EUROCONTROL

Report commissioned by the Performance Review Commission

Study on ANSPs Pension Schemes and their Costs

Review of changes over the 2010-2016 period

Prepared by the Performance Review Unit

October 2018

BACKGROUND

This Report has been commissioned by the Performance Review Commission (PRC).

The PRC was established in 1998 by the Permanent Commission of EUROCONTROL, in accordance with the ECAC Institutional Strategy (1997).

One objective in this Strategy is "to introduce strong, transparent and independent performance review and target setting to facilitate more effective management of the European ATM system, encourage mutual accountability for system performance and provide a better basis for investment analyses and, with reference to existing practice, provide guidelines to States on economic regulation to assist them in carrying out their responsibilities."

The PRC's website address is **http://www.eurocontrol.int/ansperformance/prc**

NOTICE

The Performance Review Unit (PRU) has made every effort to ensure that the information and analysis contained in this document are as accurate and complete as possible. Should you find any errors or inconsistencies we would be grateful if you could please bring them to the PRU's attention.

The PRU's e-mail address is pru@eurocontrol.int

COPYRIGHT NOTICE AND DISCLAIMER

© European Organisation for the Safety of Air Navigation (EUROCONTROL)

EUROCONTROL, 96, rue de la Fusée, B-1130 Brussels, Belgium

http://**www.eurocontrol.int**

This document is published in the interest of the exchange of information and may be copied in whole or in part providing that the copyright notice and disclaimer are included. The information contained in this document may not be modified without prior written permission from the Performance Review Unit.

The views expressed herein do not necessarily reflect the official views or policy of EUROCONTROL, which makes no warranty, either implied or express, for the information contained in this document, neither does it assume any legal liability or responsibility for the accuracy, completeness or usefulness of this information.

FOREWORD by the PRC Chairman

Pension costs represent a significant proportion of the costs of Air Navigation Service Providers (ANSP) in Europe, because the provision of Air Navigation Services (ANS) is a labour-intensive activity.

In order to gain an understanding of ANSPs' pension costs and their implications for ANS cost-efficiency, the PRC commissioned a study of the various pension schemes provided by the 38 ANSPs in the EUROCONTROL area.

The study is mainly based on publicly available information which has been collected by the PRC, and which has been verified and complemented by each ANSP concerned.

It provides ANS stakeholders with a researched and up to date description of European ANSPs' pension schemes and their impact on the ANS system.

In particular, the study gives:

- a factual description of the current situation in the 38 ANSPs using a common framework;
- trends and evolution in schemes and their costs over the period 2010-2016;
- a better understanding of possible risks over the coming years and their magnitude; and
- ideas and opportunities to refine pension data reporting in the context of benchmarking analyses.

The PRC would like to acknowledge, with gratitude, the assistance and support of all 38 European ANSPs, which have actively contributed to the development of this study.

The PRC takes no position on the level of ANSP pay and conditions, including pension schemes. This study is merely a factual account of the various pension schemes provided by ANSPs in Europe.

Should you wish to contact the PRC, please send an email to **pru-support@eurocontrol.int**

Ralph Riedle

Chairman
Performance Review Commission

DOCUMENT IDENTIFICATION SHEET

DOCUMENT DESCRIPTION

Document Title

Study on ANSPs Pension Schemes and their Costs

DOCUMENT REFERENCE	EDITION:	EDITION DATE:
Pension Study	Final report	October 2018

Abstract

This report covers the pensions schemes and costs provided by 38 Air Navigation Services Providers (ANSPs) to the EUROCONTROL Performance Review Commission (PRC). This report comprises factual data and analysis on the schemes and their costs of 38 ANSPs for the year 2016, including comparison to 2010 and some trend analysis 2010-2016. The schemes covered include State and Occupational schemes for which costs are incurred by ANSPs. The report analyses known forward-looking changes to retirement ages and pension schemes as well as drawing conclusions as to the risks associated with different types of scheme, and who bears them (State, ANSPs or individuals), and the implications for benchmarking in the context of ATM cost effectiveness comparisons.

Keywords

EUROCONTROL Performance Review Commission – European Air Navigation Services Providers (ANSPs) – Pensions – Defined Benefit – Defined Contribution – Occupational pensions schemes – State pension schemes – Private pension schemes – Pension pillars – Retirement age – Age profile – Early Retirement Schemes – Social security contributions – Defined Benefit Obligation – Remeasurements – Future liabilities- Contribution rates – Pay As You Go – Funded – Actuarial assumptions – Discount rate – Fact Sheets.

Performance Review Unit, EUROCONTROL, 96 Rue de la Fusée, B-1130 Brussels, Belgium.

CONTACT: **Tel: +32 2 729 3956, e-mail:** pru@eurocontrol.int - **http://www.eurocontrol.int/ansperformance/prc**

DOCUMENT INFORMATION

TYPE		STATUS		DISTRIBUTION	
Performance Review Report	☐	Draft	☐	General Public	☑
Report commissioned by the PRC	☑	Proposed Issue	☐	EUROCONTROL Organisation	☐
PRU Technical Note	☐	Released Issue	☑	Restricted	☐

TABLE OF CONTENTS

EXECUTIVE SUMMARY ..... **viii**

1. Introduction **1**

1.1 Aims of the study 1

1.2 Scope of this study 1

1.3 Data sources used 2

1.4 Structure of the report 3

PART I: MAIN REPORT **6**

2. Presentation of pension schemes operated by European ANSPs **7**

2.1 Pension scheme definitions 7

3. Overview of ANSP staff profiles and costs **12**

3.1 Introduction 12

3.2 Age profile 13

3.3 Retirement age 16

3.4 Early retirement schemes 18

4. Pension costs **20**

4.1 Introduction 20

4.2 Total pension costs 20

5. Occupational defined benefit (DB) schemes **27**

5.1 Introduction 27

5.2 Costs resulting from occupational DB schemes 30

5.3 Future liabilities arising from occupational DB schemes 32

6. Occupational defined contribution (DC) schemes **42**

6.1 Introduction 42

6.2 Overview of occupational DC pension costs 43

6.3 Key drivers of the change in occupational DC costs between 2010 and 2016 44

7. Future changes **47**

7.1 Retirement age 47

7.2 Planned changes to 2nd pillar (occupational) pension schemes 48
7.3 Third pillar 50

8. Conclusions 52

8.1 Introduction 52
8.2 Risks associated with different types of pension schemes 52
8.3 Limitations of the report 55
8.4 Implications for benchmarking purposes 56

PART II: FACT SHEETS WITH READER'S GUIDE

Fact Sheet reader's guide

Fact Sheets at ANSP level in nominal, local currency

ANNEXES

Annex 1: Summary of information used in the report

Annex 2: Additional detail on early retirement schemes

Annex 3: Additional information on accounting standards

Annex 4: Key data

Annex 5: Glossary of terms

TABLES

Table 2.1: ANSPs that do not make contributions to a 1st pillar pension scheme 10

Table 3.1: Evolution of key metrics and costs across the 38 ANSPs between 2010 and 2016 12

Table 3.2: Number of staff and pensions cost per staff member at European level 13

Table 3.3: Average employee age and retirement age at European level in 2016 13

Table 3.4: Early retirement scheme options offered by the ANSPs 18

Table 4.1: ANSPs that reduced their pension costs between 2010 and 2016 23

Table 4.2: Benefits received by members of pension schemes of ANSPs with above-average pension cost per employee in 2016 25

Table 5.1 Summary of information for each ANSP that offer an occupational DB scheme..... 28

Table 5.2: ANSPs financing their occupational DB scheme on a PAYG basis 28

Table 5.3: ANSPs not liable for meeting obligations arising from the occupational DB plan 29

Table 5.4: ANSPs reporting to non-IFRS reporting standards 29

Table 5.5: Reporting of interest costs and remeasurements in the financial statements..... 30

Table 5.6: Breakdown of the adjustments component of the 2016 DB cost 31

Table 5.7: Measures implemented by ANSPs to mitigate pension risk 40

Table 7.1 Changes to the retirement age..... 48

Table 7.2: Expected changes to pension schemes offered to employees 50

Table 8.1 Risks borne by ANSP in relation to different types of pension schemes..... 54

FIGURES

Figure 1.1: Map showing the 38 ANSPs covered in the study 2

Figure 2.1: Summary of the pension pillars, types and funding 9

Figure 2.2: Types of contributions made by the ANSPs to pension schemes 9

Figure 2.3: Number of ANSPs offering occupational pension schemes in 2016 10

Figure 2.4: Number of employees participating in occupational pension schemes 10

Figure 3.1: Age profile at State level in 2010 and 2016 13

Figure 3.2: Age profile across the ANSPs in 2016, showing the mean, minimum and maximum values 14

Figure 3.3: Cumulative age profile for ANSPs offering DB schemes compared to all ANSPs 15

