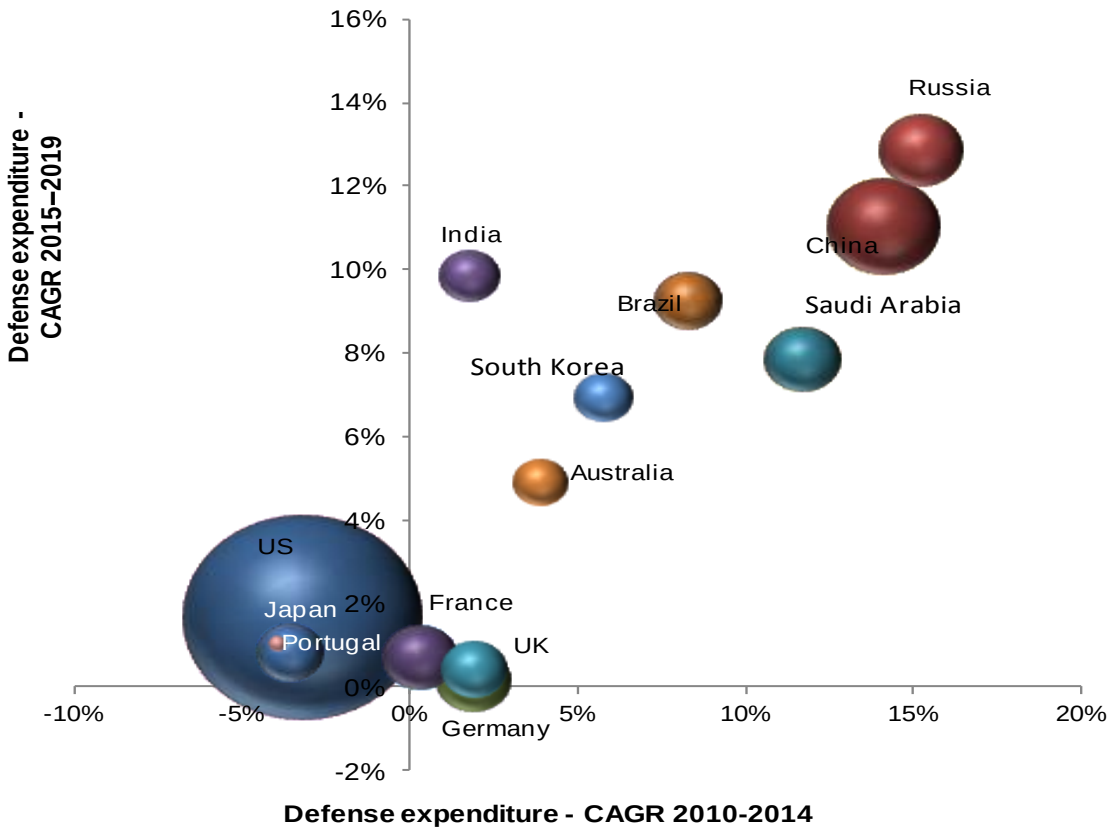
The figure below benchmarks the growth of Portugal's defense budget with key global markets:

Table 39: Benchmarking with Key Markets – 2010–2014 vs. 2015–2019

Country	CAGR 2010–2014	CAGR 2015–2019	Budget in 2014(US$ Billions)
US	2.59%	1.91%	531
China	11.50%	8.49%	105
Russia	10.19%	18.00%	62
UK	-2.00%	-0.88%	61
Japan	6.25%	3.28%	59
France	-2.35%	0.35%	54
Saudi Arabia	10.41%	7.98%	48
Germany	-0.02%	-0.70%	42
Brazil	12.60%	6.60%	38
India	7.17%	13.35%	33
South Korea	4.01%	7.11%	29
Italy	0.35%	0.59%	26
Thailand	5.55%	7.35%	5
Belgium	-6.31%	-3.26%	3
Portugal	-3.93%	1.02%	3

Source: SDI analysis © SDI

Figure 41: Benchmarking with Key Markets – 2010–2014 vs. 2015–2019



Note: Bubble size represents 2014 defense expenditure (US$ billions)

Source: SDI analysis

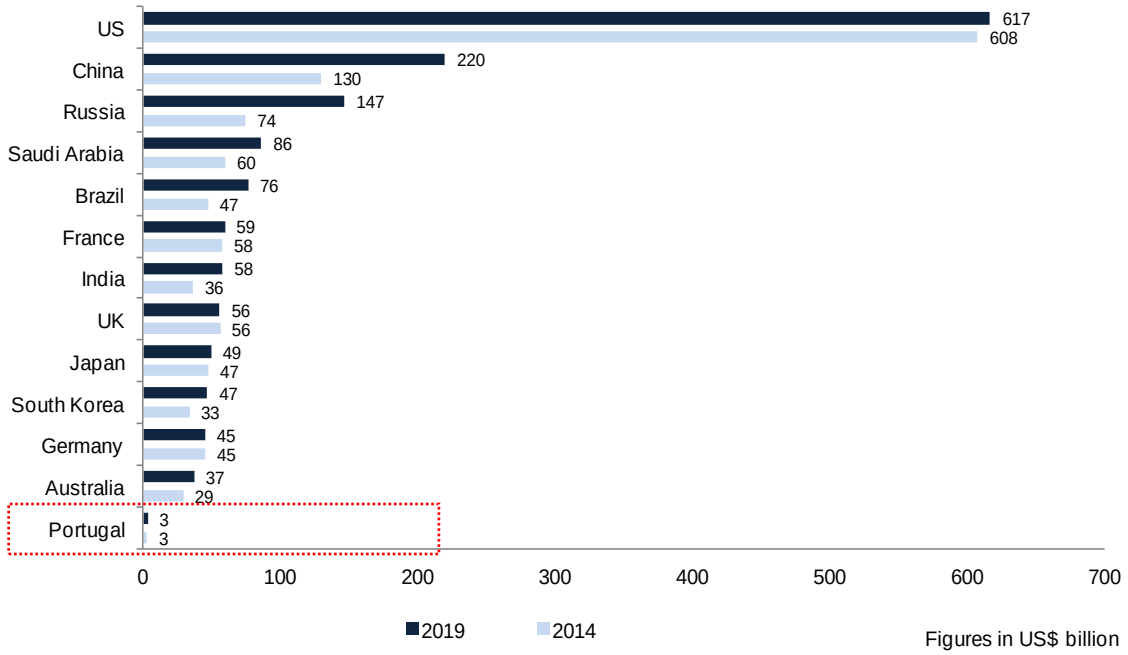
© SDI

3.4.2. Portugal defense expenditure to remain low compared to major spenders in the Europe

Portugal's defense budget, valued at US$2.6 billion in 2014, is expected to register a CAGR of 1.02% to reach US$2.7 billion by 2019. The US is expected to remain at the top with military expenditure of US$617 billion, followed by China with US$220 billion in 2019. Saudi Arabia, India, and Japan are expected to follow with expenditures of US$86 billion, US$58 billion, and US$49 billion respectively. Larger European countries such as France, the UK, and Germany are expected to follow, with Australia and Portugal remaining at the bottom of the list.

The following figure shows the top defense-spending countries in 2014 and those expected in 2019:

Figure 42: Defense Expenditure of the World's Largest Military Spenders (US$ Billion), 2014 and 2019



Note: Figures are rounded off to zero decimal places

Source: SDI analysis

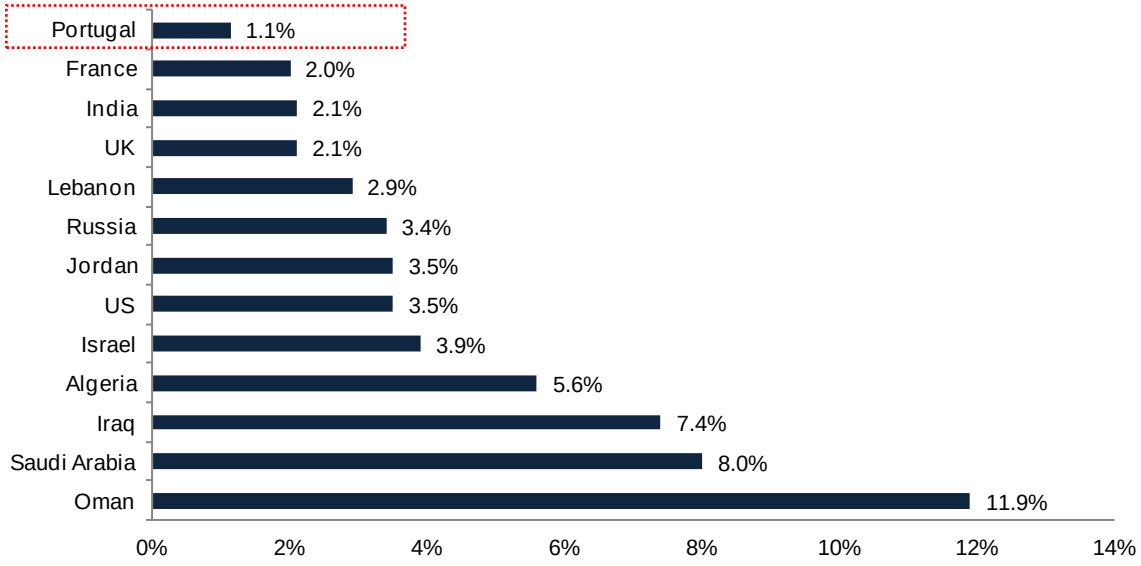
© SDI

3.4.3. Portugal allocates lower share of GDP for defense compared to the US and European countries

Portugal allocates a lower percentage of GDP to defense, with only 1.1% of GDP allocated to defense in 2014. The US and other European countries such as the UK, Russia, and France allocate a higher percentage of their respective GDPs for defense expenditure.

The figure benchmarks Portugal's defense expenditure as a percentage of GDP with the leading defense spending nations:

Figure 43: Defense Expenditure as a Percentage of GDP of Largest Military Spenders (%), 2014



Source: SDI analysis

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3.4.4. Portugal faces some threat from foreign terrorist organizations

According to the SDI Terrorism Index, Iraq, Pakistan, Afghanistan, Somalia, and India are the countries worst affected by acts of terrorism. Based on the index score, Portugal has a ranking of 84, which indicates some terrorist threat levels when compared to countries across the world.

The terrorism index is calculated on the basis of the following factors:

- The number of terror attacks that the country has faced
- The total number of people victimized
- The number of foreign terrorist organizations operating in the country

The table below shows the SDI Terrorism Index score of the top 50 most terror-prone countries in the world:

Table 40: SDI Terrorism Index

Rank	Country	Index Score
1	Iraq	32.2
2	Pakistan	9.5
3	Afghanistan	9.4
4	India	5.1
5	Somalia	4.4
6	Nepal	3.0
7	Thailand	2.3
8	Colombia	1.9
9	Sudan	1.8
10	Israel	1.7
11	Congo, Democratic Republic	1.6
12	Philippines	1.6
13	Lebanon	1.4
14	Gaza Strip	1.4
15	Iran	1.2
16	Sri Lanka	1.2
17	Russia	1.2
18	Algeria	1.0
19	Yemen	1.0
20	Turkey	0.9
21	West Bank	0.6
22	Chad	0.6
23	Syria	0.6
24	Egypt	0.5
25	Nigeria	0.5
26	United Kingdom	0.5
27	Greece	0.5
28	Malaysia	0.5

Table 40: SDI Terrorism Index		
Rank	**Country**	**Index Score**
29	Indonesia	0.4
30	Spain	0.4
31	Jordan	0.3
32	Uzbekistan	0.3
33	Bangladesh	0.3
34	France	0.3
35	Ethiopia	0.3
36	Burma	0.3
37	Mali	0.3
38	Libya	0.2
39	Tajikistan	0.2
40	Saudi Arabia	0.2
41	Kenya	0.2
42	Morocco	0.2
43	Ireland	0.2
44	Singapore	0.2
45	Central African Republic	0.2
46	Niger	0.2
47	Georgia	0.2
48	Peru	0.2
49	Senegal	0.2
50	Venezuela	0.1
84	Portugal	0.1
Source: SDI Terrorism Index		© SDI

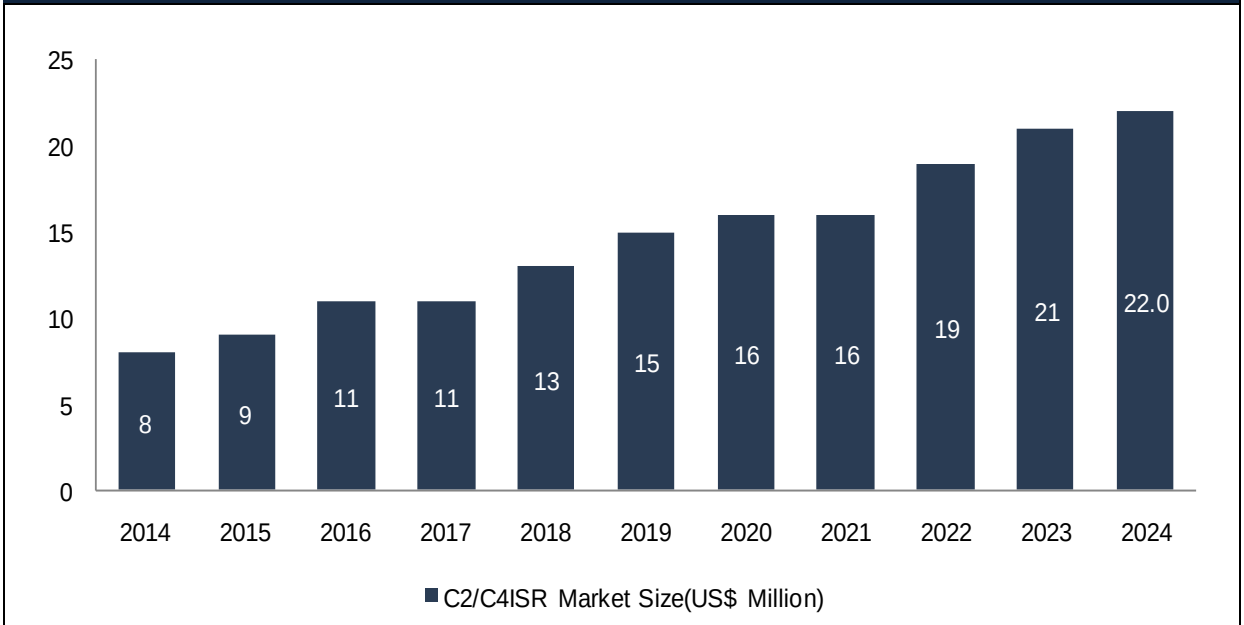
3.5. Market Opportunities: Key Trends and Growth Stimulators

3.5.1. C2/C4ISR

Portugal's need to upgrade its communication systems along with the enhancement of battle space management systems and critical defense networks is expected to drive the expenditure in the C4ISR segment. The country largely focuses on developing real-time communications, control, and command systems capable of connecting the military bases and government departments. Contracts to support management information systems and Defense Data Centers (CDD) are expected to provide opportunities for domestic and foreign companies operating in the C4ISR domain. With existing C4ISR systems becoming obsolete, Portugal is expected to invest in the upgrade of communication networks along with augmenting battlefield command systems, data and communication security systems, and the sensors required for surveillance and observation platforms.

The chart below shows the attack C2/C4ISR market size in Portugal (US$ million) during 2014–2024:

Figure 44: C2/C4ISR Market Size (US$ Million), 2014 - 2024



Source: SDI analysis

© SDI

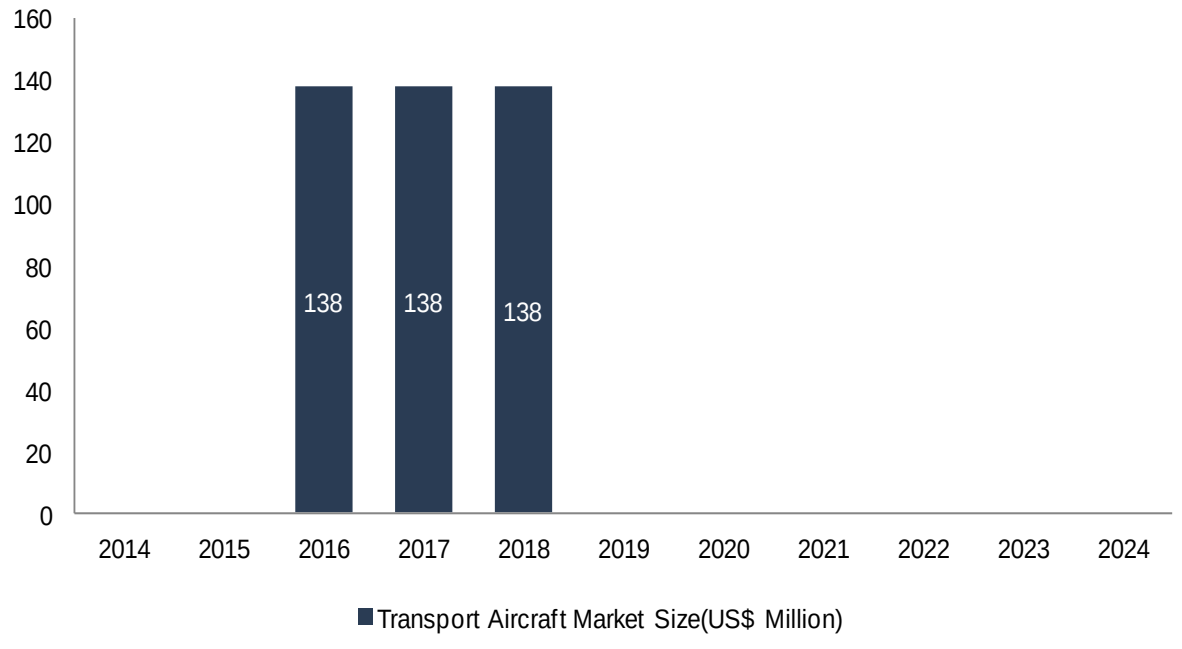
3.5.2. Transport Aircraft

Defense cuts due to Portugal's high fiscal deficit have led to delays and have limited the procurement of many defense equipment programs. However, with most of the aircraft fleet reaching the end of their service lives, the government is expected to procure aircraft to sustain the smooth operability and functioning of the air force. Additionally, peacekeeping missions and joint operations with the police for internal security are expected to be the primary driving forces behind the procurement of military aircraft.

Portugal is in the process of purchasing six KC-390 military airlifters from Embraer to replace the aging Lockheed Martin C-130J. Domestic companies such as OGMA (Indústria Aeronáutica de Portugal) and EEA (Empresa de Engenharia Aeronáutica) have entered into a partnership agreement with Embraer Defense and Security for the contract's execution. As per the deal, OGMA will manufacture the KC-390's central fuselage panels, elevators, fairings and landing-gear doors, and will render support to Embraer during the certification phase. EEA has been contracted to develop the engineering design for the KC-390's components that will be manufactured by Embraer. With the KC-390 prototype having entered the final assembly stage at the Embraer workshop, the deliveries of the airplanes are expected to begin in 2016.

The chart below shows the Unmanned Aerial Vehicles (UAV/UCAV) market size in Portugal (US$ million) during 2014–2024:

Figure 45: Transport & Utility Aircraft Market Size (US$ Million), 2014 - 2024



Source: SDI analysis

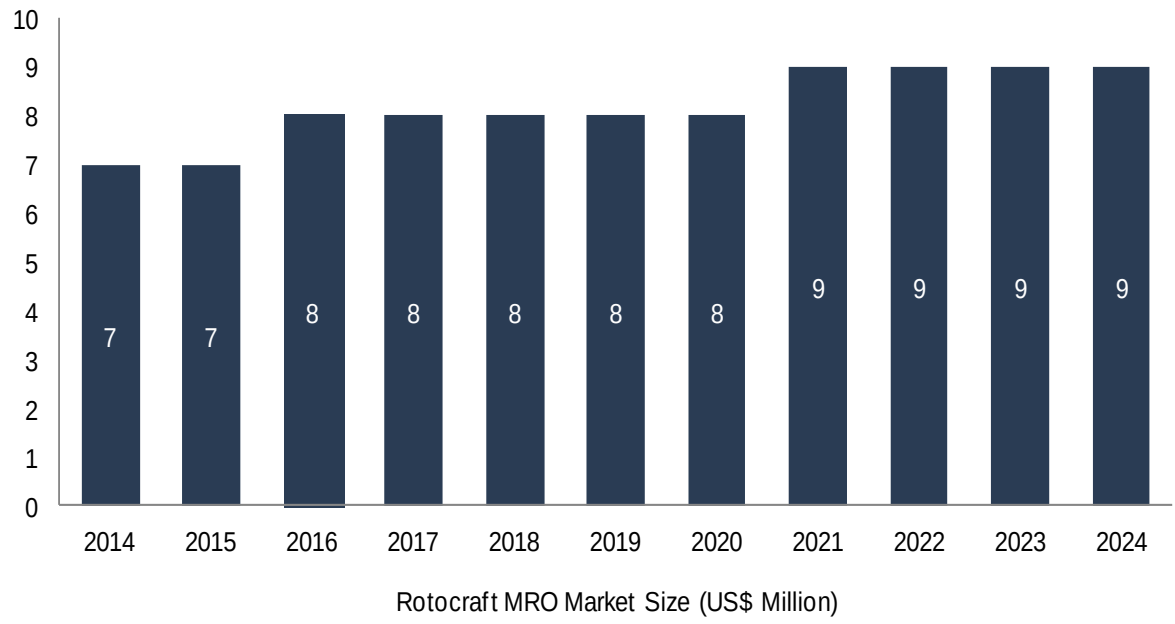
© SDI

3.5.3. Rotorcraft MRO

Budgetary pressures are expected to lead to a drop in the procurement of new military aircraft, rotorcraft, and unmanned aerial vehicles (UAVs). Lack of resources to completely replace the existing fleet of helicopters, Portugal is anticipated to focus more on the maintenance, repair, and overhaul of existing equipment in order to extend their service lives. In 2008, Portugal awarded a 15-year contract to AgustaWestland to extend long-term support for the 12 AW101 helicopters that are operated by the Portuguese air force. To execute the contract, AgustaWestland will set up a subsidiary in the country. As per the Full In Service Support (FISS) contract, the company will extend second level maintenance services to the aircraft as well as provide spares, repairs, and technical support services.