Figure 3.4: Proportion of ANSP employees aged over 40 in 2016 15

Figure 3.5: Average retirement age for ATCOs and other staff across the 38 ANSPs in 2016 16

Figure 3.6: Average age of ANSP employees compared to the ATCO and other staff retirement age 16

Figure 3.7: Changes in ATCO retirement age between 2010 and 2016 17

Figure 3.8: Changes in retirement age for other staff between 2010 and 2016 17

Figure 4.1: Total pension cost across the 38 ANSPs in 2010 and 2016 20

Figure 4.2: Share of pension scheme types in total ANSP costs in 2010 and 2016 20

Figure 4.3: Cost of the state pension, defined benefit schemes and defined contribution schemes as a proportion of total pension cost on an individual ANSP level 21

Figure 4.4: 10 ANSPs with the highest pension costs in 2016 22

Figure 4.5: 10 ANSPs with the largest proportional increase in pension costs between 2010 and 2016 23

Figure 4.6: Change in absolute (M€) and relative (portion of total cost base, %pts) pension costs between 2010 and 2016 23

Figure 4.7: Pension cost per employee across 38 ANSPs in 2010 and 2016 24

Figure 4.8: Pension cost per employee in 2010 and 2016, in €'000 25

Figure 4.9: Pension cost per employee in 2010 and 2016 in € (Real 2016) and adjusted using PPP 26

Figure 5.1: ANSPs contributing to occupational DB schemes 27

Figure 5.2: Change in the DB cost across 11 ANSPs between 2010 and 2016 30

Figure 5.3: Breakdown of the DB pension cost across the 11 ANSPs that reported DB pension costs in 2016 (see Table 5.1) 31

Figure 5.4: Change in the net DBO across 10 ANSPs between 2010 and 2016 32

Figure 5.5: Net DBO (10 ANSPs) 32

Figure 5.6: Net DBO per active scheme member at individual ANSP level in 2016 32

Figure 5.7: Net DBO as a percentage of the total assets at individual ANSP level in 2016..... 33

Figure 5.8: Evolution of the net DBO, 2010-2016 (10 ANSPs)..... 33

Figure 5.9: CAGR of the change in the net DBO between years 2010 and 2016 at individual ANSP level 34

Figure 5.10: Breakdown of the change in the net DBO in 2016 (10 ANSPs) 36

Figure 5.11: Average values of the key actuarial assumptions used to calculate the DBO in 2010 and 2016..... 36

Figure 5.12: Range of values for the key actuarial assumptions in 2016..... 36

Figure 5.13: Changes in the discount rate assumption on an individual ANSP level between 2010 and 2016..... 37

Figure 5.14: ECB main refinancing operations benchmark rate, 1999 to 2016 37

Figure 5.15: Sensitivity of the DBO to the changes in the actuarial assumptions on European level .. 38

Figure 5.16: Sensitivity of the DBO to changes in discount rate assumptions on individual ANSP level 39

Figure 5.17: Active members of the defined benefit scheme as a proportion of total staff in 2016 ... 39

Figure 6.1: ANSPs contributing to an occupational DC scheme..... 42

Figure 6.2: Change in cost of the DC schemes across all ANSPs between 2010 and 2016 43

Figure 6.3: Active members of the DC scheme as a % of the employees at individual ANSP level 43

Figure 6.4: Number of ANSPs offering occupational DC schemes between 2010 and 2016..... 44

Figure 6.5: Defined contribution scheme contribution rate at an individual ANSP level in 2010 and 2016..... 44

Figure 6.6: Comparison between the DC contribution rate offered to ATCOs and to the other staff . 45

This page is left blank intentionally for printing purposes

EXECUTIVE SUMMARY

Air Navigation Services (ANS) is a labour-intensive industry with two thirds of the costs relating to staff. Since pension costs represent a large proportion of total Air Navigation Service Providers' (ANSPs) costs and are a source of variability over time, the Performance Review Commission (PRC) launched this study in order to provide ANS stakeholders with a researched and up to date description of ANSPs pension schemes and their costs. The information collected and verified with ANSPs is designed to provide:

- a factual description of the current situation in the 38 organisations using a common framework;
- trends and evolution in schemes and their costs over time;
- a better understanding of possible risks over the coming years and their magnitude; and
- ideas and opportunities to refine pension data reporting in the context of benchmarking analyses.

The study covers the 38 ANSPs of EUROCONTROL Member States. However, for data availability reasons, the scope of activities is different to that for the ATM Cost-Effectiveness (ACE) benchmarking report since it analyses the pension obligations of ANSPs at corporate reporting level, whereas the ACE report focuses on ATM/CNS provision costs (excluding MET and non-ANS activities).

Pensions pillars

Pension schemes are often described by different pillars:

- **First pillar**: describes schemes that are provided for individuals by the State;
- **Second pillar:** describes schemes provided for individuals by the employer, and often referred to as occupational schemes;
- **Third pillar:** describes private personal, individual pension schemes which have no direct involvement from the State or the employer.

Types of pensions schemes

Defined benefit (DB): Defined benefit pension plans guarantee a certain pay-out at retirement according to a formula typically related to the length of employment and employee earnings.

Defined contribution (DC): With a defined contribution pension plan, the payments made into the plan are specified, but the benefits depend on the performance of the investments comprising the pension fund. Investment risk and investment rewards are therefore assumed by each member and not by the sponsor (company or ANSP in this case).

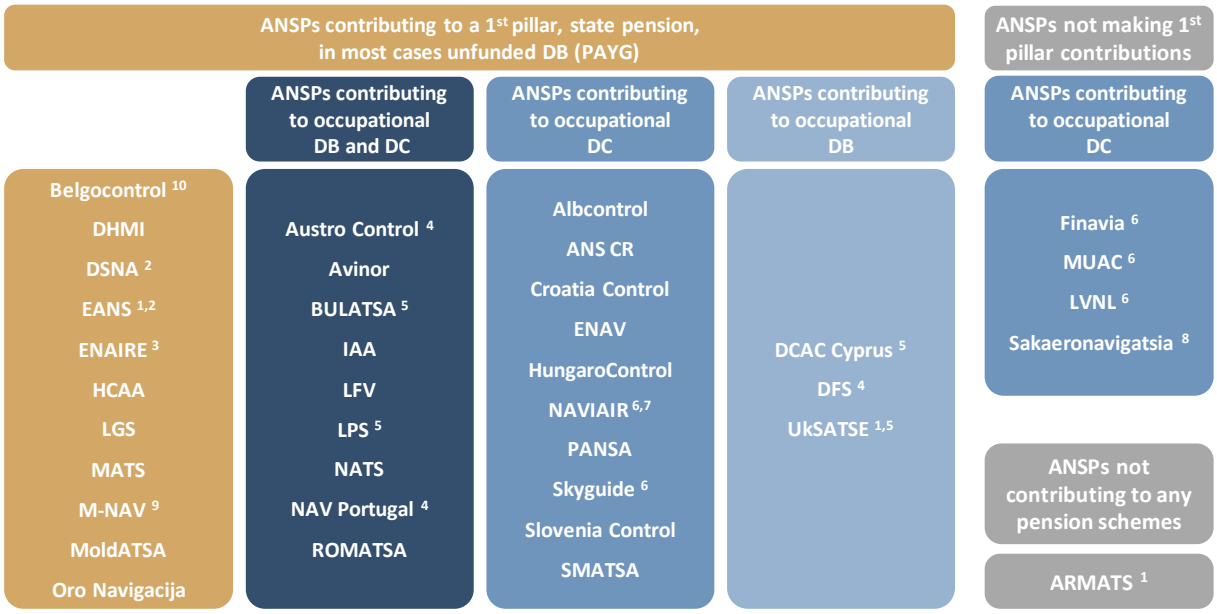
Hybrid: Hybrid schemes combine elements of DB and DC pension schemes.

Another important aspect of pension arrangements is the type of funding in use, and whether pension plans are funded or unfunded.

Unfunded, "pay-as-you-go" (PAYG): In the case of unfunded plans, also known as PAYG plans, current contributions serve to pay current benefits of pensioners, involving an intergenerational transfer.

Funded plans: Funded plans draw benefits from their accrued assets, but can become underfunded if their assets are insufficient to cover liabilities.

One of the main outcomes of this study is the identification of the different schemes to which ANSPs contribute. As indicated in the notes in Figure 0.1 below, there are many ANSPs with specific situations. This makes it difficult to compare ANSPs, even when they are classified in the same category.



Notes:
1 Although the ANSP offers an occupational DC scheme, this is funded through employee contributions only and is therefore outside the scope of this study.
2 Complemented by a mandatory occupational pillar as part of social security contributions.
3 An occupational DC scheme exists but no contributions have been made to the scheme since 2012.
4 DB obligation includes provisions made to finance early retirement commitments.
5 Occupational DB obligation is financed on a PAYG basis.
6 Members receive defined benefits on retirement, but the pension obligation is managed by a separate entity that assumes liability to meet the future benefit payments. Since the ANSP only pays contributions to the pension fund, the ANSP's contributions are assessed as DC and not DB.
7 NAVIAIR contributes to both a DB scheme (obligation transferred to the State) and an occupational DC scheme (operated by NAVIAIR).
8 Scheme introduced in 2015 but not operational until March 2017.
9 Contributions to the defined contribution scheme are reported together with the 1st pillar contributions.
10 Belgocontrol contributes to a DC scheme for contractual employees only (there were 278 contractual employees in 2016).

Figure 0.1: Types of contributions made by the ANSPs to pension schemes in 2016

Figure 0.1 shows that, in 2016, 33 ANSPs contributed to first pillar state pension schemes with 22 of them also contributing to at least one occupational scheme. 12 ANSPs were classified as contributing to an occupational defined benefit (DB) scheme and 23 were classified as contributing to a defined contribution (DC) scheme. Of these 23, it is important to note that Finavia, LVNL, MUAC, NAVIAIR and Skyguide offer DB schemes to their employees but have been classified as making contributions to DC schemes for the purpose of this study because they do not assume any liability for meeting the future obligations.

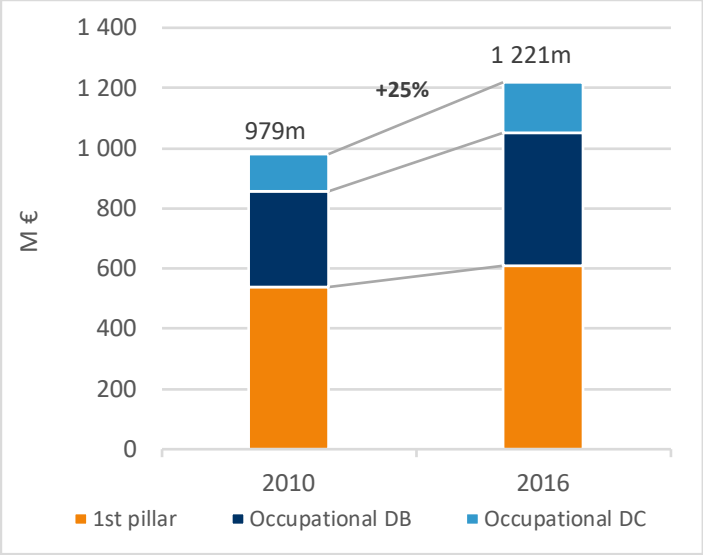


Figure 0.2: Total pension cost across the 38 ANSPs in 2010 and 2016

Total pension costs of 1 221 M€ were incurred by the 38 ANSPs in 2016.

This represents an increase of +24.7% between 2010 and 2016, despite a decrease in staff numbers. This increase is also much higher than the increase in total ANSP costs (+3.7%) over the same period.

As a result, the share of pensions in total ANSP costs increased from 10.4% in 2010 to 12.5% in 2016.

Between 2010 and 2016, pension costs rose for all types of pension schemes: first pillar schemes (+13.2%), DB schemes (+38.6%) and DC schemes (+39.3%).

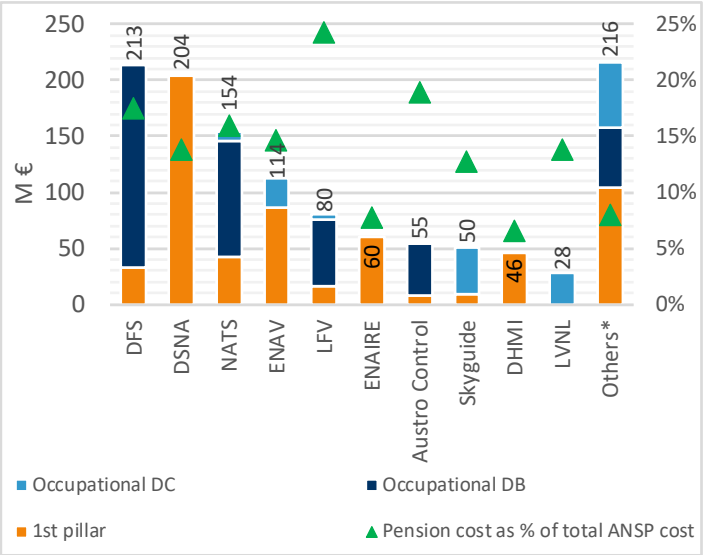


Figure 0.3: 10 ANSPs with the highest pension costs in 2016

Pension costs for the 10 ANSPs with the highest pension costs in 2016 are shown in Figure 0.3.

The five largest ANSPs (DFS, DSNA, ENAIRE, ENAV and NATS) represent together about 60% of the total pension costs. Notably, pension costs at DFS increased from 102.7 M€ in 2010 to 213.3 M€ in 2016.

Smaller ANSPs such as Austro Control, LFV, LVNL and Skyguide are also in this group indicating that the pension cost per employee for these organisations are well above average, especially for LFV and Austro Control (1st and 2nd highest pension costs per employee).

Nearly all the ANSPs with the highest total pension costs or highest cost per employee have either DB or first pillar schemes (with guaranteed levels of benefits).

On a per employee basis, the average contributions in 2016 vary considerably by type of pension scheme: 10 410 € for the first pillar, 27 169 € for the DB schemes and 8 048 € for the DC schemes.

At European level, there is an overall ageing of the population, meaning that States or ANSPs running DB schemes financed on a PAYG basis might be required to increase pension contributions, increase the retirement age or reduce benefits, since current contributions serve to pay current benefits of pensioners.

At European level, the average age of employees at the ANSPs was just over 44 in 2016.

It is noteworthy that 65.4% of employees were aged over 40, and 7.3% over 60.

The average retirement age for ATCOs (61.6) was three years less than that for other staff (64.4).

Average employee and retirement age (for ANSPs)	2016
Average employee age	44.2
% of staff aged over 40	65.4%
% of staff aged over 60	7.3%
Retirement age: ATCOs	61.6
Retirement age: Other staff	64.4

Table 0.1: Average employee age and retirement age for ANSPs at European level in 2016.

ANSPs with the highest average employee age in 2016 were HCAA (51.0), NAV Portugal (48.0), ENAIRE (47.7) and LFV (47.0). On the other hand, those with the lowest average employee age were DHMI (40.7), EANS (40.9), Albcontrol (42.5) and Skyguide (42.5).

It is also noteworthy that, on average, there is an older workforce at ANSPs contributing to DB schemes. In addition, new joiners are more likely to receive DC benefits from ANSPs that offer the scheme. This is likely to have implications both in terms of the remaining time that ANSPs have to ensure the pool of assets in the pension plans is sufficient to meet retirement obligations, as well as their ability to replace employees that will retire over the next 20 years.

Between 2010 and 2016, 18 ANSPs introduced increases in the retirement age either for ATCOs or for support staff. On average, the retirement age increased by 4 months for ATCOs and by 7 months for the other staff. Further increases are planned in the coming years.

Early retirement schemes are offered by 26 out of 38 ANSPS. Out of these, 13 offer this to ATCOs only.

This report explored two implications of occupational DB schemes: the annual cost related to the scheme, and the future liability borne by the sponsor of the scheme (i.e. the ANSP). As shown in Figure 0.1 above, the analysis of the DB schemes comprises 12 ANSPs.

The total cost incurred by the ANSPs in relation to DB schemes was 441.2 M€ in 2016, covering 32.7% of employees. In 2016, DB costs represented 36.2% of the total pension costs incurred by the ANSPs.

The two main components of the DB costs incurred by ANSPs are the *current service cost* (cost incurred by employees earning an additional year of benefits through working at the company for the year) and the *interest expense* (reflecting the removal of one year of discounting in the present value calculation).

The costs related to DB schemes therefore do not represent benefits being paid to retirees nor cash contributions paid into a pension fund.

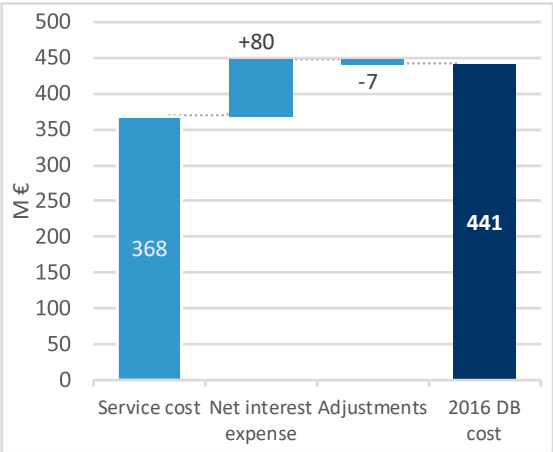


Figure 0.4: Breakdown of the DB pension cost across the 11 ANSPs that reported DB pension costs in 2016

The *interest expense* was reported by some ANSPs as part of the staff costs, and by others as a financial expense. Similarly, *remeasurements* (changes in the net liability stemming from the actuarial assumptions) were reported as staff costs by LFV, LPS and NAV Portugal before 2016, while classified as other comprehensive income by the other organisations. These different reporting practices can affect ANSPs staff cost comparisons. According to IFRS, the *remeasurements* should be recorded in "other comprehensive income", not as staff costs.