The chart below shows the rotorcraft MRO market size in Portugal (US$ million) during 2014–2024:

Figure 46: Rotorcraft MRO Market Size (US$ Million), 2014 - 2024



Source: SDI analysis

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4. Defense Procurement Market Dynamics

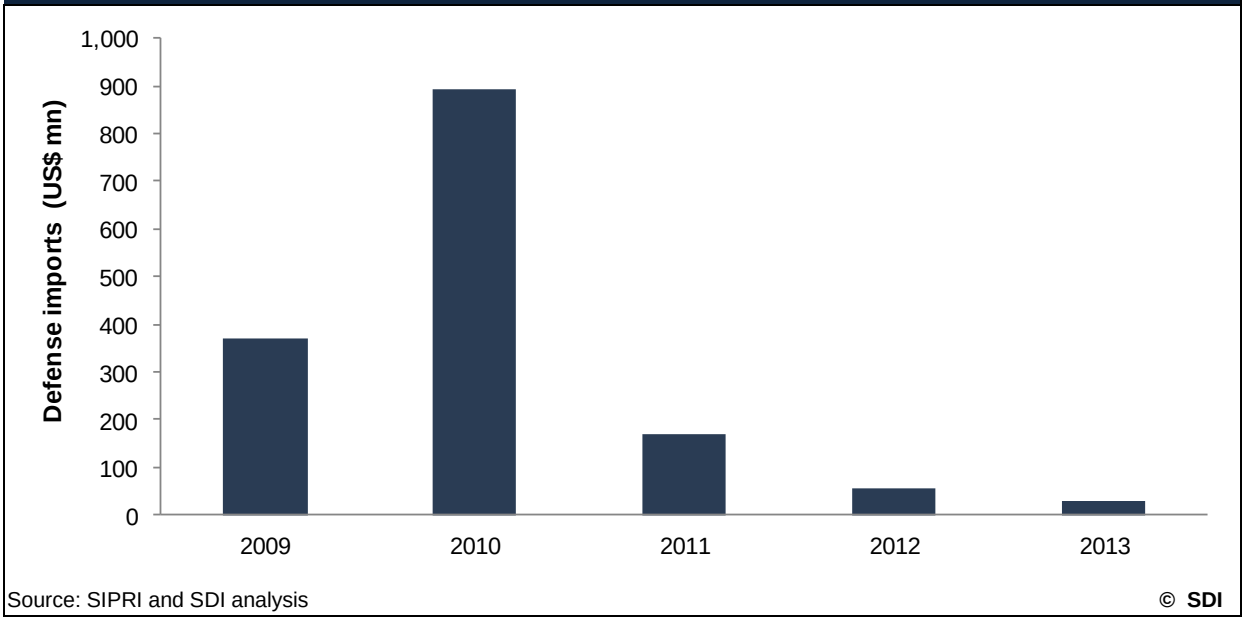
4.1. Import Market Dynamics

4.1.1. Defense imports are expected to remain low over the period 2015–2019

Portuguese defense imports were at a peak in 2010 owing to the country's import of submarines from Germany. However, they declined drastically in 2011 and reduced further in 2012 and 2013. The country terminated the Pandur II procurement contract with 100 deliveries still left from the original order, and also cancelled the NH-90 order, resulting in a decline in defense imports in 2011 and 2012. Over the period 2015–2019, Portugal's defense imports are expected to remain low due to reduced future procurement plan, which was slashed down by 45% by the MND in 2013.

The following figure shows the Portuguese defense import trends during 2009–2013:

Figure 47: Portuguese Defense Import Trend, 2009–2013 (TIV values)



Source: SIPRI and SDI analysis

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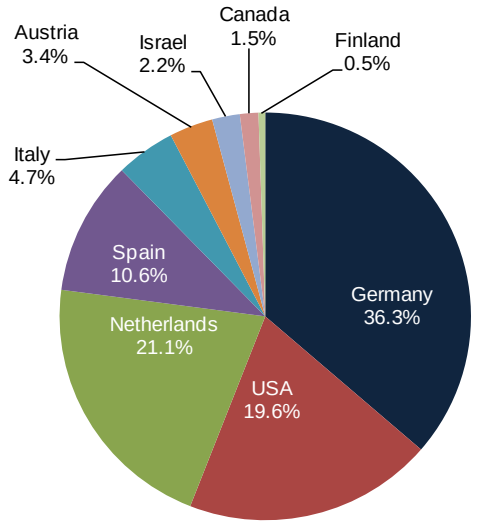
* The figures in this section are based on trend indicator values, (TIV) expressed in US$ million at constant (1990) prices. Although figures are expressed in US$, TIVs do not represent the financial value of goods transferred; rather, TIVs are an indication of the volume of arms transferred.

4.1.2. Portugal sourced the majority of its arms imports from the US and the Netherlands

The country sourced the majority of its defense imports from Germany and the Netherlands, accounting for 36.3% and 21.1% of total imports, respectively, during the period 2009–2013. Submarines purchased in 2010 placed Germany in the top position due to the high value of the order. The US, Spain, Italy, and Austria are the other major countries from which Portugal imported military equipment. Over the period 2015–2019, the country is expected to import few arms as it has cancelled high value procurement programs and contracts.

The following figure displays Portugal's arms import trends during 2009–2013:

Figure 48: Portuguese Defense Imports by Country (%), 2009–2013



Source: SIPRI and SDI analysis

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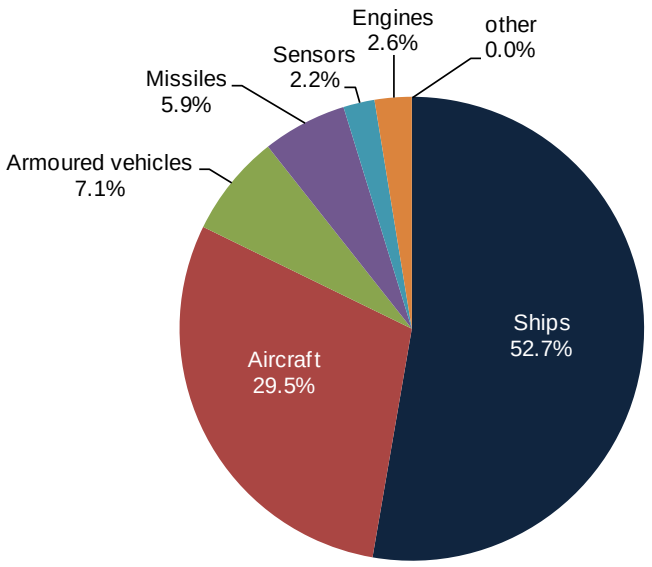
4.1.3. Ships and Aircraft dominated military hardware imports

Being high value equipment, ships accounted for 52.7% of Portugal's total defense imports during 2009-2013, although they were purchased only in 2010. This was followed by aircraft (29.5%) and armored vehicles (7.1%). Missiles, Sensors, and engines were the other major weapon import categories during 2009-2013. Over the period 2015-2019, Portugal is not expected to procure high value equipment such as ships, aircraft or armored vehicles, and could focus on low cost equipment such as missiles, UAVs, and sensors.

The following figure displays Portuguese defense imports by category during 2009–2013:

Figure 49: Portuguese Defense Imports by Category (%), 2009–2013



Source: SIPRI and SDI analysis

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* The figures in this section are based on trend indicator values, (TIV) expressed in US$ million at constant (1990) prices. Although figures are expressed in US$, TIVs do not represent the financial value of goods transferred; rather, TIVs are an indication of the volume of arms transferred.

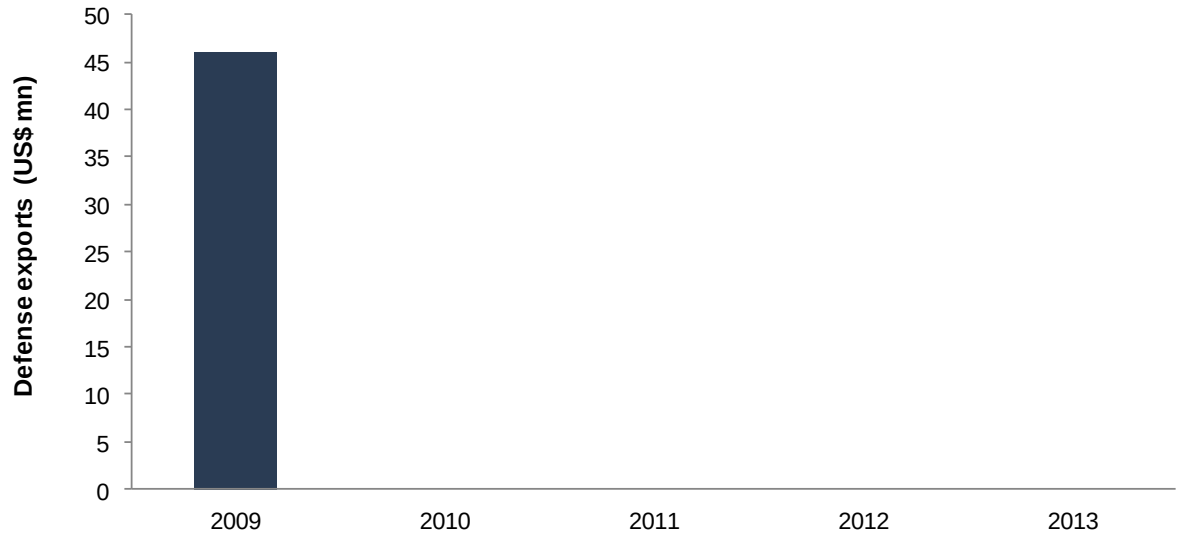
4.2. Export Market Dynamics

4.2.1. Arms exports to decline during the forecast period

Portugal exports have witnessed sudden drop subsequent to the peak in 2009. Previously, exports have been minimum due to the country's defense industry being specialized in niche segments such as assault rifles and tactical radios, and mainly catering for maintenance, repair and overhaul (MRO) services.

The following chart shows exports in Portugal by financial value during 2009-2013:

Figure 50: Portuguese Defense exports by Value (%), 2009–2013



Source: SIPRI and SDI analysis

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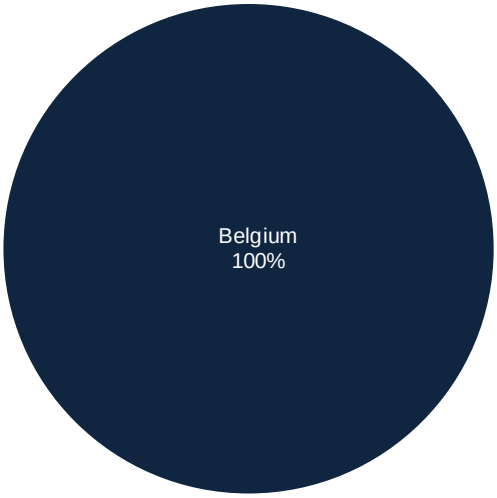
* The figures in this section are based on trend indicator values, (TIV) expressed in US$ million at constant (1990) prices. Although figures are expressed in US$, TIVs do not represent the financial value of goods transferred; rather, TIVs are an indication of the volume of arms transferred.

4.2.2. Belgium was a major destination for Portuguese defense exports

In the period 2009–2013, the country mainly exported arms to Belgium; primarily aircraft components. Portugal's defense industry includes companies such as OGMA, which is capable of providing components for C130 and other aircraft, and EID, which provides integrated communications control systems (ICCS).

The figure below shows the volume of Portuguese defense exports during 2009–2013:

Figure 51: Portuguese Defense exports by Country (%), 2009–2013



Source: SIPRI and SDI analysis

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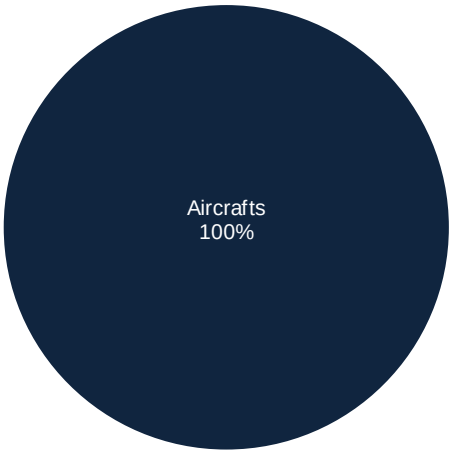
4.2.3. Aircrafts are the main exported defense products

Portugal's defense exports mainly consist of aircraft. The country's partnership with foreign defense companies made the domestic companies competent in component manufacture, maintenance, repair, and overhaul works. The offset contracts from foreign companies helped the country's domestic defense companies to acquire export capability. During the forecast period, aircraft components are expected to remain Portugal's main military exports.

The figure below shows the volume of Portuguese defense exports by country during 2009–2013:

Figure 52: Portuguese Defense Imports by Category (%), 2009–2013



Source: SIPRI and SDI analysis

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* The figures in this section are based on trend indicator values, (TIV) expressed in US$ million at constant (1990) prices. Although figures are expressed in US$, TIVs do not represent the financial value of goods transferred; rather, TIVs are an indication of the volume of arms transferred.

5. Industry Dynamics

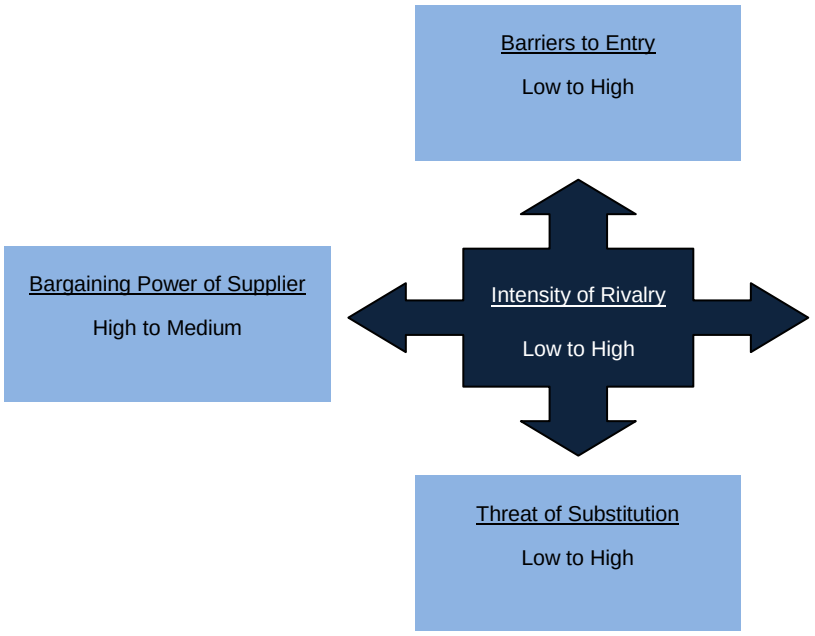
5.1. Five Forces Analysis

Portugal‘s domestic defense industry mainly operates maintenance, repair and overhaul services, the contracts for which are primarily received through offset programs from OEMs as a regulatory requirement during supply negotiations. Portugal procures the majority of its equipment from European defense companies as part of its voluntary obligations as an EU member. However, the European defense industry has many companies with small order books and large-scale production capacities, which increase the level of competition among them. Non-European defense companies supply Portugal‘s defense market with specific niche technology that is not available from Europe, and foreign companies are bound by offset regulations to procure components from Portuguese defense companies.

The domestic defense industry is awarded the majority of its contracts through these offset arrangements. The European defense industry has easy access to the Portuguese market due to Portugal‘s EU membership, but non-EU defense companies have more difficulty accessing Portugal‘s market due to the country‘s FDI policy, which requires government approval for any non-EU investment, and also the EU‘s policy of buying European equipment. Portugal‘s domestic defense industry consists of a small number of companies, reducing the overall level of competition among them, while Europe‘s defense industry has large numbers of companies operating in the same market segments, promoting healthy competition. Non-European defense companies operating in Portugal have an effective monopoly due to the uniqueness of the technology they supply.

The following sections provide a Porter's five forces analysis of Portugal's defense industry:

Figure 53: Industry Dynamics Porter's Five Forces Analysis



Source: SDI analysis

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5.1.1. Bargaining power of supplier: high to medium

The domestic defense industry enjoys medium bargaining power. The Portuguese defense industry is not sufficiently developed to cater to the needs of the government, and mainly handles sub-contracted work, and equipment maintenance and overhaul contracts under license from foreign OEMs. The government is responsible for the development of the domestic defense industry, and is entitled to demand offsets for its procurement orders, leading to Portuguese companies receiving sub-contracted work from OEMs.

Most of Portugal's defense equipment is procured from foreign companies, which can be divided into EU and non-EU categories. As an EU member, Portugal has a voluntary obligation to buy defense equipment from other EU suppliers. However, the high level of competition among these suppliers gives the buyer more options, reducing the bargaining power of the suppliers to medium.

The non-EU defense companies enjoy high levels of bargaining power as the Portuguese government prefers EU-sourced defense equipment which is generally highly capable. This means that non-EU defense companies tend to only supply specific niche equipment that is unavailable within the EU. The uniqueness of the technology and non-availability of alternatives increases the bargaining power of non-EU defense companies specializing in specific equipment categories.

5.1.2. Bargaining power of buyer: medium to low

The Portuguese government and foreign OEMs are the only buyers in the Portuguese defense market. The domestic defense industry is not sufficiently developed to cater to the government's demand for high-technology equipment, forcing the government to procure from foreign companies.

Foreign OEMs have a low level of bargaining power as they are obliged to procure from domestic defense companies as a part of the offset program, which is one of the criteria for being awarded the initial contract.

The Portuguese government has a medium level of bargaining power with the EU defense industry. The government has a voluntary obligation as an EU member to procure defense equipment from EU defense companies, which increases the bargaining power of the suppliers. However, the European defense industry consists of a large number of companies catering to a single segment which increases competition among them and increases the Portuguese government's bargaining power as a buyer.

The government has low bargaining power with the non-EU defense companies, which supply niche technology weapons, and substitutes are not available within the EU, reducing buyer bargaining power.

5.1.3. Barrier to entry: low to high

For the domestic defense industry, the barriers to entry are low due to the regulatory requirement of offsets which provide entry opportunities for domestic companies.

Foreign suppliers to Portugal's defense market can be classified into EU and non-EU companies. The EU defense suppliers enjoy low barriers to entry as the offset policy applies to both EU and non-EU companies. EU defense companies can freely invest in Portugal, and the EU's policy of preferring EU defense equipment suppliers offers comparatively easy entry opportunities for EU companies.

Non-EU defense suppliers face higher entry barriers as their FDI is regulated and requires government approval. Portugal's preference for EU suppliers further increases the entry barriers.

5.1.4. Intensity of rivalry: low to high

The domestic defense industry faces a low intensity of rivalry as there are few companies offering repair and overhaul services in the region.

The intensity of rivalry among European companies is high, as the European defense industry consists of a large number of companies catering to the same segments. For example, in naval ship-building there are many competing companies such as DCNS of France, Navantia of Spain, Damen Schelde Naval Shipbuilding of the Netherlands, and ThyssenKrupp marine systems of Germany.

The intensity of rivalry among non-European defense companies is low, as their main opportunity to cater for Portugal's defense market is by supplying technology and equipment that is produced only by that company and is unavailable elsewhere.

5.1.5. Threat of substitution: low to high

The domestic defense industry faces a low substitution risk as domestic companies primarily provide repair and maintenance services that cannot easily be substituted.

The threat of substitution for European defense companies is high as there are a large number of defense companies catering to one market segment, offering products that can be substituted for each other. The French Rafale jet fighter can, for example, be substituted by the Eurofighter Typhoon or the Saab Gripen.

For non-EU defense companies catering to the Portuguese defense market, the threat of substitution is low as these companies tend to offer unique products with few, if any, substitutes.

6. Market Entry Strategy

6.1. Market Regulation

6.1.1. Offset policy aids development of domestic defense industry and research activities

The Portuguese defense offset program forms a condition for foreign defense companies to be awarded a supply contract. The main objective of the offset policy is to focus on economic development and to develop the domestic defense industry's capability to ensure its competitiveness and integration with European defense value chains. The offset program applies when the main contract from a foreign supplier is equal to or greater than EUR10 million (US$13.6 million) and the total value of the agreed offset program is 100% of the estimated main contract amount. The terms and conditions of the procurement procedure clearly define the criteria for eligibility and evaluation of offsets, and the quality, credibility and value of each offset project are evaluated using pre-defined criteria.