The net Defined Benefit Obligation (DBO) for ANSPs with funded DB schemes represents their future liability towards retirees. In 2016, it reached 3 784 M€ (+161% from 2010). The key driver for this increase was remeasurements resulting from changes in actuarial assumptions. These assumptions are heavily affected by factors that the ANSP cannot directly control (e.g. interest rates, life expectancy, etc.). Under IAS 19, the actuarial assumptions are re-set annually in order to reflect market conditions. The amendments to IAS 19 in 2013 led to a different reporting of the DBO with the requirement that the pension deficit/surplus is shown fully on the financial statements**.**

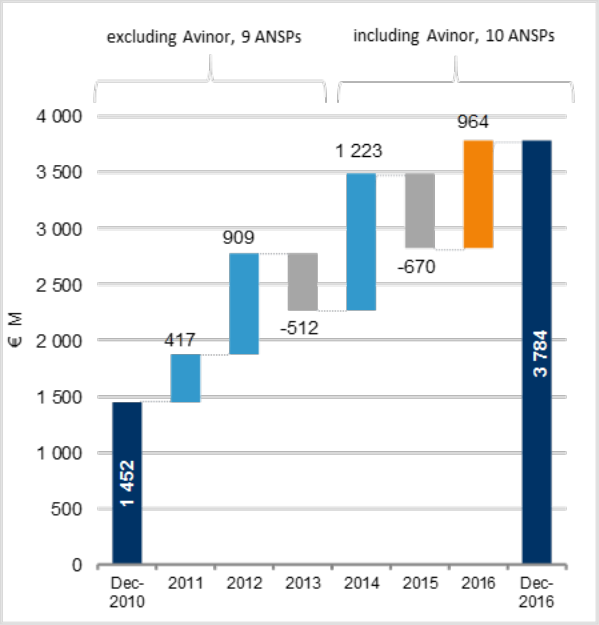


Figure 0.5: Evolution of the net DBO, 2010-2016

Figure 0.5 shows the year-on-year evolution of the net DBO across the sample of ANSPs with funded DB schemes from 2010 to 2016.

The large variations from 2012 result primarily from the changes to the IAS 19 standards, especially the removal of the corridor approach to amortise the impact of actuarial gains/losses. In a context of decreases in interest rates, the discount rates applied by ANSPs also fell, which increased the net present value of DBOs through the *remeasurements*.

The 2015-2016 changes in the net DBO are primarily affected by remeasurements applied by DFS (+556.0 M€, or over 50% of the total across all ANSPs) and NATS (+355.6 M€, or approximately 35% of the total).

ANSPs have taken a number of measures to reduce their exposure to DB scheme obligations over the past years. This was mainly done by transitioning fully or partly to DC schemes (NAV Portugal in 2007, NATS in 2009, IAA in 2012, HungaroControl in 2013, LFV in 2016, etc.), or reducing future benefits through lower indexation (NATS) or use of a lower base to calculate the future pension (DFS).

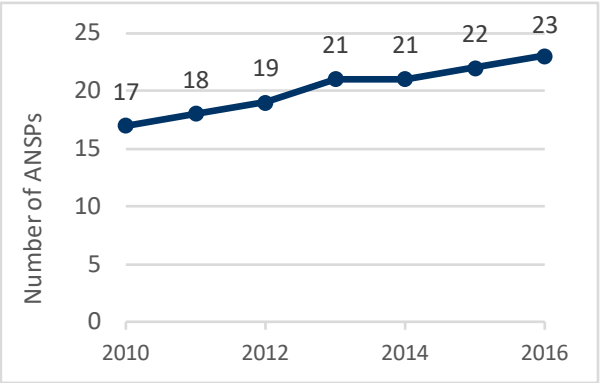


Figure 0.6: Number of ANSPs offering occupational DC schemes between 2010 and 2016

The number of ANSPs classified as contributing to a DC scheme steadily increased from 17 in 2010 to 23 in 2016. 20 880 employees (33.1% of total employees at European level) benefited from the defined contributions made by these 23 ANSPs.

The total cost incurred by the ANSPs in relation to DC schemes was 168.0M€ in 2016, equivalent to 13.8% of the total pension costs incurred by the ANSPs.

Nine ANSPs contributed to DC schemes only and nine other ANSPs had both DC and DB schemes. Five ANSPs (Finavia, LVNL, MUAC, NAVIAIR and Skyguide) have been classified into the DC scheme category although they offer occupational DB schemes to their employees. This is because they do not assume any liability for meeting future obligations.

Between 2010 and 2016, DC costs rose by +39.3% compared to 2010, which is a higher increase than for the first pillar and the occupational DB schemes. This increase is due to both an increase in the number of ANSPs offering DC schemes (from 17 to 23) and an increase in the average contribution rate (from 8.5% in 2010 to 9.3% in 2016).

The study collected information on the planned changes in relation to pension schemes that will take place in the coming years. The main measures identified are forthcoming increases in retirement age in 18 States, increases in contribution rates or contribution base (BULATSA, NAVIAIR, PANSA, and Slovenia Control), exceptional deficit repair payments (Skyguide, NATS). Several pension reforms are ongoing, with implications not yet fully known to the ANSPs.

Conclusion

The study provided a description of (i) the pension schemes to which the 38 European ANSPs are contributing, (ii) the structure of the pension costs as well as (iii) their evolution over the 2010-2016 period. All types of pension schemes bear some risks.

- **In DB pay-as-you-go schemes**, assets are not set aside to finance pensions and it is therefore more difficult to assess the risk of financing issue. **As life expectancy increases, a number of States are increasing the legal retirement age and may increase contribution rates as well** if there continues to be an imbalance in the ratio of the working to retired population to reduce this risk.

- **In DB funded schemes**, low interest rate environments increase the risk of the current value of the plan assets being lower than the present value of retirement benefits to be paid. **If interest rates remain low, ANSPs will have to pay relatively higher contributions to maintain the same level of benefits. On the other hand, if interest rates increase, it will lead to the use of higher discount rates, which would help reduce the present value of the net DBO**.

- **DC schemes and contributions to multi-employer funds are relatively less risky but are not completely risk free, with potential long term operational implications if members do not accumulate sufficient benefits to retire at the normal retirement age and decide to delay their retirement (where legally feasible).**

Understanding the costs and risks borne by ANSPs in relation to the various pension schemes employees have access to is not always straightforward. Attempting to benchmark the pension schemes can be even more complex, as defined benefit and defined contribution schemes adopt fundamentally different approaches to providing retirement benefits for employees. All types of pension schemes bear some risks.

Even when focusing only on DB schemes, it appears that some ANSPs report the net interest expenses relating to DB schemes as staff costs while others disclose them under financial costs. These different practices can significantly affect comparisons and trends in the context of benchmarking analysis.

Similarly, it appears from the study that there are different practices in the reporting of remeasurements related to DB schemes (mainly impacts of changes in actuarial assumptions), in particular in the context of the ACE data analysis. Cost comparisons and trend analysis could be improved if all ANSPs were excluding the remeasurements of the year, and would instead report these costs in their ACE data submission only when they are charged to airspace users (through the cost exempt mechanism for SES ANSPs).

1. INTRODUCTION

1.1 Aims of the study

Air Navigation Services (ANS) is a labour-intensive industry with two thirds of the costs relating to staff and almost a third of the workforce (i.e. Air Traffic Controllers – ATCOs) requiring very specific qualifications as well as medical certification. In such context, employment conditions in the different organisations have a significant impact on their economic performance.

Since pension costs represent a large proportion of total Air Navigation Service Providers' (ANSPs) costs and are a source of variability over time, the Performance Review Commission (PRC) launched this study in order to provide ANS stakeholders with a researched and up to date description of ANSPs pension schemes and their costs. The information collected and verified with ANSPs is designed to provide:

- a factual description of the current situation in the 38 organisations using a common framework;
- trends and evolution in schemes and their costs over time;
- a better understanding of possible risks over the coming years and their magnitude; and
- ideas and opportunities to refine pension data reporting in the context of benchmarking analyses.

This report takes the perspective of the employer and the costs it incurs to finance staff pensions. It should not be seen as an employee's guide to future pension benefits. It is also important to note that the figures presented in this report only represent a factual description of the information collected. The analysis does not consider the relative level of benefits provided by each ANSP.