The Permanent Offset Commission (CPC) is responsible for the formulation, implementation, and evaluation of offsets, and is also responsible for offset agreement signatures. The CPC works in association with the Defense Ministry and Ministry of Economy and Innovation, and has representatives from the Ministry of Science and Technology and the Ministry of Finance and Public Administration.

The offset policy does not include any compulsion to include SMEs. Foreign companies are free to select the companies that will be a part of the contract to fulfill the offset obligation (offset receivers); however, most of the offset contracts are made with SMEs. The offset policy includes a provision that a domestic company that receives an offset contract above EUR10 million (US$13.6 million) is obliged to sub-contract a minimum of 15% of the work to other domestic companies.

The table below outlines the key focus areas of Portugal's defense offset program:

Table 41: Offset Regulations in Portugal

Country	Minimum transaction value	Minimum offset	Multipliers	Penalty	Area of focus
Portugal	EUR10 million (US$13.6 million)	100%	1-5	15% of the offset obligation. If the offset obligation is not fulfilled, a lifetime ban will be imposed.	Defense-related products and services and other sectors such as aerospace, automobiles and renewable energy

Source: SDI Research analysis

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Offset evaluations are made in two phases; the first phase is the evaluation of the bidder's offset proposal to include it in the overall evaluation of the procurement proposal, and in the second phase the offsets are discussed, negotiated, reformulated, and valued to be included in the final bid for evaluation. Once the proposal is selected an offset agreement is signed.

Eligible direct offset activities include the following:

- Direct offsets
- Foreign direct investment
- Technology transfer
- Establishment of long term contracts
- Sub-contracting and supply of goods and services
- Training and technical support in new capabilities

The foreign company can also invest in non-defense sectors to fulfill the offset obligation. However, the CPC may require a minimum percentage of defense-related offsets.

The priority non-defense sectors are:

- aerospace
- automotive
- renewable energy

The CPC also applies multipliers to offset obligations performed. Offset multipliers range from one to five and are applied in accordance with the economic impact and its strategic relevance in terms of preferred areas, technological relevance, social impact, and alignment with national priorities. Offset obligations are usually completed within six to eight years, although longer periods are accepted if the project requires them. Penalties are also applicable for not completing the obligations in a timely fashion; the penalty is 15% of the value of the offset contract, and a lifetime ban is also applicable for suppliers who do not fulfill their offset obligations.

6.1.2. Offset policy aids development of domestic defense industry and research activities

According to the Portuguese government, foreign investment refers to an investment of at least 10% or more made by a foreign national or entity in a Portuguese company, provided that the investor also plays a role in the company‘s decision making. The Portuguese government agency AICEP (Portuguese Agency for Foreign Investment and Commerce) is responsible for attracting foreign direct investment to Portugal, and is the point of contact for companies that plan to invest over EUR25 million (US$34 million) and have consolidated revenues of over EUR75 million (US$102 million). For companies that do not meet these criteria, AICEP does a primary analysis and directs them to agencies such as Inovcapital, which offers technology transfer and incubator programs for small and medium-sized enterprises (SMEs), or the Institute for the Support of SMEs (IAPMEI) which provides technical and financial support.

The government does not allow free entry by non-EU investors into Portuguese markets and government approval is required for investment in the defense industry.

6.2. Market Entry Route

6.2.1. Setting up subsidiaries offer market entry opportunity

Foreign defense companies intending to cater to Portugal's defense needs can do so by setting up a subsidiary in the country. The Portuguese government also favors foreign investment through its offset policy; foreign companies can set up subsidiaries in Portugal, which is accepted as an offset for Defense Ministry contracts. Setting up a subsidiary offers an entry opportunity, as the subsidiary will provide employment to Portuguese citizens and the company will bring advanced technology that can be used to gain export revenues for the company.

Examples of companies that have set up a subsidiary in Portugal are:

Embraer, one of Brazil's largest aerospace companies that designs, develops, manufactures, and sells aircraft for the commercial, executive, and defense aviation markets, began construction of its new facility in Evora, Portugal in November 2010. The 30,660 sq. m facility is dedicated to manufacturing complex airframe structures and components in composite materials.

Italian helicopter manufacturer AgustaWestland established a subsidiary company, AgustaWestland Portugal, in August 2008 to provide helicopter support services. The company also signed a long-term contract with the Portuguese Air Force to support their 12 AW101 helicopters. The Full In-Service Support (FISS) contract will see AgustaWestland take full responsibility for the second-level maintenance of the aircraft as well as the provision of spares, repairs and technical support services. The first five years of the 15-year contract is valued at approximately EUR53 million and will result in AgustaWestland Portugal working closely with the Portuguese Air Force and local industry to deliver the FISS.

6.2.2. Technology transfer, sub-contracts and long-term supply contracts open new market entry strategy choices

Foreign defense companies can also cater to the Portuguese defense market with technology transfers, sub-contracting agreements, and by establishing long-term supply contracts. Portugal's offset policy, which is a condition for defense contracts, focuses on technology transfers, sub-contracting works and establishing long-term supply contracts with the domestic defense industry.

Examples of companies that have entered the Portuguese market through these routes are:

Italian trainer aircraft manufacturer Alenia Aermacchi signed a memorandum of understanding with OGMA-Indústria Aeronáutica de Portugal (OGMA) in June 2007, which establishes the terms of OGMA's participation in production and assembly, structural testing work, and support for the Alenia AermacchiM-346 fighter trainer aircraft.

NH Industries contracted OGMA in June 2001 as a single-source producer of airframe parts, cables, interior fittings, the radar dome (radome), and engine installation parts for the entire NH-90 helicopter program, after Portugal joined the production consortium with a 1.2% stake.

6.3. Key Challenges

6.3.1. Contracting foreign companies challenging domestic defense companies

The Portuguese government procures the majority of its defense equipment from foreign companies due to its relatively under-developed domestic defense industry. However, the government is also importing capabilities that its domestic industry is capable of performing itself, and has even been exporting. The import of this hardware poses a challenge for the domestic defense industry, which has been slowly developing through joint ventures and partnership contracts.

For example, four of the Portuguese Air Force's aircraft (two C-130s and two P3 Orions) have been sent to the US for repair and maintenance, even though domestic company OGMA has the experience and capability to carry out the project, and has been performing repair and maintenance work for the military aircraft of France and Belgium. The outsourcing of this work is a concern for the domestic defense industry.

6.3.2. Budget cuts due to austerity measures challenging defense companies

Defense companies catering to the Portuguese market face the challenge of Portugal's declining military capital expenditure. In 2006, the Portuguese government defined its long-term military funding program (LPM), which outlined procurement expenditure over the 18-year period 2006–2023. However, the government is currently facing economic challenges and has been forced to adopt austerity measures to reduce the country's high fiscal deficit.

These austerity measures were reflected in defense expenditure with a 45.7% cut in LPM funding in 2013, and also a moratorium in new equipment procurement until 2013. In addition, the Ministry of National Defense is planning to renegotiate its current procurement contracts. The austerity measures mean fewer orders for defense companies and, as most other European governments are also cutting their defense expenditure, the concerns for the affected companies are further increased as they find it difficult to find new markets and opportunities. Due to the LPM budget cuts, some contracts have also been delayed or cancelled. For example, the government terminated the order for 260 Pandur II armored vehicles in 2012 and restricted deliveries to a total of 166 only. Portugal also opted out of the NH-90 transport helicopters program in 2012.

6.3.3. Corrupt practices in the Portuguese government challenging for the industry

The Portuguese government has been accused of corrupt practices when awarding defense contracts. The government entered in to a contract with a German company to acquire two submarines at a cost of more than EUR1 billion (US$1.4 billion), and the government made these purchases when it faced huge financial constraints and was forced to resort to austerity measures. The German companies bribed Portuguese defense officials to make the purchases, and also the offset contracts negotiated by the government were actually existing investments and did not give any additional benefit to the domestic defense industry.

These corrupt practices resulted in a loss to the domestic defense industry as it did not benefit from the offset obligations which are its main source of contracts. Such corrupt practices in defense deals are a challenge for the Portuguese defense industry.

7. Competitive Landscape and Strategic Insights

7.1. Competitive Landscape Overview

The Portuguese defense industry is not sufficiently developed to meet its army's requirements for technologically advanced equipment. The domestic defense industry has developed the capability to supply maintenance, repair and overhaul (MRO) services by receiving offsets from foreign OEMs, and has also developed specializations in communication systems and integration services. The ICCS (Integrated Communications Control System) developed by EID-Empresa de Investigação e Desenvolvimento de Electrónica SA is being supplied globally due to its advanced features and its ability to integrate with NATO forces.

7.2. Key Domestic Companies

7.2.1. OGMA – Indústria Aeronáutica de Portugal SA: overview

OGMA – Indústria Aeronáutica de Portugal SA (OGMA) is an aeronautics company based in Vila Franca de Xira, and has operations in more than 45 countries. The company provides services for the commercial and defense aviation sectors, and is jointly owned by Embraer of Brazil and EADS with 65%, and the Portuguese government with 35%.

In the defense sector OGMA provides aeronautical maintenance, repair and overhaul services, handling military aircraft such as the Lockheed Martin C-130/L-100 Hercules, the P-3 Orion/L-188 Electra, the F-16 Fighting Falcon, the EADS CASA C-212 Aviocar, and the Dassault-Breguet/Dornier Alpha Jet.

7.2.2. OGMA – Indústria Aeronáutica de Portugal SA: products and services

Table 42: OGMA – Indústria Aeronáutica de Portugal SA – Product focus

Products	Services
Aircraft and maintenance	**NA**
Helicopters	
Engine repair and overhaul	
Components and accessories repair and overhaul	
Landing gear	
Propellers	
Avionics	
Mechanical assemblies	
Hydraulic and pneumatic accessories	
Aero structures	
Aero structures assembly	
Aeronautical components	
Manufacturing from metallic and composite materials	
Loom manufacturing and industrialization	
Program management and industrialization	
Design and manufacturing of tools and jigs	

Table 42: OGMA – Indústria Aeronáutica de Portugal SA – Product focus	
Products	**Services**
Participation in aeronautical components design and collaborative engineering processes	
Source: Company website and SDI analysis	© SDI

7.2.3. OGMA – Indústria Aeronáutica de Portugal SA: recent announcements and strategic initiatives

May 2014: OGMA delivered the first PoAF C295 to complete the four years Inspection Scheduled Maintenance.

November 2013: OGMA was considered the best exporting company in 2012 and received the best Portuguese Exporter Award.

April 2013: OGMA exhibited its MRO capabilities at LAAD Defence & Security 2013 held at Riocentro, Rio de Janeiro, Brazil.

September 2012: OGMA announced that it is holding the second Flying Higher Defense Aviation Event from 26 to 28 September, which is aimed at strengthening the relationship with the current and potential military and government customers.

July 2012: The company was awarded supplier of excellence by GKN Aerospace at the Farnborough Airshow for its services since 1996.

April 2012: OGMA was present at the Feria Internacional del Aire y del Espacio‖ (FIDAE) held in Santiago, Chile; one of the largest airshows in Latin America in cooperation with Embraer - Defence and Security.

October 2011: The company announced that it attended the 2011 EMBRAER Executive Operators Conference (EEOC) for the Middle East, which took place in Dubai. The event presented customers with the latest techniques, maintenance, and operation of the Legacy 600, Legacy 650, and Lineage 1000.

October 2011: The company announced that it attended the 2011 Hercules Operators Conference (HOC), which was the world‘s largest and most important meeting for C-130 aircraft, organized by Lockheed Martin in Atlanta, USA.

December 2011: The company announced that it obtained Design Organization Approval (DOA) Certification extended by the European Aviation Safety Agency (EASA).

January 2011: OGMA announced that it will require partnership with domestic engineering firms to assist in successfully developing components for the future Brazilian transport aircraft KC-390, which is being developed by Embraer.

May 2010: OGMA announced that it is in discussions with the Brazilian government about design work for the new Brazilian military transport aircraft KC-390.

March 2010: OGMA negotiated the manufacture of new components for the Embraer military aircraft. The Portuguese government and Brazilian manufacturer have been working to integrate the KC-390 program in Portugal, which may replace the Portuguese air force‘s current C-130H aircraft.

September 2009: The company announced that it has completed checks for works on its first batch of French SA 330 Puma medium transport helicopters, under the contract awarded by the French MoD.

7.2.4. OGMA – Indústria Aeronáutica de Portugal SA: alliances

Table 43: OGMA – Indústria Aeronáutica de Portugal SA – Alliances

Alliances	Partner company	Year formed	Strategic objectives and focus area
Agreement	Brazilian AS	2014	OGMA signed an agreement with the Brazilian AS-AVIONICS SERVICES and is recognized as an AS authorized service center.
Partnership Agreement	EMBRAER Defense and Security	2011	Agreement to produce and supply the KC-390's central fuselage panels, elevators, fairings and landing-gear doors to EMBRAER.
Partnership	AgustaWestland	2009	Agreement for providing aerospace manufacturing and engineering services for AW 101 helicopters. Market Focus: Portugal
Cooperation	AgustaWestland	2008	As a part of an offset agreement the company received a maintenance and overhaul contract for EH-101 helicopters. Market Focus: Portugal
Partnership agreement	Alenia Aermacchi	2007	Agreement for the production, assembly, structural testing work and support for the M-346 advanced jet trainer. Market Focus: Global
Partnership	NH Industries	2001	Partnership agreement for the production of airframe parts, cables, interior fittings and engine installation parts for the NH90 helicopter program. Market Focus: Global
Partnership	Lockheed Martin	2000	Partnership with the Portuguese air force P-3 Improvement program.

Source: Company website and SDI analysis © SDI

7.2.5. OGMA – Indústria Aeronáutica de Portugal SA: recent contract wins

Table 44: OGMA – Indústria Aeronáutica de Portugal SA – Recent Contract Wins

Date	Contract value	Client	Description
January 2012	NA	Royal Netherlands Air Force	OGMA received a contract for the maintenance and upgrade of F-16 MLU aircraft.
April 2011	US$ 350 million	Portuguese Air Force	To enhance the capabilities of the Portuguese Air Force by providing KC-390 military transport jet, which is a medium-size, twin-engine jet-powered military transport aircraft.
August 2010	NA	Lockheed Martin	OGMA has received a contract to upgrade PC-3 Orion aircraft from the Netherlands under an offset program. The contract was originally awarded to Lockheed Martin.
August 2010	NA	Spanish Air Force	To carry out maintenance work on the P-3A Orion and P-3M maritime patrol aircraft.
October 2009	NA	Spanish Air Force	To provide maintenance work on a single Spanish air force Lockheed Martin KC-130H (locally called TK-10) Hercules tactical tanker aircraft.
September 2009	NA	French MoD	OGMA received a contract for the completion of works on French SA 330 Puma medium transport helicopters.
March 2009	NA	Libyan Government	OGMA awarded the contract for the maintenance of Libyan aircraft.

Source: Company website and SDI analysis © SDI

7.2.6. EID – Empresa de Investigação e Desenvolvimento de Electrónica SA: overview

EID is a privately-owned Portuguese defense company based in Charneca da Caparica. The company is active in several countries worldwide, with customers in Europe, Africa, South America, the Middle East, and Asia. Its shareholders are EMPORDEF, Rohde & Schwarz, and EFACEC, and its main customers are the armed forces and defense contractors.

The company designs, manufactures and supplies technologically advanced equipment and systems, particularly for the worldwide defense community. The company's core areas of expertise are electronics, communications, and software engineering.

7.2.7. EID – Empresa de Investigação e Desenvolvimento de Electrónica SA: products and services

Table 45: EID – Empresa de Investigação e Desenvolvimento de Electrónica SA – Product focus

Products	Services
Naval communication systems	**NA**
Tactical radio systems	
Tactical networking equipment	
Field telephone systems	
Military messaging equipment	
Systems integration	

Source: Company website and SDI analysis © SDI

7.2.8. EID – Empresa de Investigação e Desenvolvimento de Electrónica SA: recent announcements and strategic initiatives

April 2014: The company participated in DSA - Defense Services Asia Exhibition and conference, 2014 edition, which took place at the Putra World Trade Center, in Kuala Lumpur, Malaysia.

January 2013: The company opened its Asia-Pacific Regional Office in Kaula Lumpur, Malaysia to celebrate its thirtieth anniversary.

May 2012: The company participated in DSA 2012 – Defense Services Asia 2012 – and exhibited its communications products and systems: ICCS, Field Communications equipment, and vehicular Intercom Systems.

April 2012: EID announced that it participated in DIMDEX – Doha International Maritime Defense Exhibition & Conference – for the first time and displayed its solutions for naval communications requirements.

March 2012: The company announced that it exhibited its field communications products: the CD-116 digital switchboard and BLC-201 telephones at the Defense and Security 2012 exhibition in Bangkok, Thailand.

December 2011: The company announced that it participated in LIMA 2011 – the Langkawi International Maritime & Aerospace exhibition – and exhibited its Aerospace equipment.

September 2011: The company announced that it participated in DSEI 2011 - Defense & Security Equipment International, one of the world's largest defense and security exhibitions, and exhibited its TWH-101 Tactical Wireless Headset, ICC-201 and ICC-251 Digital Intercom systems, CD-116 Field Digital Switchboard, and BLC-201 Field Telephone.

September 2011: The company announced that it participated in IDEX 2011, the largest defense and security event in the Middle East and North Africa, which was held in Abu Dhabi.

December 2010: The company announced plans to exhibit at the IDEX 2011 International Defense Exhibition & Conference at the Abu Dhabi National Exhibition Centre (ADNEC) in United Arab Emirates (UAE).

November 2010: EID announced its plans to exhibit at the 2011 LAAD Defense & Security international event, to be held in Brazil.

June 2010: EID exhibited its land communications systems at the Eurosatory 2010 event. The company displayed the PRC525A tactical communications system in different configurations, the ICC201 intercommunication solution for armored vehicles, and the CD116 field switchboard.

October 2009: The company's PRC525A tactical radio was integrated with the Lockheed Martin naval electronics & surveillance systems' AN/PPQ-2 PSTAR (portable search and target acquisition radar) lightweight, portable air defense radar system in order to allow data transmission.

July 2009: The company launched its ICCS (integrated communications control system) internal communications management system for surface vessels and submarines.

June 2009: The company launched the ICCS Mod 6 (integrated communications control system) naval networked communication system. The new system is an evolution of the previous Mod 5 configuration, but now has IP (internet protocol) and enhanced performances, and integration capabilities: VoIP, high quality audio, and video as well high speed data transmission.

February 2009: During the IDEX show (international defense exhibit & conference) in Abu Dhabi, EID exhibited its new range of tactical communications systems, based on VoIP modules by M2Msoft and embedded in the militarized materials.

7.2.9. EID – Empresa de Investigação e Desenvolvimento de Electrónica SA: alliances

Table 46: EID – Empresa de Investigação e Desenvolvimento de Electrónica SA – Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Cooperation Agreement	IMBEL – Indústria de Material Bélico do Brasil	2011	Product Focus: Agreement to increase the national content and technology transfer to Brazilian companies and to jointly produce the ICCS (Integrated Communications Control System) components for the Brazilian Navy warships.

Source: Company website and SDI analysis © SDI

7.2.10. EID – Empresa de Investigação e Desenvolvimento de Electrónica SA: recent contract wins

Table 47: EID – Empresa de Investigação e Desenvolvimento de Electrónica SA – Contracts

Date	Contract value	Client	Description
October 2013	NA	Portuguese Army	For the delivery of a batch of Ruggedized servers EID SR- 202
May 2013	NA	Brazilian Navy	For the supply of ICCS for the second batch of Macaé class patrol vessels.
November 2012	NA	Indonesian Navy	To supply ICCS systems to be installed on board 3 Indonesian Navy's new vessels
September 2012	NA	Navantia Sistemas FABA	Received a contract to equip 2 Kalaat class logistic landing ships of the Algerian Navy, under the framework of a refit program.
July 2011	NA	Navantia Sistemas FABA	Received a contract for the supply of Integrated Communications Control System (ICCS) for the Royal Australian Navy´s Hobart class Air Warfare Destroyers.
May 2011	NA	Bangladesh MOD	Received a contract to supply CD-116 field switchboards.
January 2011	NA	PT Palindo Shipyard	PT Palindo Shipyard has ordered the ICCS (Integrated Communications Control System) to be installed on two missile fast-attack boats
January 2011	NA	Egypt Ministry of Defense	Egypt's Ministry of Defense ordered an additional batch of CD-116 field digital switchboards.
January 2011	NA	Palindo Marine	Received a contract to supply Integrated Communications Control System (ICCS) to be installed on board two missile fast attack boats
January 2011	NA	The Ministry of Defense of the Arab Republic of Egypt	Received a contract to supply CD-116 digital switchboards.
February 2010	NA	Portuguese navy	Received a contract for the supply of the BRASS (Broadcast And Ship Shore) system from the Portuguese Ministry of Defense.
December 2009	NA	Royal Netherlands Navy	ICCS was selected to equip the Royal Netherlands Navy's Joint Logistic Support Ship (JSS), a multi-functional platform specifically designed for maritime support, strategic sea lifts and sea-based missions in open ocean as well as in littoral waters.
October 2009	NA	Brazilian Navy	The Brazilian Navy and EID have signed a contract to supply the Integrated Communications Control System (ICCS) for the 'São Paulo' aircraft carrier.