The PRC takes no position on the level of ANSP pay and conditions, including pension schemes. This study is merely a factual account of the various pension schemes provided by ANSPs in Europe.

The work has been led by the Performance Review Unit (PRU) of EUROCONTROL with support from the consultancy Steer who have received support from Barnett Waddingham in relation to actuarial matters.

1.2 Scope of this study

Scope of activities

The scope of activities examined in the study is different to that for the ATM Cost Effectiveness (ACE) benchmarking report (see www.eurocontrol.int/ACE). Whereas the ACE report focuses on ATM/CNS provision costs, and therefore excludes MET and non-ANS activities such as airport management and other commercial activities, this report analyses the pension obligations of ANSPs at corporate reporting level for data availability reasons.

Particular examples where the scope is significantly different between ACE and this study are Finavia Corporation and DHMI, where the confines of the organisation analysed in this report includes ANS as well as airport services and other businesses. Where ANS services are separated out in the presentation of company financial statements these are used for the purpose of the study. For example, the annual report for Avinor Flysikring has been used to identify the values presented for Avinor in this report.

Geographical scope

The study covers 38 ANSPs of EUROCONTROL Member States as shown in Figure 1.1 below.

The term "European level" is used in this report to refer to the total of the 38 ANSPs studied.

Figure 1.1: Map showing the 38 ANSPs covered in the study

Employer vs. employee contributions

The financial values presented in the report do not include voluntary employee contributions to pension schemes as they are not an obligation of the ANSP. Mandatory contributions from the employees are also excluded since they are part of the gross wages and salaries. Although employee contributions to pensions have an impact on their net remuneration, changes in the level of these contributions do not generally affect the total staff cost for the employer (exceptions include the matching contribution structure offered by IAA in its defined contribution plan). Where specific information on employee contributions has been provided, it has been reflected in notes to the ANSP's Fact Sheet (Part II of the report).

1.3 Data sources used

The main source of information used to describe each ANSP's pension scheme is the annual financial report and supporting notes (i.e. public information). These are supplemented with information from other sources as appropriate. Where annual reports are not available, information provided through the Specification for Economic Information Disclosure (SEID) as part of the EUROCONTROL ACE process has been used. Sources have only been combined where necessary and where it was possible to identify that the scope of the data sets being combined was consistent.

Approach to data verification with ANSPs

The data collected was used to assemble a draft Fact Sheet, a supporting background document summarising the data available and their sources and compile a set of questions to address data gaps. These documents were sent to each ANSP, alongside a request to participate in the study.

After written responses were received from all ANSPs, and in some cases discussed by phone or in face-to-face meetings, updated Fact Sheets and supporting background documents were used for the cross-ANSP and aggregated ANSP analysis presented in the following chapters.

Key issues identified

A key issue identified through the process was the difficulty in identifying the portion of social security contributions that are directed towards the state pension schemes. Where the ANSPs were not able to provide the pension element of the social security contribution, we applied an approximation based on the State budget share of social expenditures directed toward pensions to the total social security contributions made by the ANSP. The source of this budget share was reports published by the State and estimates calculated by Eurostat. The methodology was validated with the ANSPs. A full list of methodologies used to calculate this estimate can be found in Annex 1.

Presentation of numbers in the report

The Fact Sheets provided in Part II were prepared using the annual reports published by the ANSPs and are therefore presented in nominal, local currency. Part I of this report provides a cross comparison in real (2016 prices) Euros. The exchange rate is taken from the EUROCONTROL ATM Cost-Effectiveness (ACE) database for 2010 and 2016. Inflation rates are sourced from Eurostat and the International Monetary Fund (IMF). The long-term interest rate represents government bonds with maturities of close to 10 years; this information is sourced from the European Central Bank or the national bank of the State in which the ANSP operates as appropriate.

Comparisons of real values in 2010 and 2016 are used to show trends over time. 2016 provides the latest data for which annual reports were available. 2010 was chosen as an appropriate comparator year as it was before the changes to International Accounting Standards 19 (IAS 19) applicable from 1 January 2013, after the global financial crisis (2008) and allows sufficient time to capture material changes in the design and costs of pension provisions across the ANSP sample.

1.4 Structure of the report

The remainder of this report is structured around the following chapters:

- **Part I:**
  - **Chapter 2: Presentation of the different pension schemes operated by European ANSPs** – overview of the types of pension schemes available to employees of each ANSP;
  - **Chapter 3: Overview of ANSP staff profiles and costs** – highlights of key metrics together with information on some key employee-based drivers of pension costs and liabilities, including staff age profiles, retirement ages and details of any early retirement schemes available to employees;
  - **Chapter 4: Pension costs** – overview of the total pension costs incurred by the 38 ANSPs in 2016, the evolution of the costs between 2010 and 2016, and an analysis of the key drivers of the evolution in costs;
  - **Chapter 5: Occupational defined benefit schemes** – analysis of the costs associated with the occupational defined benefit scheme and the change in the net pension liability assumed by ANSPs between 2010 and 2016;
  - **Chapter 6: Occupational defined contribution schemes** – analysis of the costs associated with the occupational defined contribution scheme and the drivers in the change in costs between 2010 and 2016;
  - **Chapter 7: Future changes** – summary of the expected future changes in relation to retirement ages and pension schemes; and
  - **Chapter 8: Conclusions** – key themes and findings.
- **Part II:**
  - Fact Sheet reader's guide; and

- Fact Sheets at ANSP level in nominal, local currency.

- **Annexes:**
  - Annex 1: Summary of information used in the report
  - Annex 2: Additional detail on early retirement schemes
  - Annex 3: Key differences in pension reporting standards
  - Annex 4: Key data
  - Annex 5: Glossary of terms

This page is left blank intentionally for printing purposes

PART I: MAIN REPORT

2. PRESENTATION OF PENSION SCHEMES OPERATED BY EUROPEAN ANSPS

2.1 Pension scheme definitions

Pensions pillars

Pension schemes are often described as pillars. The total pension received by an individual can be calculated as the sum of the pension received from the relevant pillar(s). These pillars are funded by contributions made by States, employees and/or employers, as appropriate. The following naming convention is used in this report to describe these pillars:

- **First pillar**: describes schemes that are provided for individuals by the State;
- **Second pillar:** describes schemes provided for individuals by the employer, and often referred to as occupational schemes;
- **Third pillar:** describes private personal, individual pension schemes which have no direct involvement from the State or the employer.

Types of pension schemes

Pension schemes are typically described as either defined benefit (DB), defined contribution (DC) or a hybrid of the schemes:

Defined benefit (DB): Defined benefit pension plans guarantee a certain pay-out at retirement according to a formula typically related to the length of employment and employee earnings. Entities operating defined benefit pension plans bear the risk for ensuring that the accumulated value of the pension plan is sufficient to cover the liability the company has to existing and future retirees. The value of the pension plan assets is dependent on the forecast economic returns of the invested asset and therefore on stock and bond market conditions, whilst the value of the liability is determined by actuaries and is influenced by factors such as the forecast life expectancy of current and future retirees and average salary increases of current employees. Austro Control, DFS and NAV Portugal also account for their early retirement scheme as a defined benefit obligation.

Defined benefit expenses recorded in the Income Statement are different from the contributions made to the pension fund or the benefits paid out to retirees. The Income Statement works on an accrual basis and records all expenses related to activities performed in the year. As such, the expense of a DB scheme mainly consists of two parts:

- the accrual of an additional year of benefits by staff members (the current service cost); and
- costs related to the removal of one year of discounting until retirement benefits need to be paid (the interest expense).

These items are discussed in further detail in Chapter 6. A key concept to keep in mind when evaluating the pension expense as recorded in the Income Statement is that the expense relates to a non-realised cost. It is a cost that will occur in the future, and is not related to any cash movements in the year.

Defined contribution (DC): With a defined contribution pension plan, the payments made into the plan are specified, but the benefits also depend on the performance of the investments made by the pension fund. Investment risk and investment rewards are therefore assumed by each member and not by the sponsor (company or ANSP in this case). In a defined contribution plan, pension contributions are paid into an individual account for each member. The contributions are invested, for example in the stock market, and the returns on the investment (which may be positive or negative) are credited to the individual's account. On retirement, the member's account is used to provide

retirement benefits, sometimes through the purchase of an annuity which then provides a regular income.

As the sponsor of a DC scheme is only liable to make contributions into a pension fund, the expense of a DC scheme for ANSPs in a year as reported in the Income Statement consists of the contributions made by the ANSP to the pension fund.

Hybrid: Hybrid schemes combine elements of DB and DC pension schemes. For example, IAA introduced a hybrid scheme for all employees joining the organisation from 2012. Members of this hybrid scheme earn a DB pension up to a salary cap. Employees earning higher than the cap can join a DC scheme, where IAA matches their contribution rate up to a maximum of 7%.