Source: Company website and SDI analysis © SDI

7.2.11. Edisoft: overview

Edisoft is a Portuguese defense company, which is based in Caparica, and has operations in countries such as South Korea, Pakistan, Belgium, the UK, Canada, Venezuela, and Morocco. The company provides products and services in both military and civilian fields.

The company's ownership structure is as follows:

- EMPORDEF– Empresa Portuguesa de Defesa SGPS SA, the state's defense industry holding company: 30%
- NAV Portugal EPE, the Portuguese air traffic control authority: 30%
- Thales Nederland BV, a defense company based in the Netherlands: 30%
- Company employees: 10%

Edisoft is the national leader in the domains of weapons and sensors, command and control systems for military ships, information integration systems in naval platforms, military logistic information systems, collective security systems, and space systems. The company's core skills include development, maintenance and support of command and control systems, systems integration and acceptance, integrated information systems, network and information security, navigation by satellite and remote sensing, space technical and technological competencies, geo-marketing, and business intelligence solutions.

7.2.12. Edisoft: products and services

Table 48: Edisoft– Product focus

Products	Services
Link GPS-GSM interface application (LIGGIA)	NA
MIND-S – multi information network-centric defense System	
Command and control solutions	
Unmanned submarine vehicles solutions	
Naval integration solutions	
Source: Company website and SDI analysis	© SDI

7.2.13. Edisoft: recent announcements and strategic initiatives

March 2014: The company established a new Galileo Sensor Station (GSS), which is the latest addition to Galileo's worldwide ground infrastructure at Santa Maria Island in the Azores.

July 2013: The company moved its HQ to a new office in Paco de Arcos on the western side of Lisbon.

January 2013: The company showcased its integrated scan and pack and shipping solutions at TPAC 2013 (Third Party Advantage Conference).

January 2010: Edisoft welcomed the adoption of the first white papers of the European Organization for Security (EOS) on Border Management, Border Surveillance, Civil Protection, Energy Infrastructure Protection and Resilience, Civil Aviation Security, ICT Security, Supply Chain Security, and Surface Transport Security. These White Papers promote a transversal approach that covers all aspects and sectors of security, including cross-cutting aspects.

7.2.14. Edisoft: alliances

Table 49: Edisoft– Alliances			
Alliances	**Partner Company**	**Year Formed**	**Strategic Objectives and Focus Area**
Agreement	Blackbridge	2014	Agreement to boost up Edisoft's activities in the GIS markets both in and beyond Portuguese borders and to offer new earth observation based services to a variety of markets.
Agreement	Instituto Hidrografico (IH)	2013	Agreement to promote R&D of software products for supporting recreational navigation and for the development of nautical products and mobile applications to access the services provided by IH.
Supply Contract	MacDonald, Dettwiler and Associates Ltd.	2012	Product focus: RADARSAT-2 capability Market Focus: Europe Maritime Security
Consortium	Rolls-Royce Marine and EID	2003	Agreement on the installation of an integrated platform management system and the SII (Sistema Integrador de Informação) integrated information system on the Portuguese ocean patrol vessel.
Team	Thales Nederland	1988	The conceptualization, design, development and testing of a common processing platform, entirely dedicated to the radar tracking and plotting processes and their integration within a combat management system. Powered with an automated track selection mechanism, the common processing platform was capable of multi-sensor data fusion (MSDF) techniques, allowing the system to collect data from several radars, proceed with its recognition, identification and correlation and presents it to the operator as the most complete and accurate tracking information.
Source: Company website and SDI analysis			© SDI

7.2.15. Edisoft: recent contract wins

Table 50: Edisoft– Recent Contract Wins			
Date	**Contract value**	**Client**	**Description**
January 2014	NA	Portuguese navy and with the universities of Lisbon, Porto and Evora.	A computer program will be used by NATO to support naval operations developed by EDISOFT.
January 2010	EUR1 million (US$1.36 million)	Portuguese navy	To provide engineering services to the Portuguese navy. The contract includes the maintenance of combat systems in frigates.
Source: Company website and SDI analysis			© SDI

7.2.16. EMPORDEF TI Inc.: overview

EMPORDEF TI is a state-owned company held by EMPORDEF SA, located in Caparica in Portugal. The company deals in the conception, engineering, and development of operational, tactical and maintenance simulators, computer-based training applications, and test software. Additionally, the company specializes in military simulation, offering technologically-advanced solutions in the development and integration of turnkey projects for the military simulation market.

7.2.17. EMPORDEF TI Inc.: products and services

Table 51: EMPORDEF TI Inc.– Product focus

Products	Services
Test Software	**NA**
ETS 2000	
DIAMA	
VIBMON	
ECM/T56	
Simulation	
Flight	
SIMAVIO	
SIMIAV	
SIMAJET	
GYROGMA	
C-130MTT(Training Tools)	
C-130 Maintenance CBT	
C-130 Cockpit Maintenance Procedures Trainer	
C-130 Free-Play Maintenance Procedures Trainer	
Ground	
PRC/525 Training Tools	
The PRC/525 Simulation Based Trainer (SBT)	
PRC/525 CBT	
Visual Systems	

Source: Company website and SDI analysis © SDI

7.2.18. EMPORDEF TI Inc.: recent announcements and strategic initiatives

December 2010: The first Portuguese unmanned aircraft was presented at the International Aeronautical Farnborough International Airshow 2010, in the UK. Empordef Centi is responsible for developing and incorporating embedded systems, communications, command and control, mission management, and ground stations.

September 2010: The Portuguese branch of the Euro Defense association, the Centro de Estudos, organized a workshop related to safety and environment protection issues in the armed and police forces in cooperation with EMPORDEF TI.

September 2010: A computer-based training system developed by the company to train the Portuguese Army Pandur 2 infantry fighting vehicle crews is being installed at the Regimento de Infantaria Nº13 (RI 13), which is based in Vila Real.

October 2008: The Portuguese Defense Minister acknowledged the communication system of its new Leopard 2A6 tank, manufactured by the company, as an element of great importance to the nation's defense industry.

7.2.19. EMPORDEF TI Inc.: alliances

Table 52: EMPORDEF TI Inc.– Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Consortium	PEMA (Portuguese SME for Aerospace) and Lockheed Martin	2009	Initially established to develop systems for civil aircraft without pilot (UAVs), the program's scope is associated with the modernization of five Portuguese air force P-3C aircraft.
Cooperation Agreement	esigma Systems GmbH	2007	Co-operation agreement for the development of a training system for Pandur 2 armored vehicles for the Portuguese army. The training system is aimed at assisting the crews of Pandur 2 IFV configured vehicles to practice engagement tasks in operational-simulated scenarios.

Source: Company website and SDI analysis © SDI

7.2.20. EMPORDEF TI Inc.: recent contract wins

Table 53: EMPORDEF TI Inc. – Recent Contract Wins

Date	Contract value	Client	Description
2011	NA	GD European Land Systems- Steyr (GDLES)	Contract was awarded to supply SP-30 model ULAN Infantry Fighting Vehicle(IFV) for Austrian Army,
July 2009	NA	Portuguese Air Force	To supply a training system for the Socata TB-30 Epsilon aircraft embedded with the latest flight simulation technologies and encompassing a cockpit replica, a visual system and an instructor station, all of which are integrated systems that allow procedural training, the practice of radio aid navigation and the simulation of emergency conditions and system failures.

Source: Company website and SDI analysis © SDI

7.2.21. ENVC: overview

Estaleiros Navais de Viana do Castelo SA (ENVC) is a privately-owned, medium-sized Portuguese shipyard and shipbuilder, with the capacity to design, build, convert, and repair various sophisticated and specialized ships. Founded in 1944, the company currently occupies an area of over one million square km and employs 900 people. ENVC has built more than 200 vessels, including barges, tugboats, ferryboats, fishing units, general cargo and bulk carriers, container ships, oil tankers, chemical tankers, LPG's, cement carriers, and war vessels.

ENVC‘s main client is the Portuguese Navy. During its first 50 years of activity, almost 90% of the units built by ENVC were for Portuguese owners, but after the mid-1970s and during the 1980s, the company‘s main market was the former USSR, for which they built 31 similar units. In the 1990s, the company‘s main clients were from Germany.

7.2.22. ENVC: products and services

Table 54: ENVC – Product focus

Products	Services
Patrol launches	NA
Coast patrol vessels	
Ocean patrol vessels	
Coastal patrol launches	

Source: Company website and SDI analysis © SDI

7.2.23. ENVC: recent announcements and strategic initiatives

January 2011: The company delivered the first 850-ton Viana do Castelo Class NPO (Navio de Patrulha Oceãnica) ocean patrol vessel to the Portuguese Navy.

November 2009: The company announced that the first NPO (Navio Patrulha Oceânico) ocean patrol vessel P-360 NRP Viana do Castelo, scheduled to be delivered in January 2010 to the Portuguese Navy, has started sea-trials at the company‘s shipyard.

7.2.24. ENVC: alliances

Table 55: ENVC– Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Memorandum of understanding	Damen Schelde Naval Shipbuilding	2009	Strategic Focus: Long term strategic collaboration in the naval construction field

Source: Company website and SDI analysis © SDI

7.2.25. ENVC: recent contract wins

Table 56: ENVC– Recent Contract Wins			
Date	**Contract value**	**Client**	**Description**
March 2010	NA	The Portuguese Navy (Marinha Portuguesa)	ENVC will build Viana do Castelo, an ocean patrol vessel, for the Portuguese Navy.
Source: Company website and SDI analysis			© SDI

7.2.26. Indra Sistemas Portugal: overview

Indra Sistemas Portugal, which was established in 2002, is a leading information technology and defense systems company based in Lisbon. It is a subsidiary of Spanish-owned multinational Indra Sistemas, and was formerly known as Indra CPC after Indra Sistemas acquired a 60% stake from Portuguese group CPC, one of Portugal's top five IT companies. Indra Sistemas Portugal designs, develops, produces, integrates, and maintains defense systems, telecommunication solutions, and services based on advanced information technology. The company employs 400 people and has clients in the defense, banking, insurance, and telecommunication sectors.

7.2.27. Indra Sistemas Portugal: products and services

Table 57: Indra Sistemas Portugal – Product focus	
Products	**Services**
Radars and surveillance systems	Air defense systems
Lanza – long reach D-band 3D radar	Naval and terrestrial command and control
Aries – high-resolution LPI (low probability interception) radar	Operations centers for state security forces
CIT-18/CIT-20 – combined interrogator/transponder	Electronic intelligence systems
C4I – control systems and flight control	Electro-optics and night vision
Sigma – integrated aero maintenance management system	Integrated logistical systems
COAAAS – anti-aircraft artillery fire control center	E-learning and documentary management platforms
Airborne electronic military systems	Simulation and automatic test systems
SEO – electro-optical observation sensor	Homeland security
Satellite equipment – military and civil solutions	Satellite-based communications and control stations
Source: Company website and SDI analysis	© SDI

7.2.28. Indra Sistemas Portugal: recent announcements and strategic initiatives

March 2012: The company announced that it will participate in the upcoming FIDAE 2012 International Trade Exhibition for Aerospace and Defence, to be held in Santiago de Chile, and will showcase the prototype of its MRI surveillance plane.

March 2012: The company announced that it presented abilities and solutions for countering nuclear, radiological, biological, chemical, and explosive threats (CBRNe) at the South America CBRNe forum in Rio de Janeiro.

January 2012: The company announced that it will startup an international aeronautics training center near El Prat Airport, which will be equipped with state-of-the-art simulators.

December 2011: The company announced that it demonstrated the capacities of its two unmanned aircrafts, the Pelican helicopter and the Mantis plane, at Villamartin aerodrome (Cadiz).

October 2011: The company announced that it will provide its clients with Cloud Computing services through an advanced delivery on-demand modality called Flex-IT.

7.2.29. Indra Sistemas Portugal: alliances

Table 58: Indra Sistemas Portugal – Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Memorandum of Understanding (MOU)	Cisco	2012	To collaborate in the development of advanced Cloud Computing technologies and services.
Cooperation Agreement	Russian Technologies	2011	To promote its presence in the Russian market as well as in those economies where the company has some influence.

Source: Company website and SDI analysis © SDI

7.2.30. Indra Sistemas Portugal: recent contract wins

Table 59: Indra Sistemas Portugal – Recent Contract Wins

Date	Contract value	Client	Description
November 2012	EUR82 million	Not disclosed	Multiple orders for new marine services and maintenance.
March 2012	NA	Directorate General of Civil Aviation of Chile (DGAC)	Awarded the contract to supply a new radar system and its implementation. The system will improve surveillance of the air space.
March 2012	NA	Ecuador Transitional Judiciary Council(ETJC)	The contract is awarded to implement Indra's Judicial management system (SEINSIR), a technological platform for the registry, control and follow up of judicial matters.
October 2011	US$ 603 million	Saudi Railway Organization	The contract is awarded to implement the railway traffic management, telecommunications, ticketing and security systems for the High Speed line (AVE) joining Mecca and Medina.
August 2011	US$ 50 million	AgustaWestland	Awarded the contract to enhance the capabilities of AgustaWestland, by providing design and development of the aircrew training equipment (ATE) for AW159 Lynx Wildcat helicopter.
July 2011	US$ 25 million	Spanish Ministry of Defense	Awarded the contract to enhance the capabilities of Spanish MoD, by providing maintenance of the satellite terminals.
June 2011	NA	Brazil's Ministry of Defense (MoD)	The contract is awarded to supply satellite communications (SatCom) systems to its armed forces.
February 2011	US$ 70 million	Spanish Army	The contract is awarded to supply seven new Victrix simulators to train its troops assigned to United Nations Organization (UNO) international peacekeeping missions.

Source: Company website and SDI analysis © SDI

7.2.31. AgustaWestland Portugal: overview

The Anglo-Italian helicopter company AgustaWestland, owned by Italy's Finmeccanica, established AgustaWestland Portugal as a 100%-owned subsidiary in May 2009 as part of its efforts to expand its presence in Portugal.

AgustaWestland Portugal, which is based in Lisbon, has an active role in strengthening its parent company's long-established relationships with Portuguese companies such as OGMA and has targeted new clients in the aerospace and defense sector. The company designs and produces rotorcraft systems for the military (70% of sales) and commercial operators, and also provides complete helicopter support services as well as aerospace manufacturing and engineering services.

The company was set up initially to attract orders for light twin multirole and training helicopters from the Portuguese Army and Air Force, and cater to orders from the Portuguese commercial helicopter market, including the emergency medical service (EMS).

7.2.32. AgustaWestland Portugal: products and services

Table 60: AgustaWestland Portugal– Product focus

Products	Services
Light	**NA**
AW119 Ke	
AW109 Power	
GrandNew	
AW109 LUH	
Intermediate	
T129	
Super Lynx 300	
AW159	
AW139	
AW149	
BA609	
Medium	
NH90	
Medium/Heavy	
AW101	
Chinook ICH-47F	
Apache AH MK 1	

Source: Company website and SDI analysis © SDI

7.2.33. AgustaWestland Portugal: recent announcements and strategic initiatives

April 2011: The company announced that its Heliportugal AW139 medium twin helicopter was used to support the visit of His Royal Highness, The Prince of Wales, to Portugal.

October 2010: The company announced that it participated in Helitech 2010, which took place at Airport Cascais near Estoril in Portugal. The company was keen to use the occasion to strengthen its Portuguese operations.

July 2010: The company announced that the Portuguese Air Force (PoAF) achieved the milestone of 10,000 flying hours with its AW101 medium/heavy three-engine helicopter fleet. The PoAF uses the helicopters for performing search and rescue, and fishery protection duties.

7.2.34. AgustaWestland Portugal: alliances

Table 61: AgustaWestland Portugal– Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Consortium	CEIIA	2008	Product focus: AgustaWestland Portugal signed a six-year contract with CEIIA for its Research and Development, Design and Engineering Project (RDE), which involves a number of aerospace-related projects. A number of Portuguese companies and universities will work in consortium and address aeronautical issues such as mechanical systems, aircraft interiors, structures and composites, electronic and software systems. Market focus: Portugal.

Source: Company website and SDI analysis © SDI

7.2.35. AgustaWestland Portugal: recent contract wins

Table 62: AgustaWestland Portugal– Recent Contract Wins

Date	Contract value	Client	Description
May 2009	NA	Portuguese Air force	Awarded a contract by the Portuguese Air force to maintain its 12 AW-101 transport helicopters.
August 2008	NA	Portuguese Armed Forces	AgustaWestland, together with local companies including OGMA and CEIIA, received a contract from the Portuguese Armed Forces to supply over 20 commercial and military helicopters. AgustaWestland Portugal will continue with the project.

Source: Company website and SDI analysis © SDI

7.2.36. Arsenal Alfeite: overview

Arsenal Alfeite, based in Alfeite, Almada, Portugal, is a manufacturing facility for the design, construction, and repair of Portuguese navy vessels. The shipyard was formed in 1937 as a replacement for the navy arsenal, which was located in the Riberira das Naus, Lisbon. Initially, Arsenal Alfeite specialized in repairing navy destroyers such as Dao and Tamega, the construction of new vessels, and the maintenance of naval ships, before beginning the construction of military ships for state entities. It also began building dry docks and floating docks, which were used to dock and repair submarines. The company also maintains land-based communication equipment, training simulators, and other electronic equipment. The company was converted into a state-owned public limited company on September 1, 2009 and was renamed The Arsenal Alfeite, SA. It has around 1,470 military and civilian employees.

7.2.37. Arsenal Alfeite: products and services

Table 63: Arsenal Alfeite – Product focus

Products	Services
Self-Righting Motor-Lifeboat (.Vigilante. Class)	Maintaining land-based communications and training simulators
Fast Coastal Patrol Vessel (.Bolina. Class)	Construction and maintenance of military ships
Coastal Patrol Vessel (.Centauro. Class)	Construction, repair and maintenance of naval ships
	Construction and maintenance of docks
	Maintenance of frigates and submarines
	Building of coastal patrol boats and other electronic equipment
	Developing training activities through its office of training and development.

Source: Company website and SDI analysis © SDI

7.2.38. Arsenal Alfeite: recent announcements and strategic initiatives

November 2011: The company announced that it participated in and sponsored the Lisbon Atlantic Conference.

May 2011: The company announced that it had participated in and sponsored Martech 2011, held at the congress center of the STI, Almada.

May 2011: The company announced that it attended workshops in LUSO on Brazilian Naval Engineering, which was an elaborate presentation of the Naval engineering Education in Portugal and Brazil.

September 2010: The company participated in the 24th International Fair of Shipbuilding, Machinery, and Marine (SMM) Technology, which was held in Hamburg, Germany September 7-10, 2010. Around 2,000 exhibitors from 58 countries participated in the fair.

September 2010: The company was represented as a group company of EMPORDEF at the event EMPORDEF2010.

September 2010: The company announced the successful delivery of two MTU diesel propulsion engines aboard the frigate Vasco da Gama.

June 2010: The company participated in the First National Conference on Security and Defense, jointly organized by AFCEA Portugal and the Security and Defense Review, which was held at the Congress Centre in Lisbon on June 24–25, 2010.

January 19 2010: Arsenal Alfeite and EMPORDEF jointly sponsored the ship Sagres for its journey of circumnavigation. The company contributed to the review of the driving motor and generator sets, the repair and upgrade of garrison rooms and facilities, the repair of systems and auxiliary circuits as well as the repair of structures and pavements, and the modernization of communications.

September 2009: The company announced that it became a fully state-owned public limited company under the umbrella of the EMPORDEF group. EMPORDEF is a state-owned holding company reporting to the Ministry of Defense and the Ministry of Finance. It holds all the Portuguese state‘s assets in companies operating in the defense area.

7.2.39. Arsenal Alfeite: recent contract wins

Table 64: Arsenal Alfeite – Recent Contract Wins

Date	Contract value	Client	Description
June 2012	NA	Portuguese Navy	General Overhaul of the main engine starboard of the Portuguese frigate — Alvares Cabral‖.
January 2011	EUR6.6 million (US$9 million)	Portuguese Navy	The Portuguese navy awarded a contract worth EUR6.6 million (US$9 million) to Arsenal Alfeite to repair and overhaul its intermediate docking facilities.

Source: Company website and SDI analysis © SDI

7.2.40. Fabrequipa: overview

Fabrequipa (Sociedade Industrial de Equipamento Rodoviário) was founded in 1995 and is based in Barreiro, Portugal. The company designs and manufactures heavy-duty transportation equipment such as trailers, semi-trailers and heavy machinery, and mainly exports its products to the UK, Spain, and Estonia. Its semi-trailers, specifically designed for mobile substations equipped with hydraulic steering systems, are used by several countries, such as Portugal, the US, Costa Rica, Egypt, El Salvador, Guatemala, and the Dominican Republic. The company had 100 employees in 2009.

The company entered the defense industry in 2007, with the production of the Pandur 2 8x8 wheeled armored vehicles for the Portuguese armed forces. Fabrequipa is expanding its financial and human resources to strengthen its activities in the military area.

7.2.41. Fabrequipa: products and services

Table 65: Fabrequipa – Product focus

Products	Services
Pandur 2 6x6 light armored vehicles	
Pandur 2 8x8 light armored vehicles	

Source: Company website and SDI analysis © SDI

7.2.42. Fabrequipa: recent announcements and strategic initiatives

October 2012: The Portuguese Ministry of Defense cancelled its remaining orders for the Pandur 2 armored vehicles.