Funding of pension schemes

Another important aspect of pension arrangements is the type of funding in use, and whether pension plans are funded or unfunded.

Unfunded, "pay-as-you-go" (PAYG): In the case of unfunded plans, also known as PAYG plans, current contributions serve to pay current benefits of pensioners, involving an intergenerational transfer. Many state (first pillar) pension schemes are based on this type of funding model. These PAYG schemes can be paid for through social security contributions, hypothecated specific contributions, or ANSP contributions.

Funded plans: Funded plans draw benefits from their accrued assets, but can become underfunded if their assets are insufficient to cover liabilities. These funded plans are usually paid for by ANSP contributions. The responsibility for any net liability for funded schemes sometimes lies with the State (and therefore) social security contributions, but more often the company or ANSP where additional ANSP contributions (often referred to as deficit repair) are needed.

In summary, pension schemes can be paid for by:

- **Social security contributions:** contributions made by employees and/or employers that are directed towards providing social security benefits;
- **ANSP contributions**: contributions made by employers and/or employees from regular cash payments to the schemes and ad-hoc payments for deficit repairs for funded schemes;
- **Asset return and value escalation:** funded schemes often hold considerable assets which may gain (or lose) value over time.

A definition of further key terms used in the report can be found in Annex 5.

The mapping of the sources of pension contributions to these three pillars is shown in Figure 2.1.

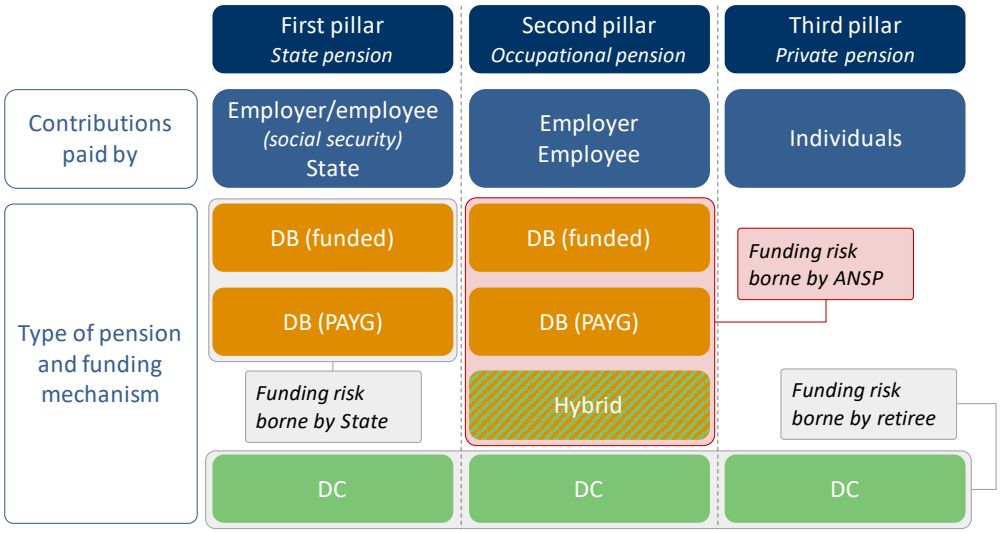
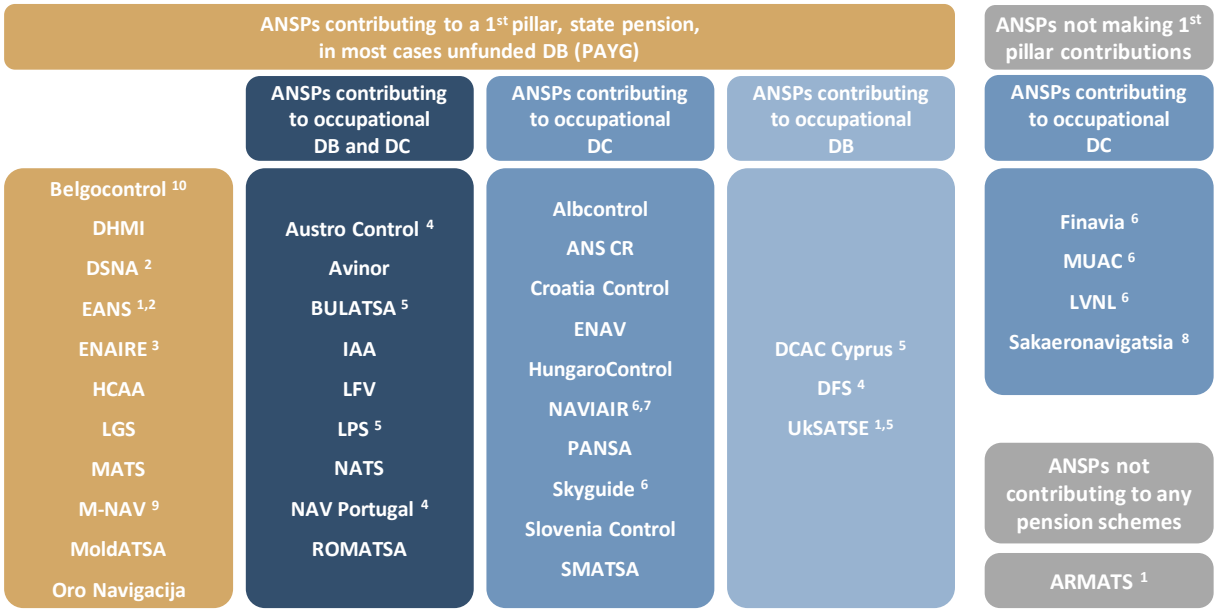


Figure 2.1: Summary of the pension pillars, types and funding

Classification of ANSPs pension schemes

Figure 2.2 summarises the type of pension to which each of the ANSPs contributes:



Notes:
1 Although the ANSP offers an occupational DC scheme, this is funded through employee contributions only and is therefore outside the scope of this study.
2 Complemented by a mandatory occupational pillar as part of social security contributions.
3 An occupational DC scheme exists but no contributions have been made to the scheme since 2012.
4 DB obligation includes provisions made to finance early retirement commitments.
5 Occupational DB obligation is financed on a PAYG basis.
6 Members receive defined benefits on retirement, but the pension obligation is managed by a separate entity that assumes liability to meet the future benefit payments. Since the ANSP only pays contributions to the pension fund, the ANSP's contributions are assessed as DC and not DB.
7 NAVIAIR contributes to both a DB scheme (obligation transferred to the State) and an occupational DC scheme (operated by NAVIAIR).
8 Scheme introduced in 2015 but not operational until March 2017.
9 Contributions to the defined contribution scheme are reported together with the 1st pillar contributions.
10 Belgocontrol contributes to a DC scheme for contractual employees only (there were 278 contractual employees in 2016).

Figure 2.2: Types of contributions made by the ANSPs to pension schemes

The majority of ANSPs contribute to employees' state pension via social security contributions in addition to any occupational scheme offered to employees. The main exceptions are noted in Table 2.1.

ANSP	Rationale for no contributions to a 1st pillar pension scheme
ARMATS	Contributions are made by employees only.
Finavia	Non-contributory scheme.
LVNL	Funded from income taxes and not employer contributions.
MUAC	Employees of MUAC do not earn pension rights from their home countries while being employed by EUROCONTROL.
Sakaeronavigatsia	Non-contributory scheme.

Table 2.1: ANSPs that do not make contributions to a 1st pillar pension scheme

Employees of all ANSPs except MUAC receive a state pension in addition to any benefits that may be provided by an occupational pension. Employees of MUAC "are eligible for membership in the EUROCONTROL defined benefit pension scheme. The EUROCONTROL pension scheme is the first and unique pillar for the employees."[1]

The number of ANSPs offering occupational pension schemes in 2016 is shown in Figure 2.3 and the proportion of employees participating in those schemes in Figure 2.4.