December 2010: The Portuguese Army intervention brigade has deployed three Pandur 2 armored vehicles configured for medical evacuation tasks. The armored vehicles were delivered by DELS-Steyr GmbH (part of General Dynamics European Land Systems) and its Portuguese partner Fabrequipa-Sociedade Industrial de Equipamentos Rodoviário Lda.

November 2010: The Portuguese Ministry of Defense signed an agreement with GDELS-Steyr Gmbh (part of General Dynamics European Land Systems) regarding a new delivery completion schedule for 260 Pandur 2 armored vehicles. The vehicles, which were scheduled to be delivered in 2010, are now scheduled to be delivered by 2013. Fabrequipa jointly manufactures the armored vehicles.

7.2.43. Fabrequipa: alliances

Table 66: Fabrequipa – Alliances

Alliances	Partner Company	Year Formed	Strategic Objectives and Focus Area
Partnership	Steyr-Daimler-Puch spezialfahrzeug (SSF)	2007	Product focus: The company went into partnership with Austrian-based Steyr-Daimler-Puch Spezialfahrzeug Gmbh (SSF), part of General Dynamics European Land Combat Systems. The two companies jointly manufacture Pandur 2 vehicles, the first 41 of which were manufactured in Austria in 2007.

Source: Company website and SDI analysis © SDI

7.2.44. Fabrequipa: recent contract wins

Table 67: Fabrequipa – Recent Contract Wins			
Date	**Contract value**	**Client**	**Description**
September 2009	NA	Portuguese Army	The Portuguese army's Brigada de Intervenção (BrigInt) has awarded a contract to Fabriquipa to supply 240 Steyr Gmbh/Fabriquipa Pandur 2 8x8 armored vehicles. The Army is already using around 50 Pandur 2 APCs and three Pandur 2 command-post-configured vehicles.
January 2007	EUR364 million (US$496 million)	Portuguese government	The Portuguese government awarded a contract worth €364 million (US$496 million) to acquire 260 Pandur 2 armored vehicles.
Source: Company website and SDI analysis			© SDI

7.2.45. Critical Software: overview

Critical Software was founded in 1998 and is based in Portugal. It is a privately-held company that develops software tools and provides IT-related solutions, services, and technologies. With offices in Portugal, the US, the UK, Romania, Brazil, and Mozambique, Critical Software caters to several market sectors such as aeronautics and defense, telecom, space, semiconductors, finance, government, energy, and transportation. In the defense industry, Critical's areas of expertise include collision avoidance systems, unmanned surface vehicles, vessel detection through satellite imagery, safety hazard analysis, command and control, integrated logistic support, security, verification and validation (V&V), and business intelligence. Critical's revenue stood at EUR18 million (US$24.5 million) in 2009. Critical Software has received several certifications such as CMMI Level5, ISO 9001:2000 Tick-IT, ISO 15504, NATO AQAP 150, AQAP 2120, and EN9100 in the software development sector.

7.2.46. Critical Software: products and services

Table 68: Critical Software – Product focus	
Products	**Services**
csCOSE (Common Operational Systems Environment): A command & control framework that supports the integration and monitoring of systems. It can be applied in various purposes and markets including homeland security, defense and aerospace	
csSECURE: Provides data-centric solutions for information protection.	
csWMPI: a middleware for high-performance computing.	
csWOW: A work order management/trouble ticketing solution.	
csTESTOO: A tool used for programming language rule checking in order to improve the quality and reusability of software.	
csXLUNA: A RTEMS/Linux based kernel that can be used for payload and avionics applications.	
csXPY: Provides code coverage and profiling information for on-chip software testing.	
ISVV: Independent software verification and validation.	
Source: Company website and SDI analysis	© SDI

7.2.47. Critical Software: recent announcements and strategic initiatives

March 2014: The company presented the latest maritime solutions at the RD&I Seminar for sustainable future for maritime activities, promoted by AFCEA Portugal.

November 2013: The company unveiled aeronautic solutions at Clean Sky 2Lisbon 2013 - Infoday and Brokerage.

November 2013: The company showcased its latest aeronautics, space and defense solutions at Aerospace Meetings Lisboa 2013.

March 2013: The company demonstrated Oversee Search and Rescue and its latest features, at SAR Europe 2013, held in Portsmouth, the UK.

July 2012: The company announced that it has been nominated by the SmartOcean Innovation Exchange 2012 event in the innovative company category for the development of the maritime operations support and information system.

March 2012: The company announced that it introduced an information system to support search and rescue operations by the Portuguese Navy.

January 2012: The company announced that it will provide the Chinese aerospace market with the csXception, a fault injection system used to validate systems with high levels of criticality.

December 2011: The company announced that it won the International Entrepreneurship Award, promoted by TecParques (Portuguese Association of Science and Technology Parks), with the goal of recognizing entrepreneurship in Portugal.

June 2011: The company announced that it presented its customized engineering solutions and 'tailor-made' software development, focused on software reliability and dependability at the Paris Air Show in Le Bourget.

February 2011: The company announced that it won the European award for excellence in information technologies at the annual European IT Excellence Awards ceremony in London.

February 2010: Critical announced that the partnership between Critical Materials and Critical Software has been selected for the development of a new generation of systems for structural health monitoring (SHM) in aircraft structures.

7.2.48. Critical Software: alliances

Table 69: Critical Software – Alliances			
Alliances	**Partner Company**	**Year Formed**	**Strategic Objectives and Focus Area**
Agreement	Chinese space agency (CASC)	2012	Product focus: To identify the opportunities that promote the adoption of technology and software tools in the aerospace market and in any sector where high integrity is a requirement.
Agreement	Portuguese Navy	2011	Product focus: To jointly develop and test the Information Systems for the Navy. The systems will be related to maritime situational awareness, fishery protection, environmental monitoring and search & rescue operations.
Critical Software and Atlas Elektronik UK	Atlas Elektronik UK	2007	Product focus: Critical Software, through its subsidiary in the UK, signed a collaboration agreement with Atlas Elektronik UK, to join a consortium of partners to supply the UK Ministry of Defence with a new mine sweeping system. Market focus: UK
Source: Company website and SDI analysis			© SDI

7.2.49. Critical Software: recent contract wins

Table 70: Critical Software – Recent Contract Wins			
Date	**Contract value**	**Client**	**Description**
February 2012	US$25 million	AgustaWestland	The contract awarded to work on a new mission planning system for Apache helicopter fleet and the AW159 Wildcat helicopters. This enhances the AW159 Wildcat's fleet in battlefield utility, SAR and anti-surface warfare roles.
August 2011	NA	AES Tietê, Brazil	The contract awarded to provide a critical asset management system that will support the business activities of AES Tietê production and distribution of sustainable energy.
Source: Company website and SDI analysis			© SDI

8. Business Environment and Country Risk

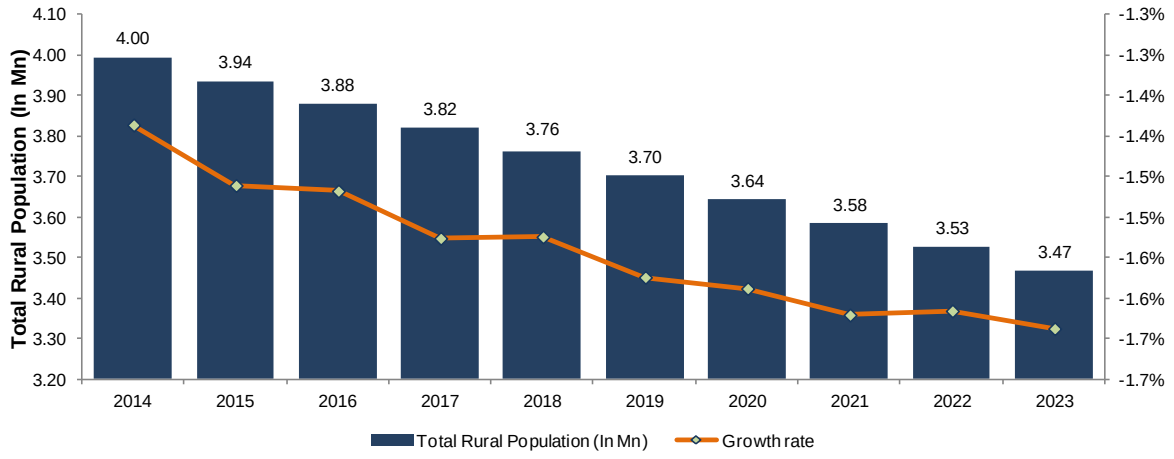
The following sub-sections detail a range of indicators, assessing the business environment and country risk in Portugal.

8.1. Demographics & Social Statistics

8.1.1. Population – Rural

Portugal's rural population is expected to decrease from 4.0 million in 2014 to 3.5 million in 2023.

Figure 54: Portuguese Population – Rural (In Millions), 2014–2023



Source: World Bank and SDI analysis

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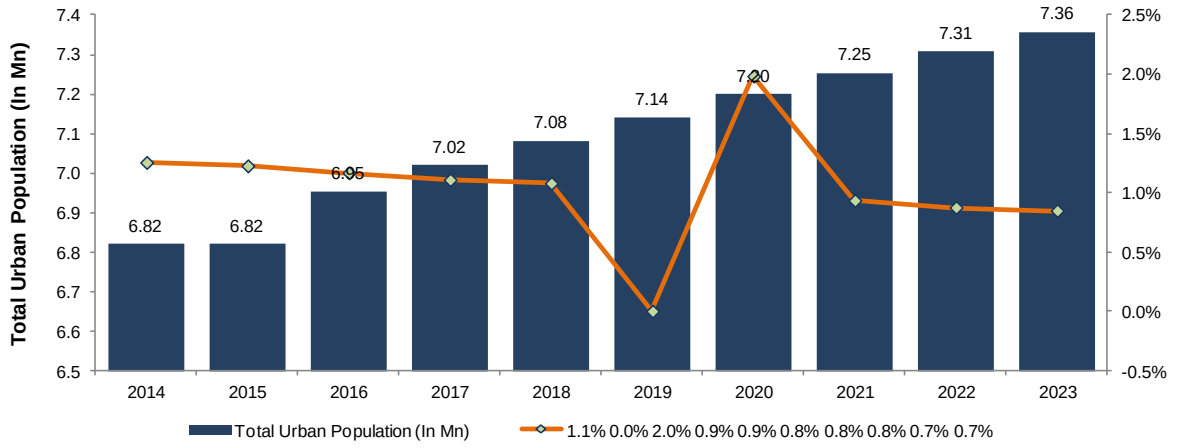
8.1.2. Population - Urban

Portugal's urban population is expected to increase from 6.8 million in 2014 to 7.4 million in 2023.

Figure 55: Portuguese Population – Urban (In Millions), 2014–2023



Source: World Bank and SDI analysis

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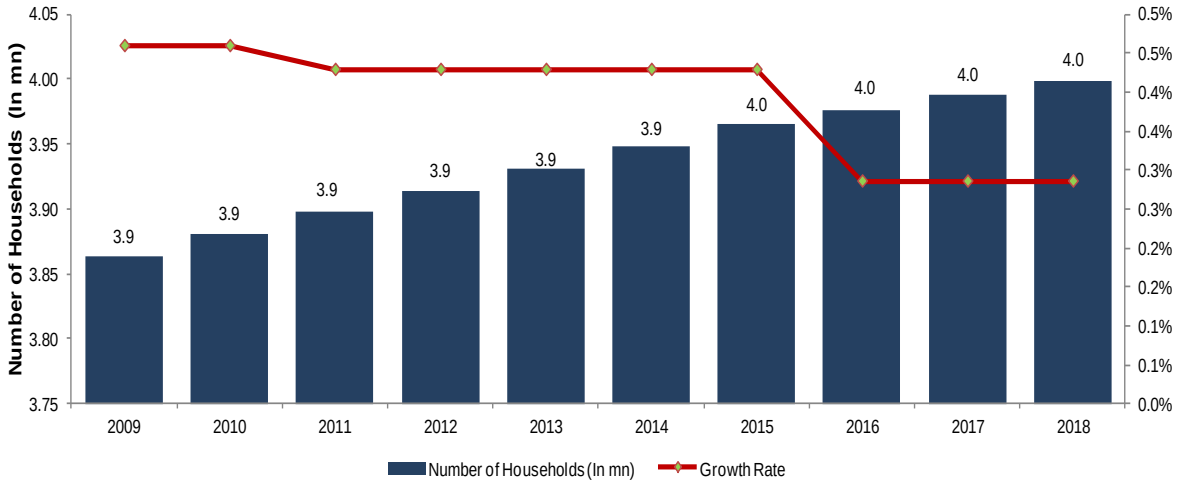
8.1.3. Population – Number of Households

Figure 56: Portuguese Population – Number of Households (In Millions), 2009–2018



Source: World Bank and SDI analysis

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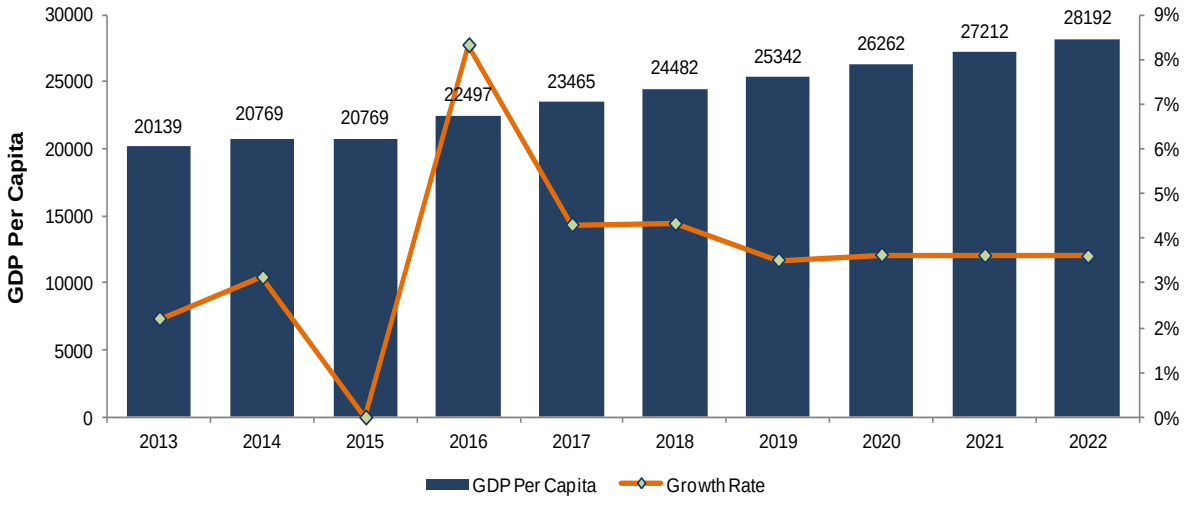
8.2. Economic Performance

8.2.1. Gross Domestic per Capita

Figure 57: Portuguese GDP per capita, 2013–2022



Source: United Nations Statistics Division and SDI analysis

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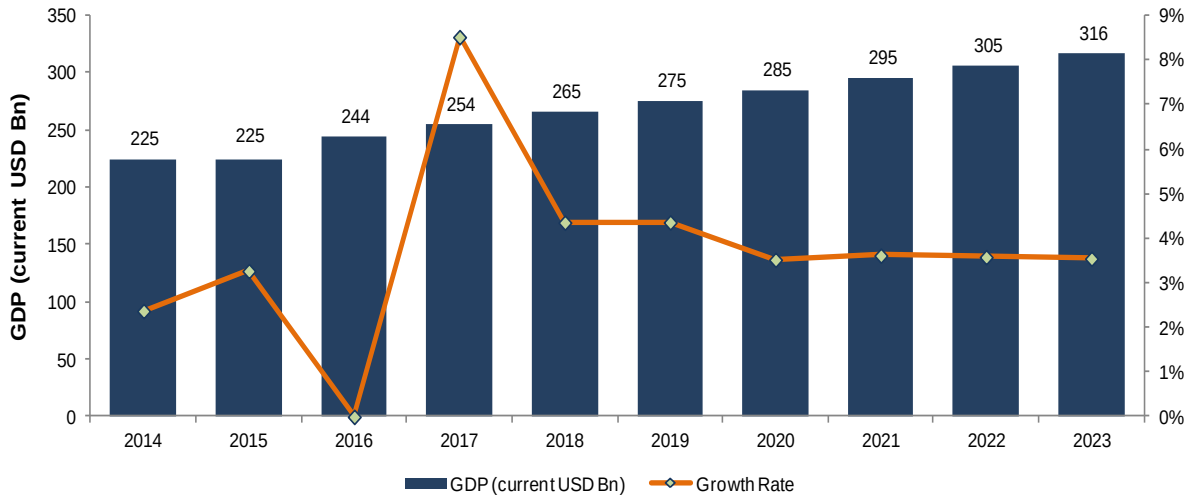
8.2.2. Gross Domestic Product, current US$

Figure 58: Portuguese Gross Domestic Product (current US$ Bn), 2014–2023



Source: United Nations Statistics Division and SDI analysis

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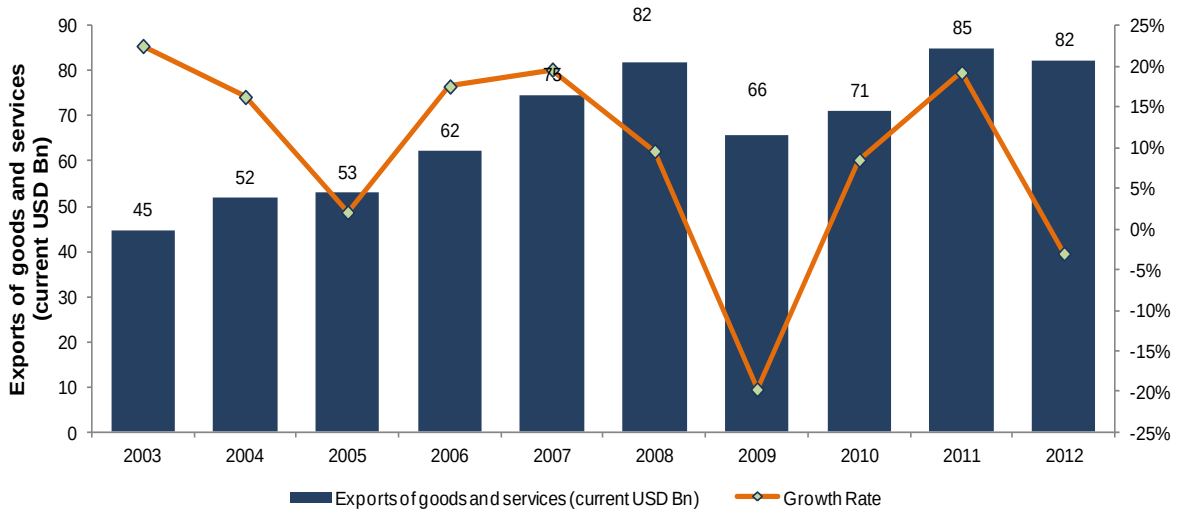
8.2.3. Exports of Goods and Services

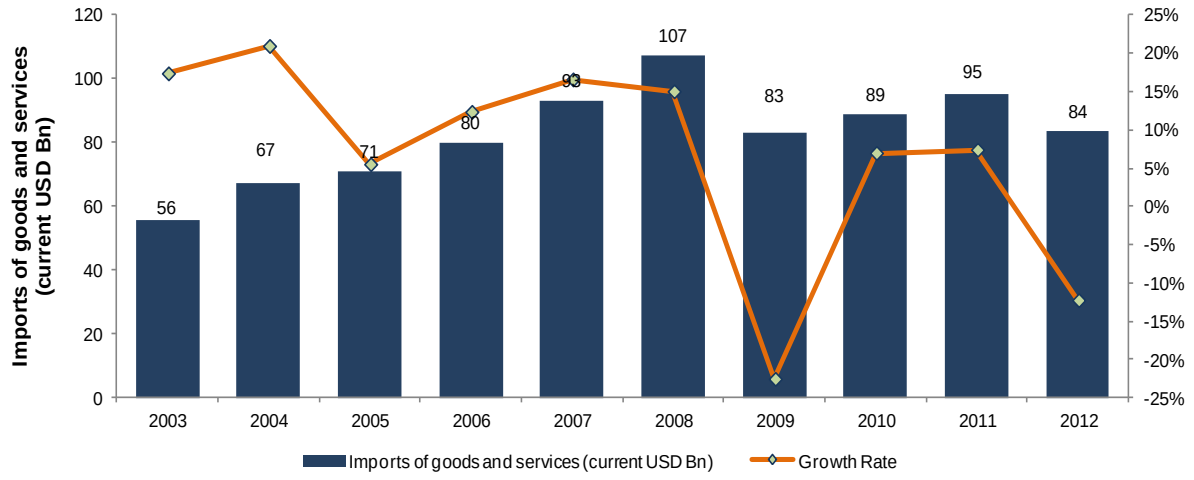
Figure 59: Portuguese Exports of goods and services (current US$ Bn), 2003–2012



Source: **World Bank and SDI analysis** **© SDI**

8.2.4. Imports of Goods and Services

Figure 60: Portuguese Imports of goods and services (current US$ Bn), 2003–2012



Source: World Bank and SDI analysis

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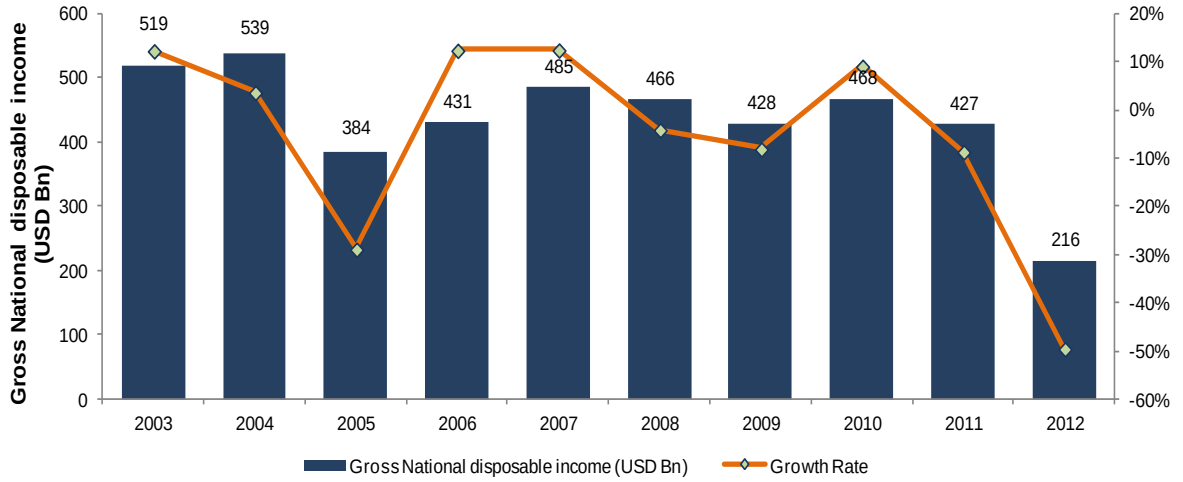
8.2.5. Gross National Disposable Income

Figure 61: Portuguese gross national disposable income (US$ Bn), 2003 – 2012



Source: World Bank and SDI analysis

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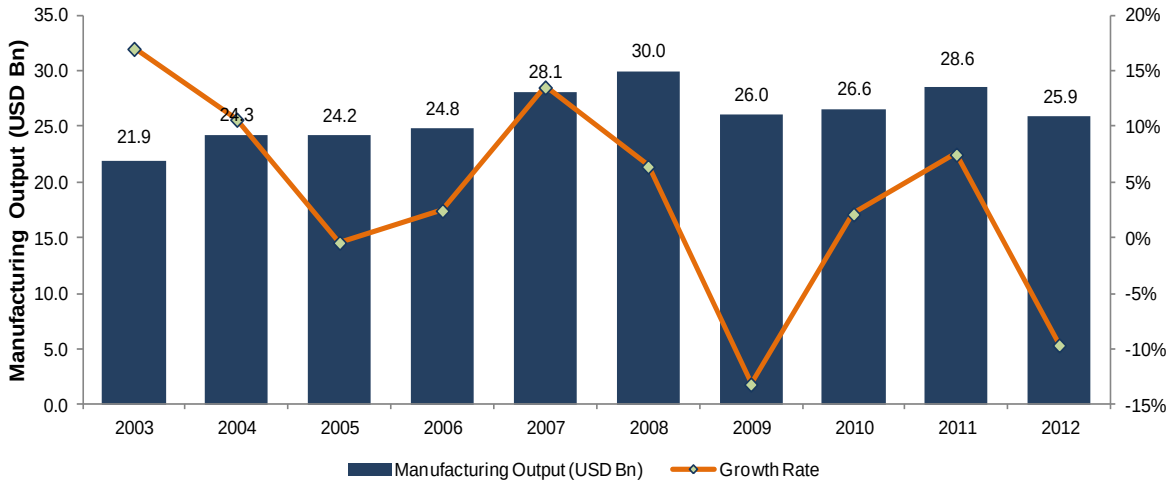
8.2.6. Manufacturing Output

Figure 62: Portuguese Manufacturing Output (US$ Bn), 2003–2012



Source: World Bank and SDI analysis

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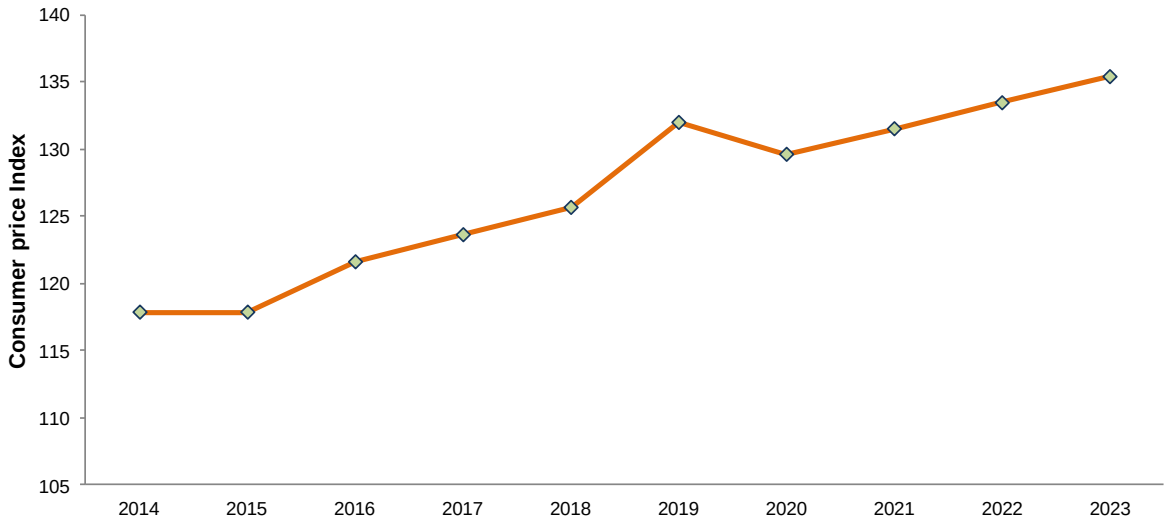
8.2.7. Consumer Price Index

Figure 63: Portuguese Consumer Price Index, 2014–2023



Source: World Bank and SDI analysis

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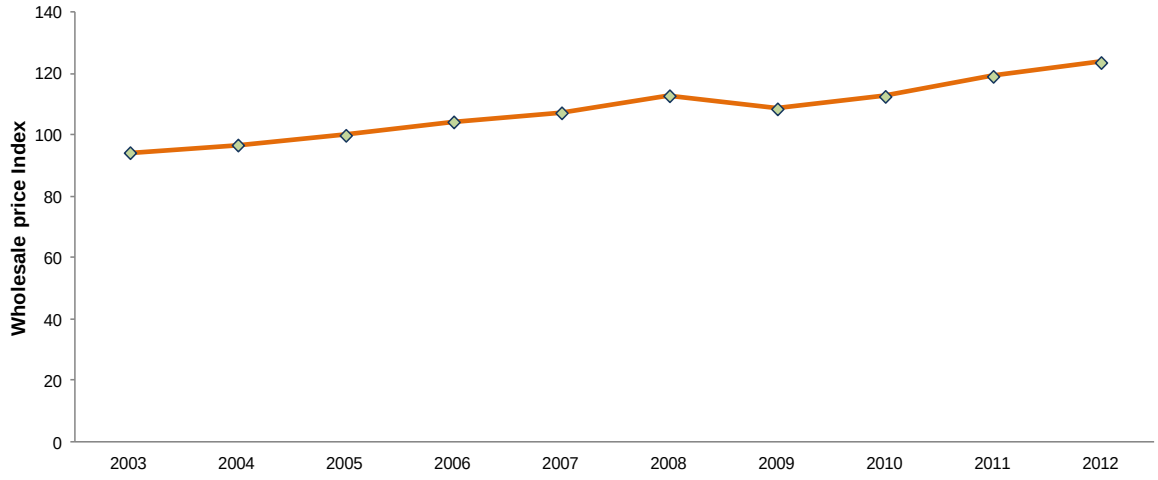
8.2.8. Wholesale Price Index

Figure 64: Portuguese Wholesale Price Index, 2003–2012



Source: IMF and SDI analysis

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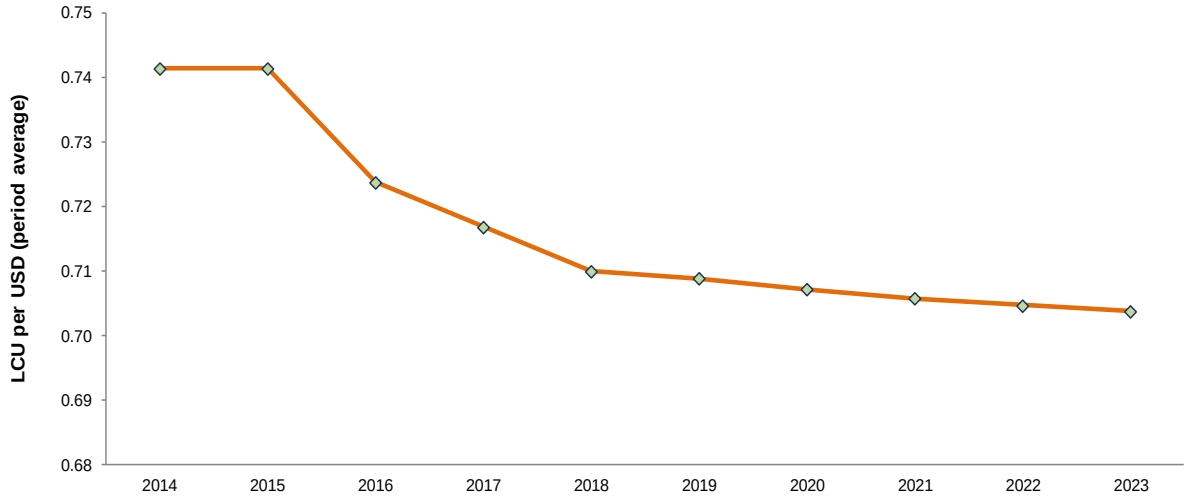
8.2.9. Local Currency Unit per US$

Figure 65: Portuguese LCU per US$, 2014–2023



Source: World Bank, IMF and SDI analysis

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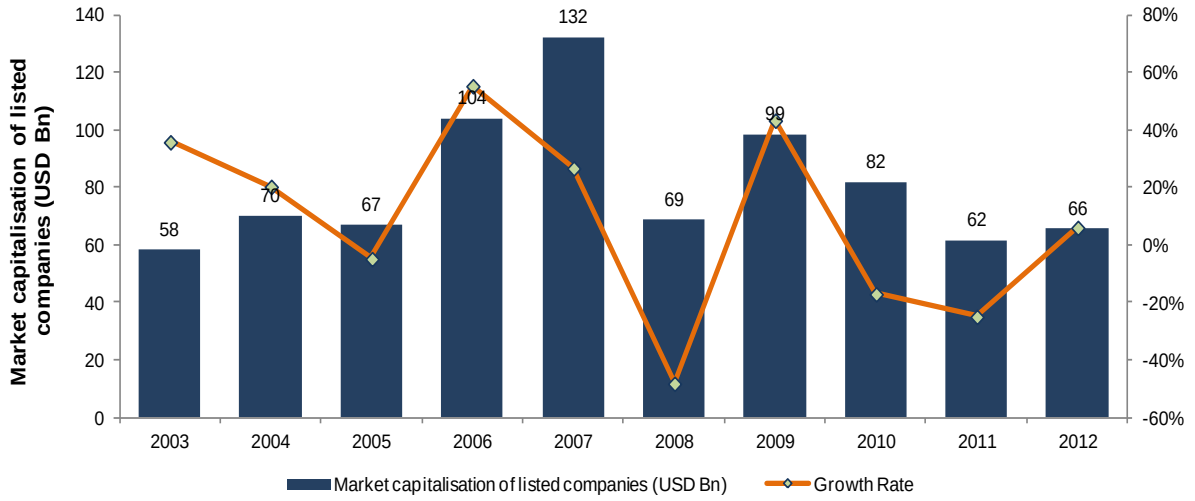
8.2.10. Market Capitalization of Listed Companies

Figure 66: Portuguese Market Capitalization of listed Companies (US$ Bn), 2003–2012



Source: World Bank, IMF and SDI analysis

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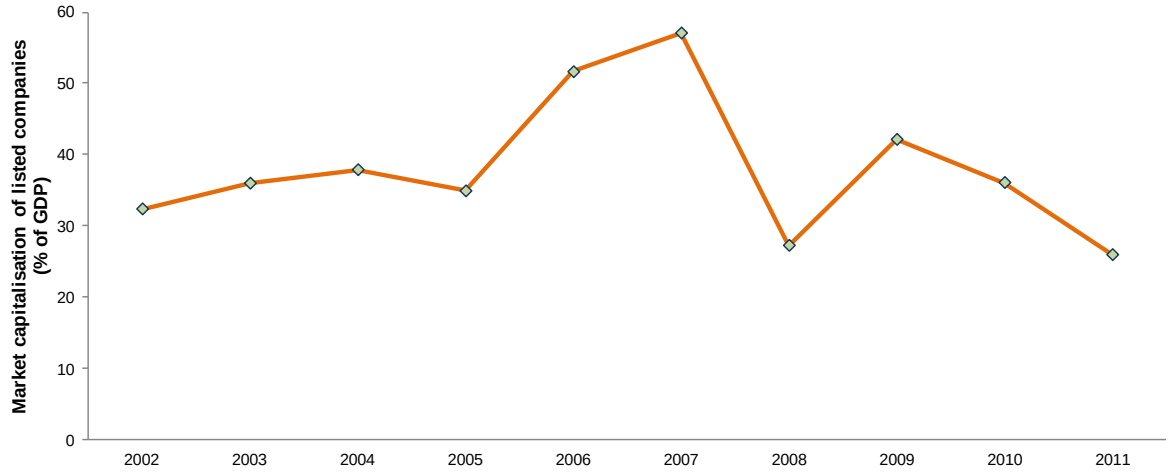
8.2.11. Market Capitalization of Listed Companies as a % of GDP

Figure 67: Portuguese Market Capitalization of listed companies as a % of GDP, 2002–2011



Source: World Bank, IMF and SDI analysis

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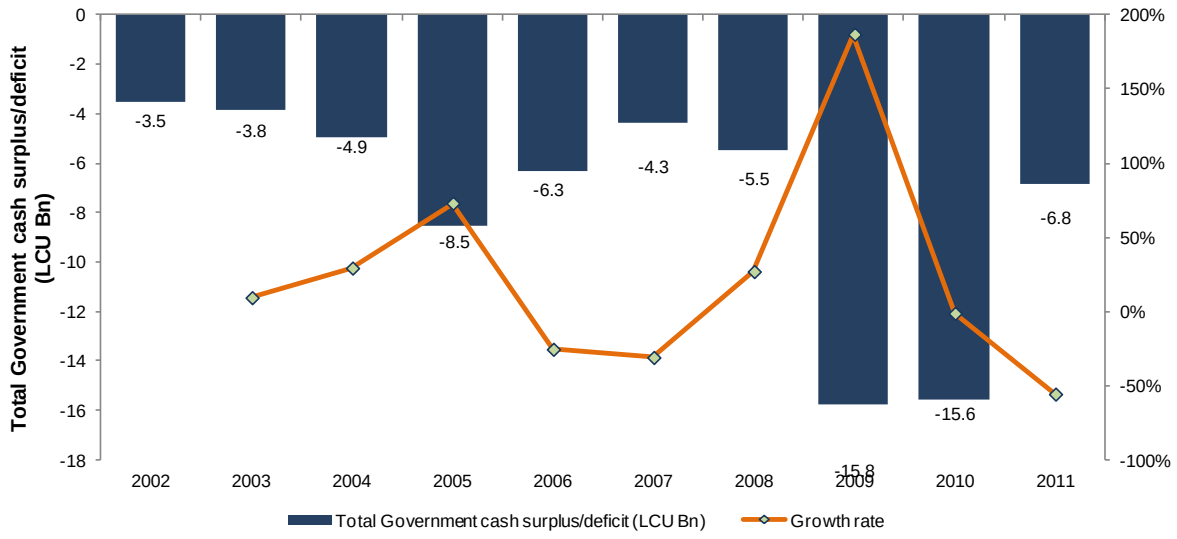
8.2.12. Total Government Cash Surplus/Deficit

Figure 68: Portuguese Government cash surplus/deficit (LCU Bn), 2002–2011



Source: World Bank, IMF and SDI analysis

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8.2.13. Government Cash Surplus/Deficit

Figure 69: Portuguese Government cash Surplus/deficit as a % of GDP, 2002–2011

Source: World Bank and SDI analysis

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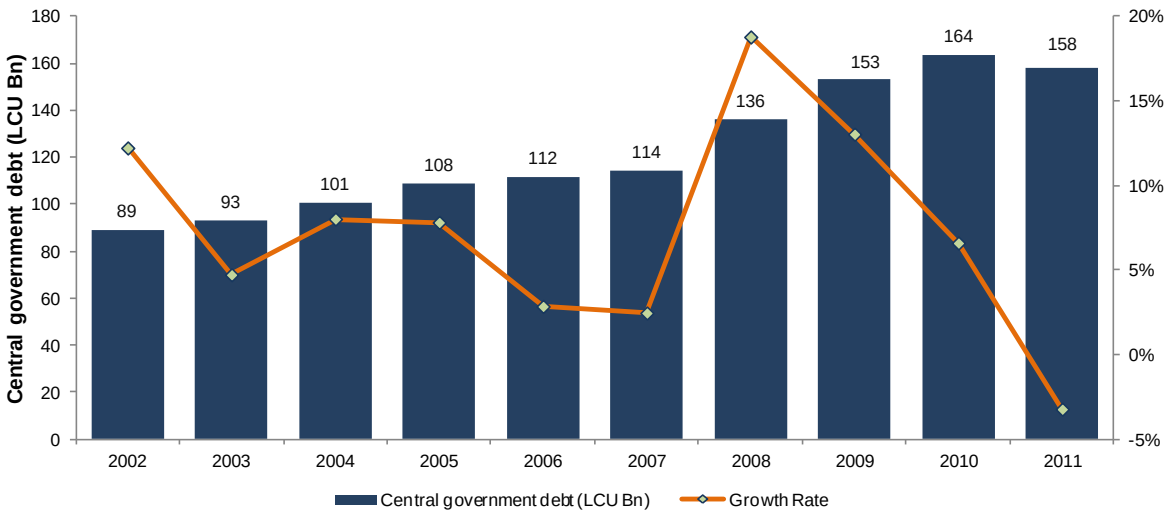
8.2.14. Central Government Debt

Figure 70: Portuguese Central Government Debt (LCU Bn), 2002–2011



Source: World Bank and SDI analysis

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8.2.15. Central Government Debt as a % of GDP

Figure 71: Portuguese Central Government Debt as a % of GDP, 2002–2011

Source: World Bank and SDI analysis

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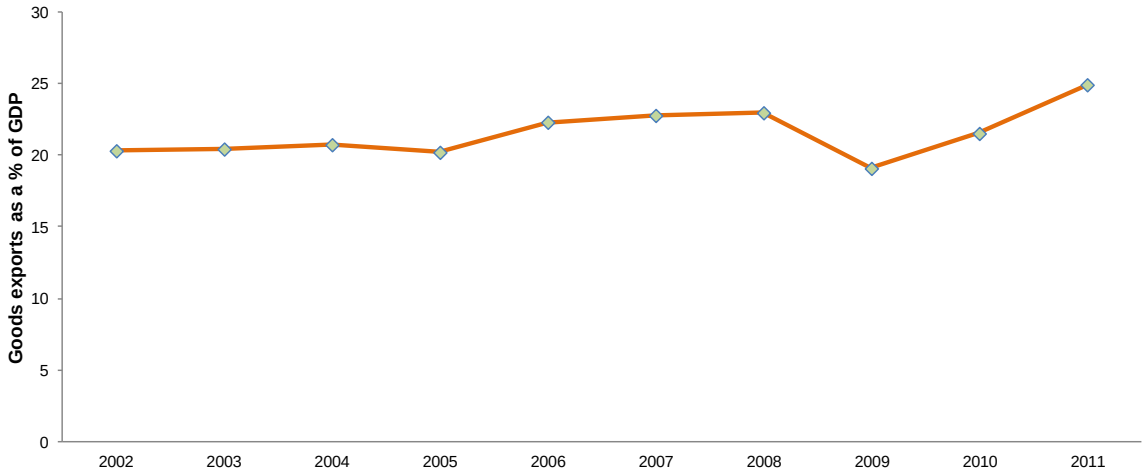
8.2.16. Goods Exports as a % of GDP