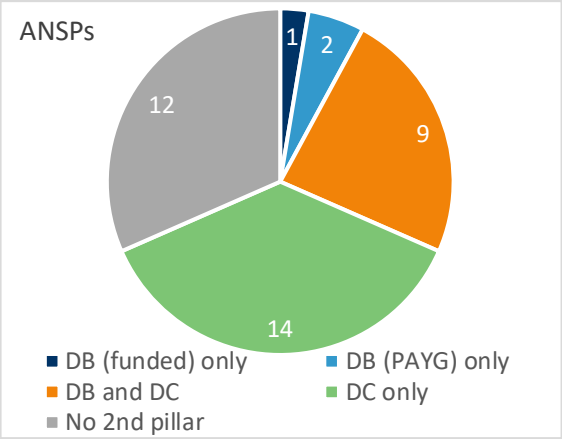


Figure 2.3: Number of ANSPs offering occupational pension schemes in 2016

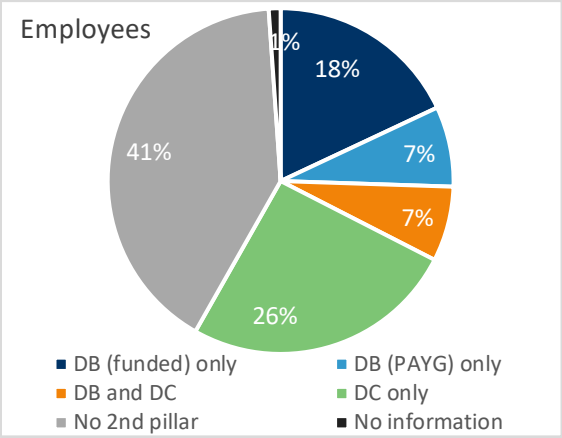


Figure 2.4: Number of employees participating in occupational pension schemes[2]

In 2016, 26 out of 38 ANSPs offered an occupational pension scheme to its employees. However, due to the fact that some of the large ANSPs only contribute to the state pension (e.g. DHMI and DSNA), over 40.6% of the ANSP employees do not receive a 2nd pillar pension.

[1] EUROCONTROL consultation response.

[2] UkSATSE employees have been included in the DB scheme category in Figure 2.4 under the assumption that all of the employees are covered under this scheme.

Figure 2.4 adopts an employee perspective, which means that although there is only one ANSP providing DB (funded) only in Figure 2.3 (i.e. DFS), the % of employees reported in Figure 2.4 under the same category (i.e. 18%) covers more than 1 ANSP. This occurs because some ANSPs provide a combination of DB and DC schemes, and some of the employees at these ANSPs are eligible to join only one scheme.

12 ANSPs provided occupational DB schemes for employees and 23 ANSPs provided occupational DC schemes. 32.7% of employees across the 38 ANSPs are members of an occupational DB scheme (including UkSATSE[2]).

ANSPs that do not assume the liability of meeting the obligations related to the scheme such as Skyguide and LVNL are not analysed in Chapter 5, as they are only obliged to make contributions specified by a separate legal entity (e.g. Skycare and ABP, the Dutch national civil service pension fund). The pension costs incurred by these ANSPs are analysed in Chapter 6 which investigates costs arising from DC pensions, as the nature of the contributions made, and risk borne by the ANSP is closer to that arising from DC pension plans.

ANSPs that finance their occupational pensions on a PAYG basis, such as DCAC Cyprus and UkSATSE, are also excluded from parts of the analysis in Chapter 5 as it is not possible to evaluate the future retirement obligation or the funding status for ANSPs operating PAYG DB schemes as they only meet obligations on an "as needed" basis and do not make provision for these obligations. The introduction to Chapter 5 provides additional detail on this.

3. OVERVIEW OF ANSP STAFF PROFILES AND COSTS

3.1 Introduction

In 2016, total ANSPs pension costs amounted to 1 221 M€ at European level[3], representing an increase of +24.7% between 2010 and 2016. This rate of growth was much higher than the growth in staff costs (+5.0%) or total ANSP costs (+3.7%) during the same period, despite a slight reduction in the number of staff employed by the ANSPs, as can be seen in Table 3.1.

Contributions to the first and second pension pillars each accounted for approximately half of the total pension costs incurred in 2016, though contributions to the occupational schemes (+39.3% for DC and +38.6% for DB) grew significantly faster than contributions to the state pension (+13.2%) between 2010 and 2016. Of the second pillar, contributions to occupational DB schemes were approximately three times as large as contributions to occupational DC schemes. The drivers behind these trends are explored in further detail in Chapter 4.

Overview of the 38 ANSPs[4] ***Financial data in M€***	**2010**	**2016**	**% change**
Total ANSP costs	9 429	9 776	+3.7%
Staff costs	5 486	5 762	+5.0%
Pension costs[5]	979	1 221	+24.7%
1st pillar	*540*	*611*	*+13.2%*
Occupational DB	*319*	*442[6]*	*+38.6%*
Occupational DC	*121*	*168*	*+39.3%*
Number of employees[7]	64 507	63 014	-2.3%
Pension cost per staff member (€)	15 181	19 375	+27.6%

Table 3.1: Evolution of key metrics and costs across the 38 ANSPs between 2010 and 2016

Although the weighting between the first and second pillars were approximately the same in 2016, contributions to the second pillar, particularly to occupational DB schemes, were higher on a per member basis than contributions to the first pillar. An overview of the cost per member of the different schemes is shown in Table 3.2. The pension cost as proportion of total ANSP cost was 12.5% in 2016.

[3] All monetary amounts in the report are presented in real 2016 prices unless otherwise stated.

[4] As explained under section 1.2, the scope of activities examined in the study is different to that of the ATM Cost Effectiveness (ACE) benchmarking report. The values in the table above therefore differ from the information presented in the ACE 2010 and 2016 reports.

[5] In ANSP financial accounts these costs may be reported as staff cost or as financial cost. With the exception of a few ANSPs, these costs do not reflect the change in the net deficit (or net surplus) of the pension scheme which also comprises remeasurements due to changes in actuarial assumptions (see section 5.2).

[6] This value includes the pension cost recorded as financial cost by ENAV. Since ENAV does not currently offer a DB scheme to its employees, it has been excluded from further analysis in Section 5.

[7] Depending on ANSPs, it can be FTEs, average headcount over the year, or headcount at the end of the reporting period. The numbers used to calculate the total number of employees have not been modified to take the exact definition used by the ANSP into account. The methodology used by each ANSP is shown in Annex 1.

Pension cost per staff member in 2016	Number of staff	Cost per member (€)	% of total ANSP costs
All staff	63 014	19 375	12.5%
Under 1st pillar	*58 698*	*10 410*	*6.3%*
Under occupational DB	*16 241*[8]	*27 169*	*4.5%*
Under occupational DC	*20 880*	*8 048*	*1.7%*

Table 3.2: Number of staff and pensions cost per staff member at European level

Average employee and retirement age	2016
Average employee age	44.2
% of staff aged over 40	65.4%
% of staff aged over 60	7.3%
Retirement age: ATCOs	61.6
Retirement age: Other staff	64.4

Table 3.3: Average employee age and retirement age at European level in 2016

Table 3.3 shows that in 2016, at European level, the average age of employees at the ANSPs was just over 44, and 7.3% of the work force was aged over 60. The average retirement age for ATCOs (61.6) was three years less than that for other staff (64.4). These values are explored in more detail in the following sections of this chapter.

ANSPs with the highest average employee age in 2016 were HCAA (51.0), NAV Portugal (48.0), ENAIRE (47.7) and LFV (47.0). On the other hand, those with the lowest average employee age were DHMI (40.7), EANS (40.9), Albcontrol (42.5) and Skyguide (42.5). Half of the ANSPs had an average age between 43.2 and 45.8. Information at ANSP level is shown in Figure 3.6.

3.2 Age profile

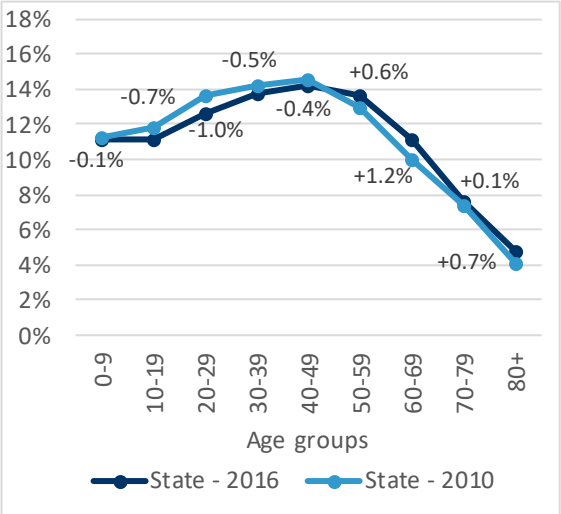


Figure 3.1: Age profile at State level in 2010 and 2016

Note: The labels in Figure 3.1 show the difference in percentage points between the proportion of individuals in each age group in 2016 compared to 2010

The age distribution of the population in 2016 in the home States of the 38 ANSPs that were studied is shown in Figure 3.1. The age distribution of the employees of the 38 ANSPs is shown in Figure 3.2. The age profile in Figure 3.1 shows the overall ageing of population between 2010 and 2016. This indicator is relevant when looking at first pillar state pension contributions, which are in most cases financed on a PAYG basis. Since current contributions serve to pay current benefits of pensioners, the ageing of the population might require some States to increase pension contributions, increase the retirement age or reduce benefits.

The overall ageing of population is particularly seen in a lower proportion of the population falling in the 10 to 30 years categories and a higher proportion in the 50 to 70 years categories.

[8] UkSATSE staff has not been included in the analysis as no DB cost information has been provided. Adding UkSATSE's employees would therefore dilute the cost per employee.