Figure 72: Portuguese Goods Exports as a % of GDP, 2002–2011



Source: IMF and SDI analysis

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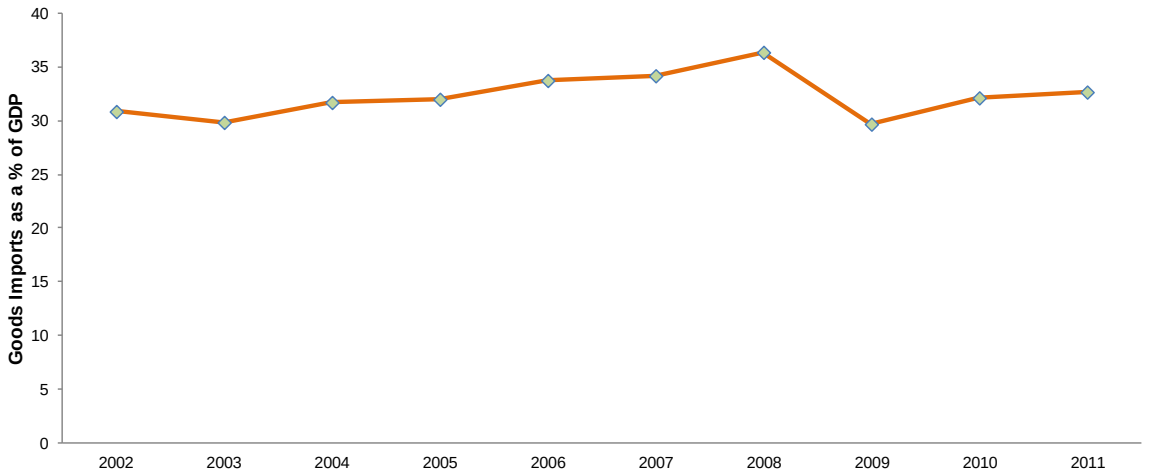
8.2.17. Goods Imports as a % of GDP

Figure 73: Portuguese Goods Imports as a % of GDP, 2002–2011



Source: World Bank and SDI analysis

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8.2.18. Goods Trade Surplus/Deficit as a % of GDP

Figure 74: Portuguese Goods Trade Surplus/Deficit as a % of GDP, 2002–2011

Source: World Bank and SDI analysis

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8.2.19. Services Imports as a % of GDP

Figure 75: Portuguese Services Imports as a % of GDP, 2002–2011

Source: World Bank and SDI analysis

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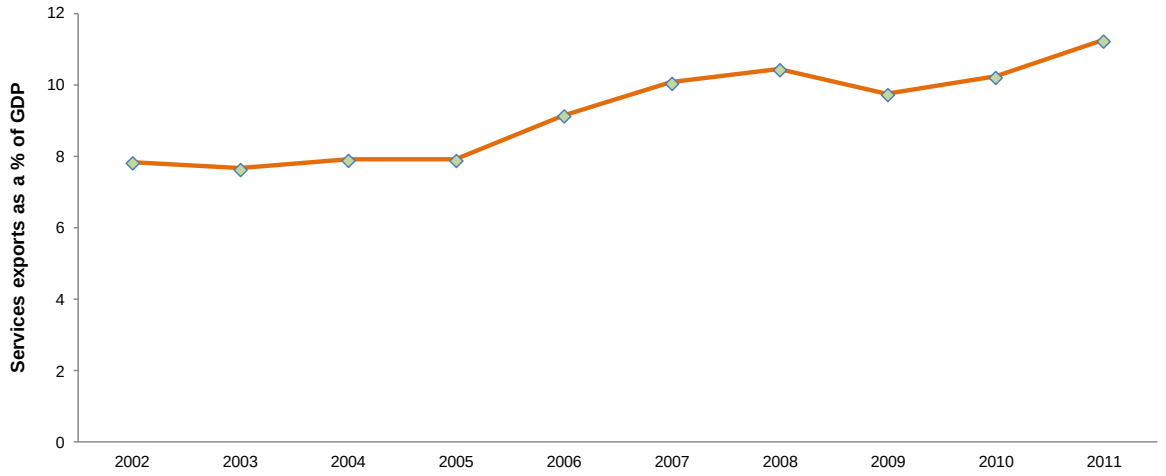
8.2.20. Services Exports as a % of GDP

Figure 76: Portuguese Services Exports as a % of GDP, 2002–2011



Source: United Nations Statistics Division and SDI analysis

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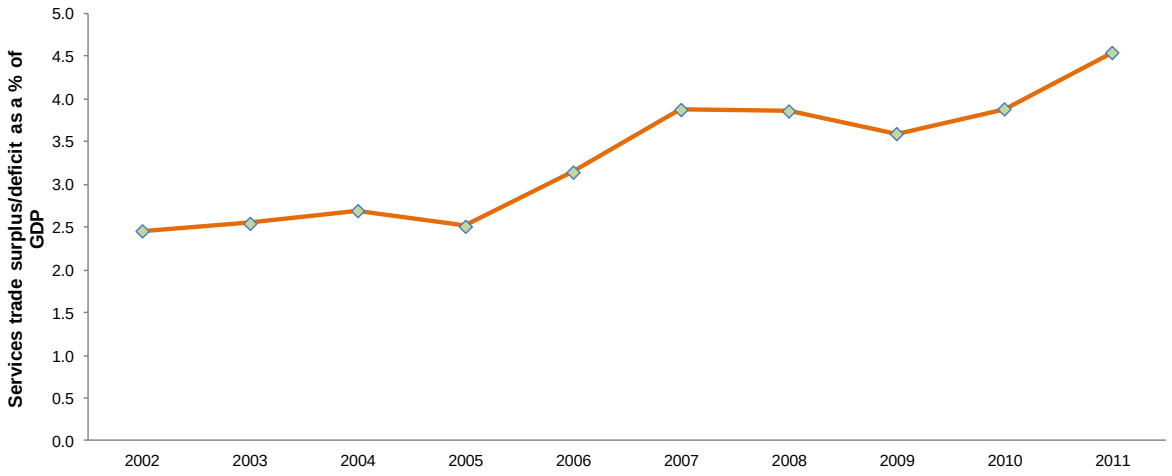
8.2.21. Services trade surplus/deficit as a % of GDP

Figure 77: Portuguese Services trade surplus/deficit as a % of GDP, 2002–2011



Source: United Nations Statistics Division and SDI analysis

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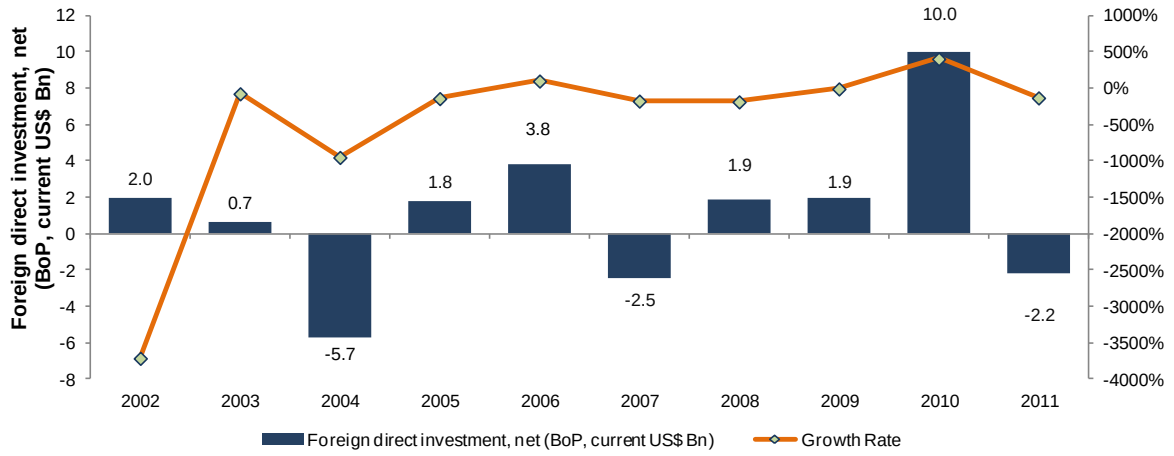
8.2.22. Net Foreign Direct Investment

Figure 78: Portuguese Net Foreign Direct Investment (current US$ BN), 2002–2011



Source: United Nations Statistics Division and SDI analysis

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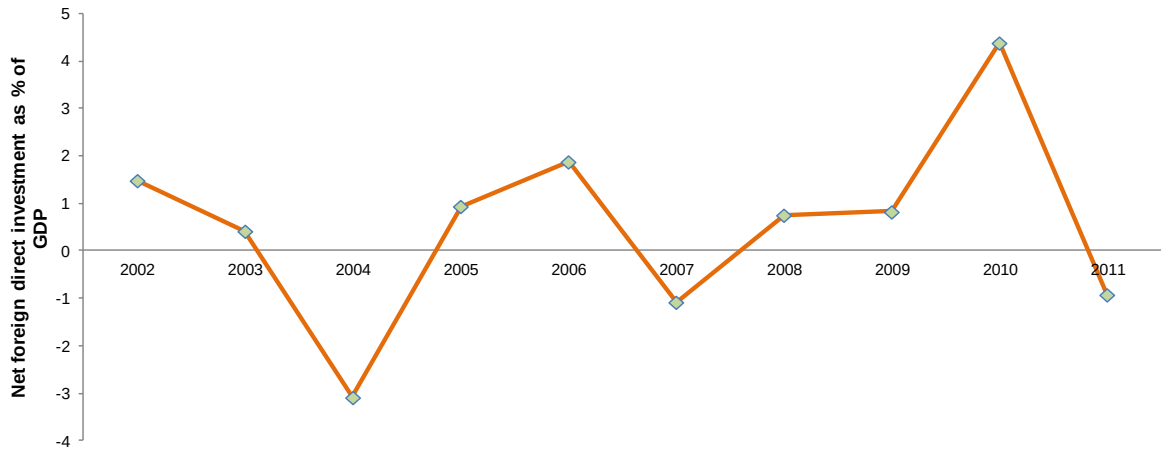
8.2.23. Net FDI as a % of GDP

Figure 79: Portuguese Net FDI as a % of GDP, 2002–2011



Source: United Nations Statistics Division and SDI analysis

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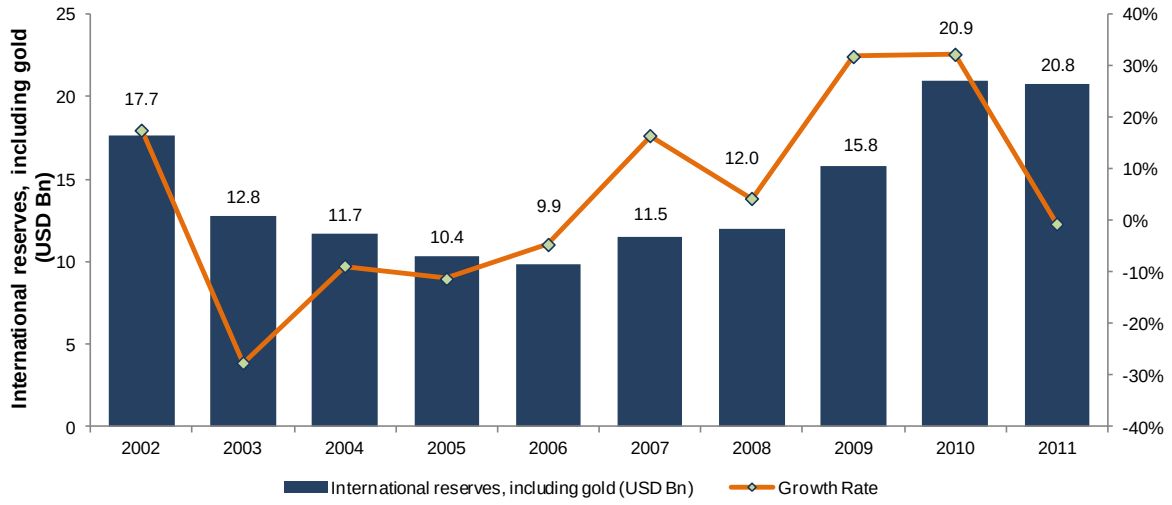
8.2.24. International reserves, including Gold

Figure 80: Portuguese International reserves, including Gold (US$ Bn), 2002–2011



Source: United Nations Statistics Division and SDI analysis

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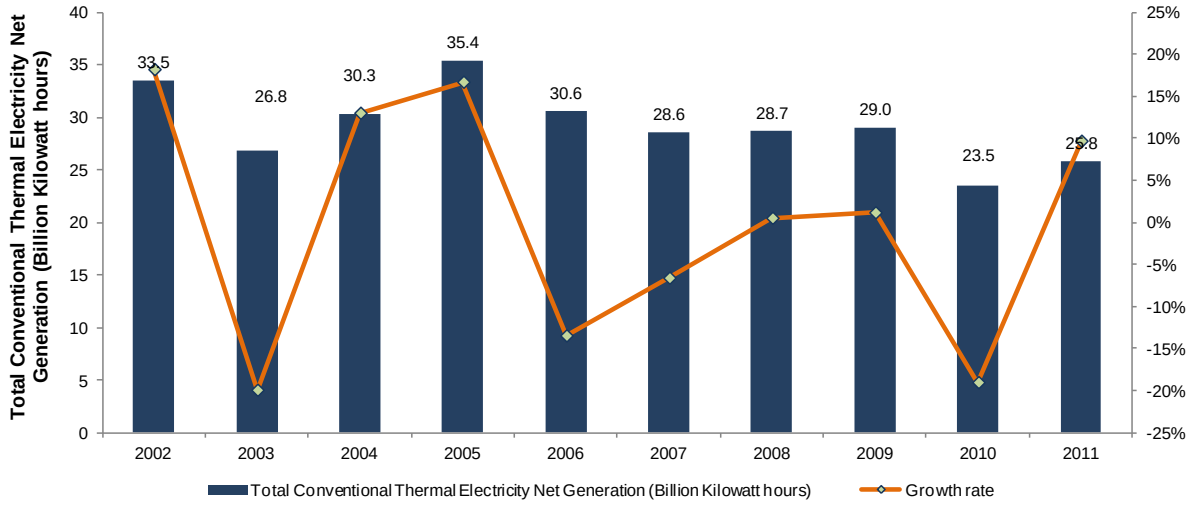
8.3. Energy and Utilities

8.3.1. Total Conventional Thermal Electricity Net Generation

Figure 81: Portuguese Total Conventional Thermal Electricity Net Generation (Bn KWH), 2002–2011



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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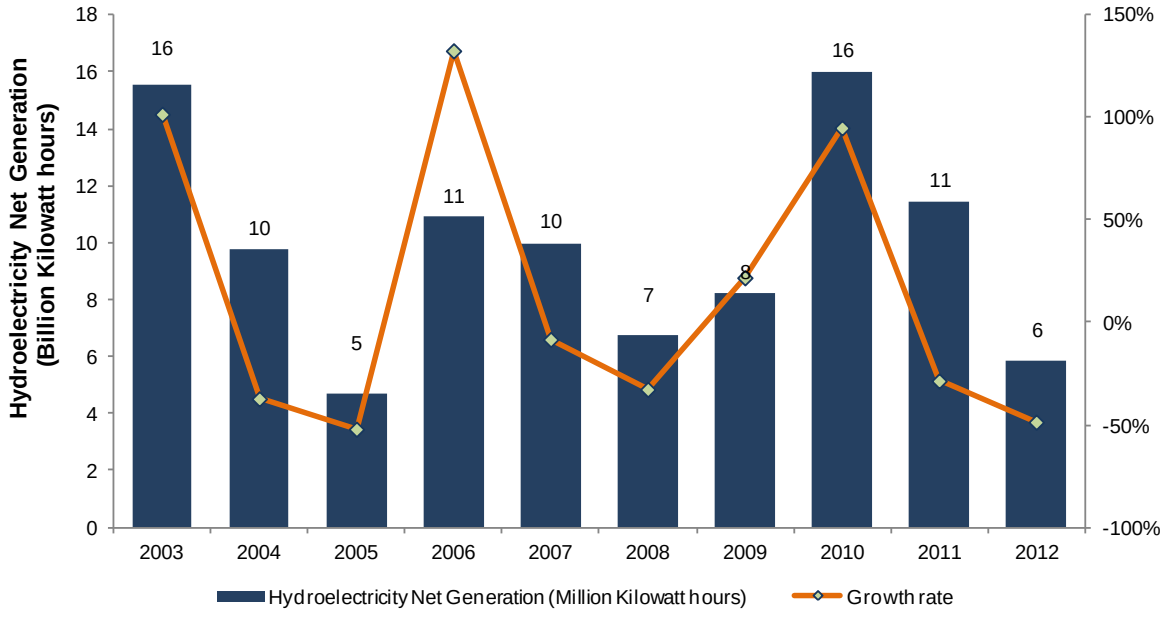
8.3.2. Hydroelectricity Net Generation

Figure 82: Portuguese Hydroelectricity Net Generation (Bn KWH), 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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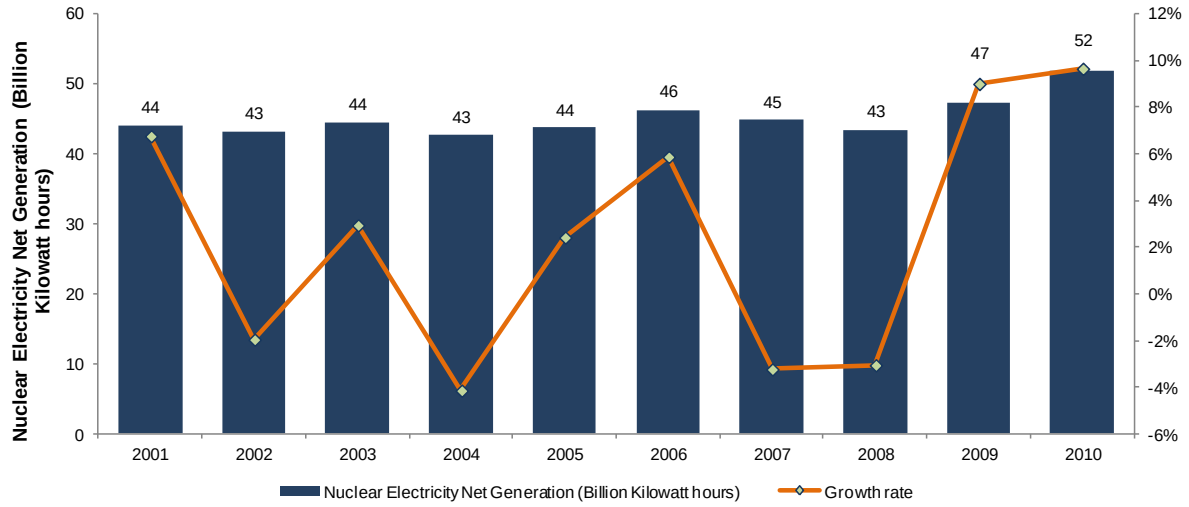
8.3.3. Nuclear Electricity Net Generation

Figure 83: Portuguese Nuclear Electricity Net Generation (Bn KWH), 2001–2010



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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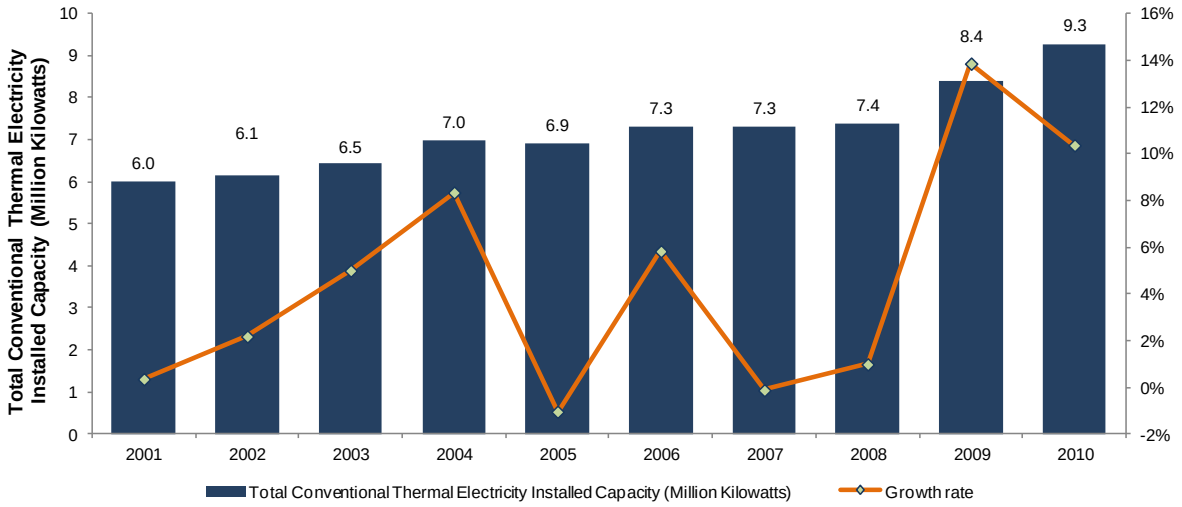
8.3.4. Total Conventional Thermal Electricity Installed Capacity

Figure 84: Portuguese Total Conventional Thermal Electricity Installed Capacity (Million Kilowatts), 2001–2010



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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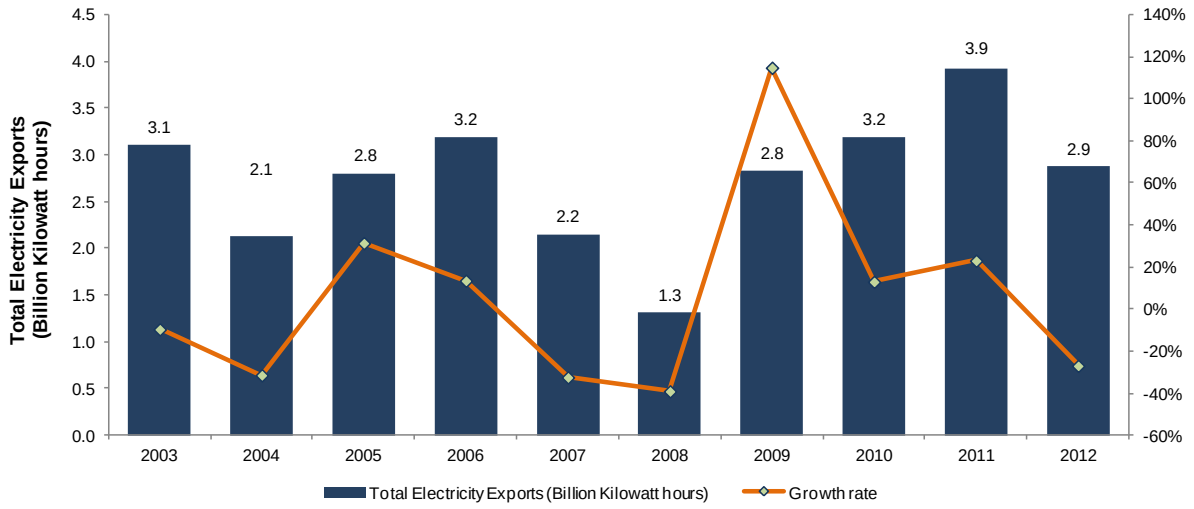
8.3.5. Total Electricity Exports

Figure 85: Portuguese Total Electricity Exports (Bn KWH), 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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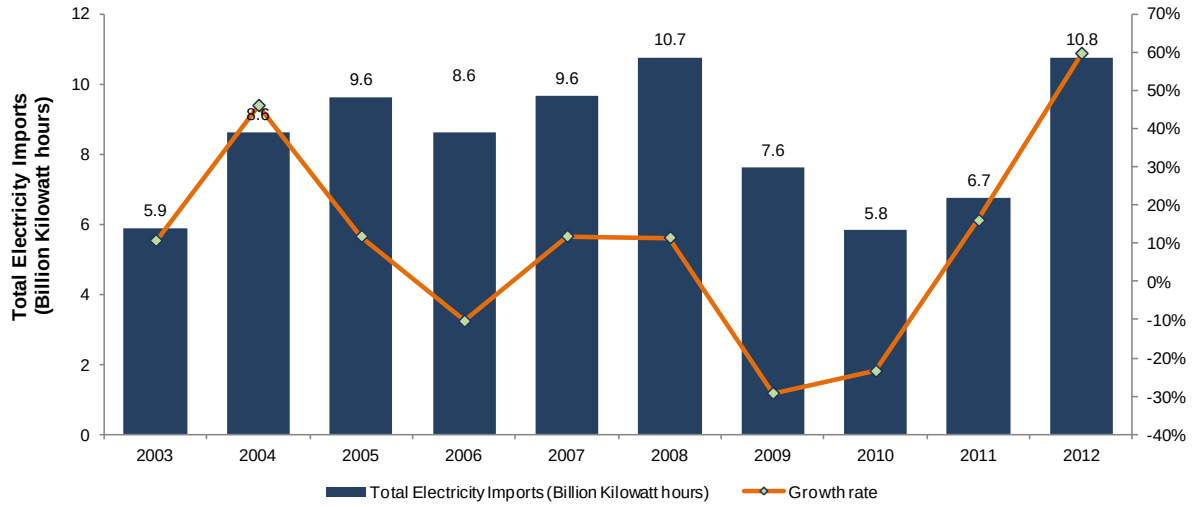
8.3.6. Total Electricity Imports

Figure 86: Portuguese Total Electricity Imports (Bn KWH), 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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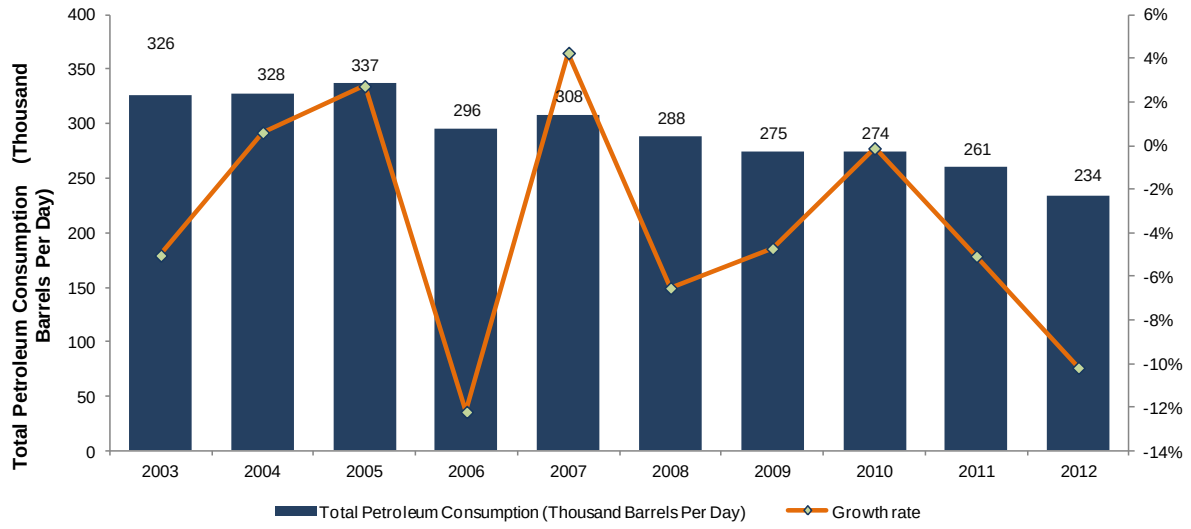
8.3.7. Total Petroleum Consumption

Figure 87: Portuguese Total Petroleum Consumption (Thousand Barrels per Day), 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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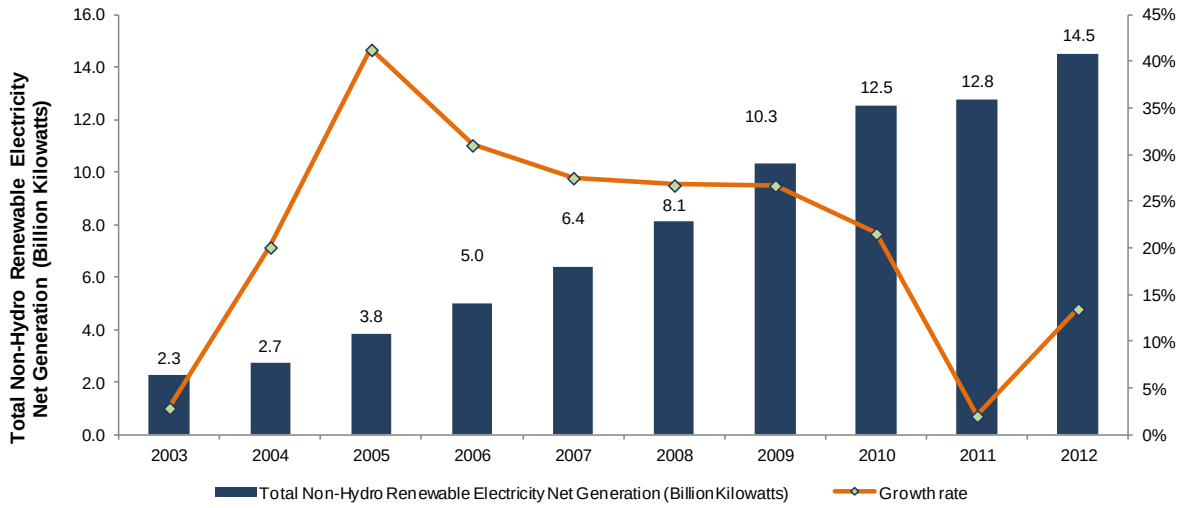
8.3.8. Total Non-Hydro Renewable Electricity Net Generation

Figure 88: Portuguese Total Non-Hydro Renewable Electricity Net Generation (Bn Kw), 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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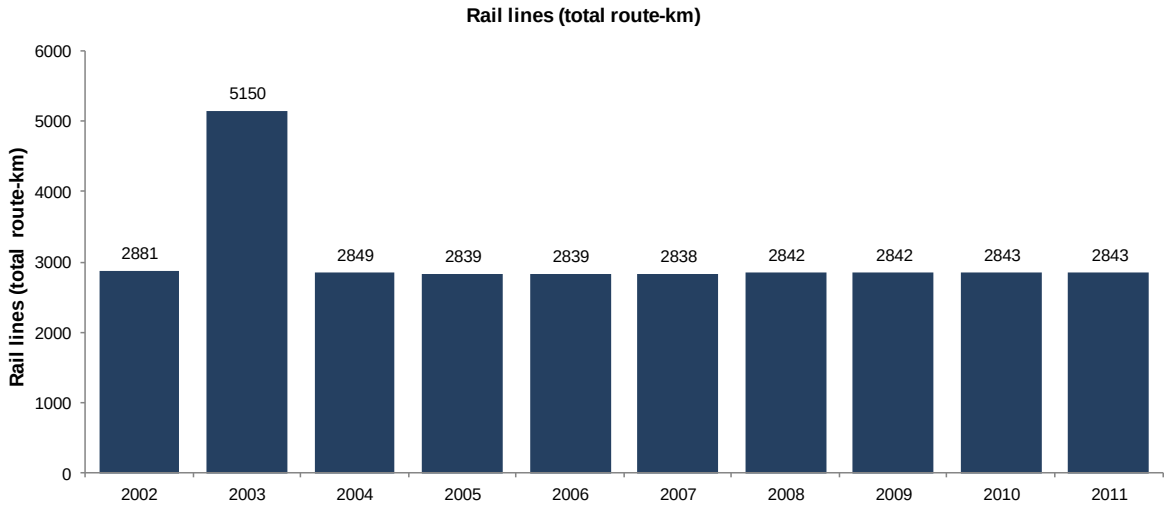
8.4. Infrastructure Quality and Availability

8.4.1. Rail lines, total network

Figure 89: Portuguese Rail lines (total route-Km), 2002–2011



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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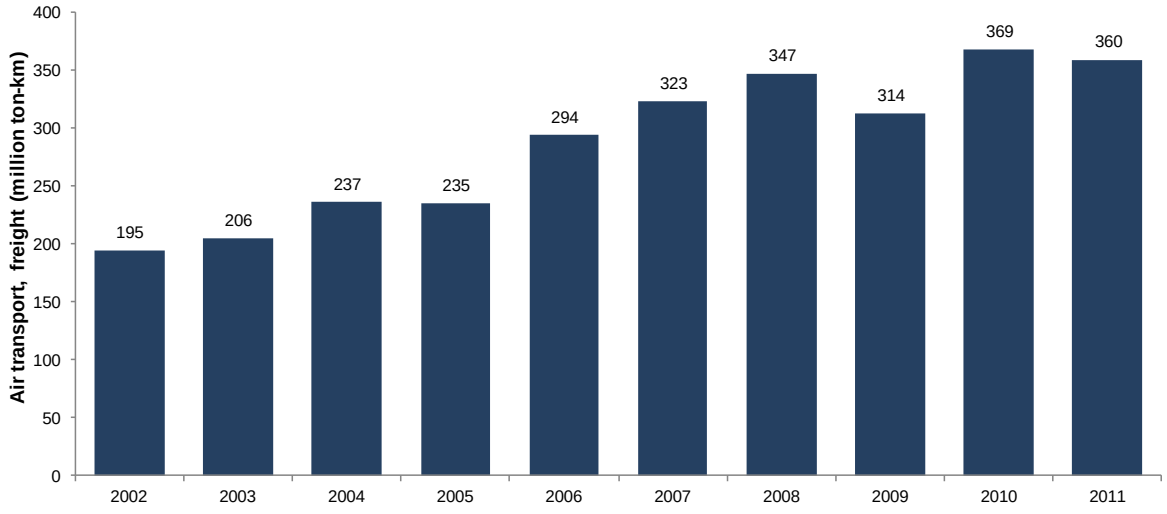
8.4.2. Air transport, freight

Figure 90: Portuguese Air transport, freight (Million ton-Km), 2002–2011



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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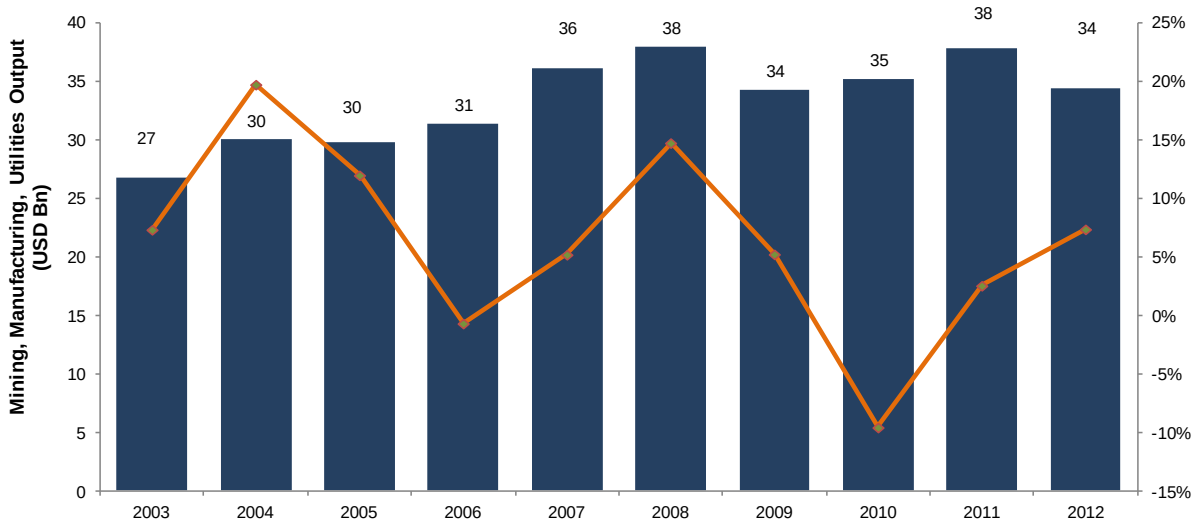
8.5. Minerals

8.5.1. Mining, Manufacturing, Utilities Output

Figure 91: Portuguese Mining, Manufacturing, Utilities Output (US$ Bn), 2003–2012



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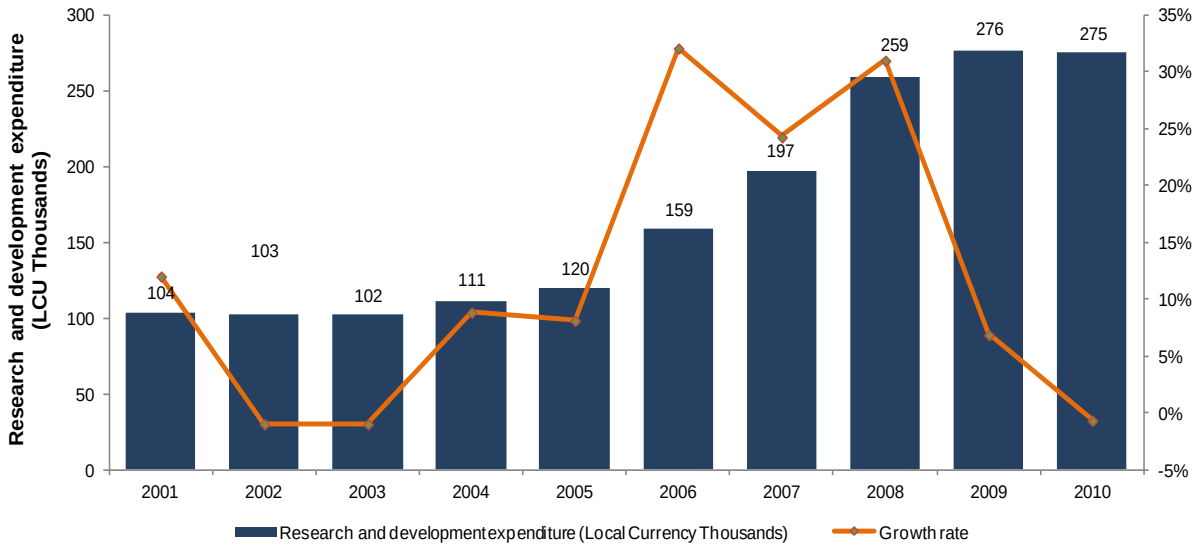
8.6. Technology

8.6.1. Research and development expenditure

Figure 92: Portuguese Research and Development (thousands LCU), 2001–2010



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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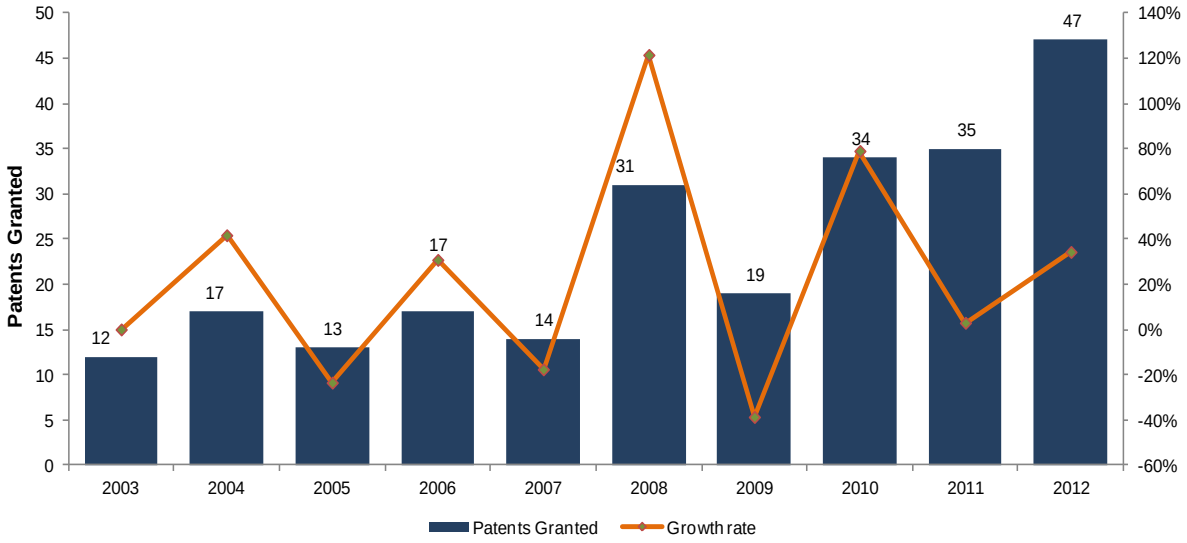
8.6.2. Patents Granted

Figure 93: Portuguese Patents Granted, 2003–2012



Source: U.S. Energy Information Administration (EIA) and SDI analysis

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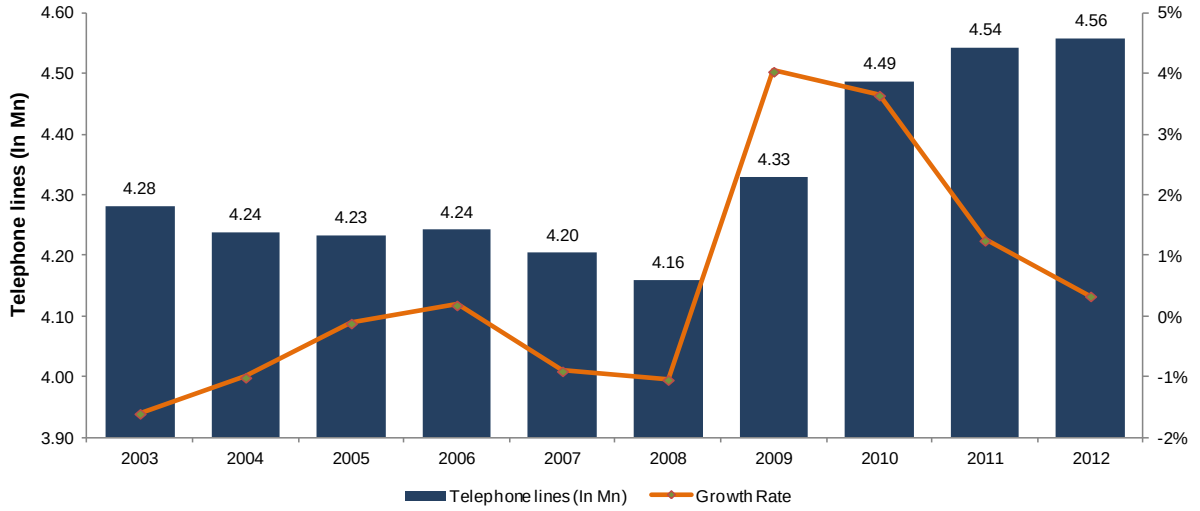
8.7. Telecommunication

8.7.1. Telephone lines

Figure 94: Portuguese Telephone lines, 2003–2012



Source: US Energy Information Administration and SDI analysis

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8.7.2. Telephone lines Penetration Rate

Figure 95: Portuguese Telephone lines Penetration Rate (per 100 people), 2003–2012

Source: US Energy Information Administration and SDI analysis

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9. Appendix

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