All of the categories below 50 years of age recorded a decrease between 2010 and 2016, while all the categories above 50 years of age recorded an increase. The 60-69 years category recorded the greatest percentage point increase of 1.2 percentage points and the 20-29 years category recorded the greatest percentage point decrease of 1.0 percentage points.

Overall, the proportion of population older than 60 years exceeded 25% in 16 out of 37[9] countries (for the purpose of this analysis Serbia has been used as the home country for SMATSA[10]). Italy features the highest portion of over 60s with 29.0% of the population falling into this category. The shift in the age profile between 2010 and 2016 was driven by ageing populations in central and eastern Europe, with the 9 largest increases observed in countries in this region.

Figure 3.2[11] below shows the age distribution of the employees at ANSP level in 2016. This indicator is relevant when looking at ANSP occupational schemes, especially with underfunded DB schemes since the measures taken to resorb the deficit will concentrate on a smaller staff base.

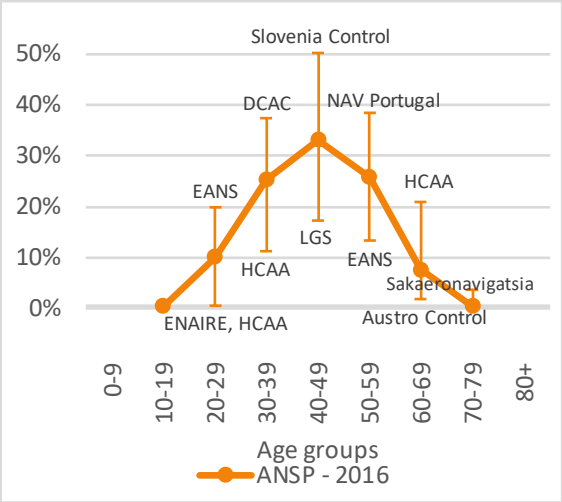


Figure 3.2: Age profile across the ANSPs in 2016, showing the mean, minimum and maximum values

The distribution between the ANSPs is very broad and the age profiles vary significantly between the ANSPs. The large variances between the minimum, mean and maximum values, with ranges exceeding 25% in four out of nine of the age categories, shows the very different age structures in the employee base across the set of 38 ANSPs.

HCAA and Sakaeronavigatsia are the ANSPs with the highest proportion of employees older than 60 years, with 20.6% and 15.7% respectively. HCAA, together with ENAIRE, also did not have any employees younger than 30 years.

At the other end of the spectrum, there are ANSPs which have a high proportion of young personnel in their workforce.

The proportion of employees in the 20-29 years bracket exceeds 15% for DFS, DHMI, EANS, LGS and Sakaeronavigatsia.

[9] MUAC is not included in Figure 3.1 as they operate in areas within countries with another ANSPs.

[10] 100 SMATSA employees out of 909 are based in Montenegro and receive pension benefits from Montenegro, with the other 809 employees based in Serbia. Therefore, Serbia is used as the "home State" for SMATSA for the purpose of this analysis.

[11] Data for MUAC has been taken from 2015 as a proxy for 2016.

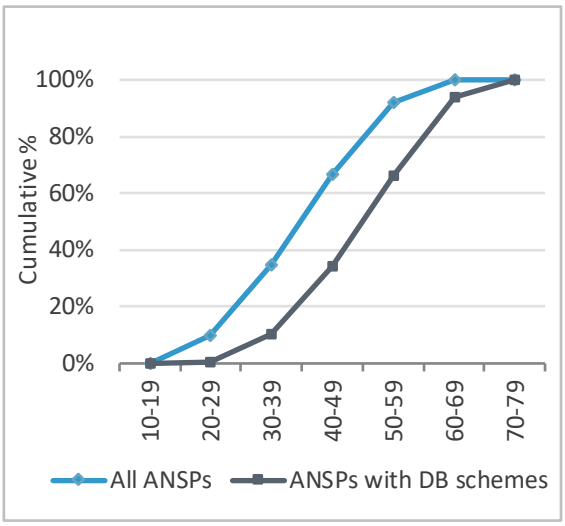


Figure 3.3: Cumulative age profile for ANSPs offering DB schemes compared to all ANSPs

Figure 3.3 shows the difference between the average cumulative age profiles between ANSPs that offer DB schemes compared to the full set of 38 ANSPs as presented in Figure 3.2. There is a clear skew towards an older workforce on average at ANSPs that offer DB schemes, with fewer employees under 40 and more employees in the 40 to 60 age group. In addition, new joiners are more likely to receive DC benefits from ANSPs that offer the scheme. This is likely to have implications both in terms of the remaining time that ANSPs have to ensure the pool of assets in the pension plans is sufficient to meet retirement obligations, as well as their ability to replace employees that will retire over the next 20 years.

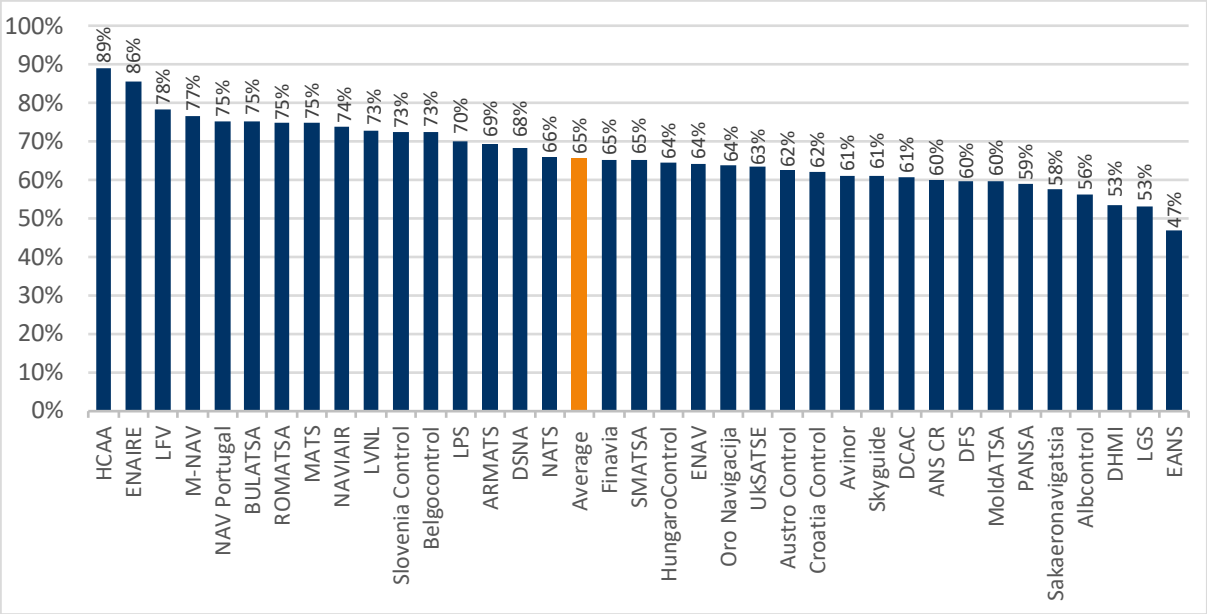


Figure 3.4: Proportion of ANSP employees aged over 40 in 2016

On average, 65.4% of employees across the ANSPs were aged over 40 in 2016. As shown in Figure 3.4 this proportion can be much higher for some ANSPs, with over 75% of the employee base at six ANSPs (HCAA, ENAIRE, LFV, M-NAV, NAV Portugal and BULATSA) being older than 40. HCAA had the highest proportion of employees aged over 40 at 89.2%. In contrast, less than half (46.8%) of EANS' staff base was aged over 40. It is the only ANSP which did not exceed the 50% point.

3.3 Retirement age

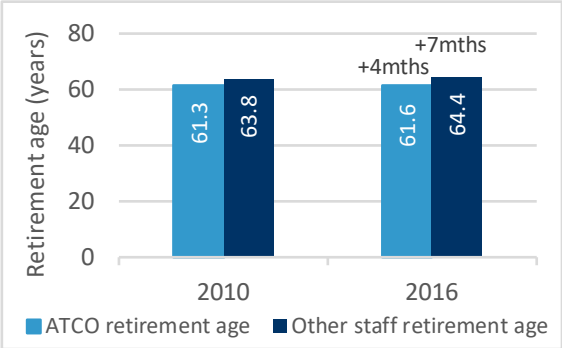


Figure 3.5: Average retirement age for ATCOs and other staff across the 38 ANSPs in 2016

In 2016, ATCOs were on average able to retire three years earlier than other staff, (61.6 vs. 64.4).

Between 2010 and 2016 the retirement age increased for both categories of staff (+3.6 months for ATCOs and +7.0 months for other staff).

Figure 3.6 below compares the retirement age of ATCOs and other staff to the average employee age at each ANSP[12].

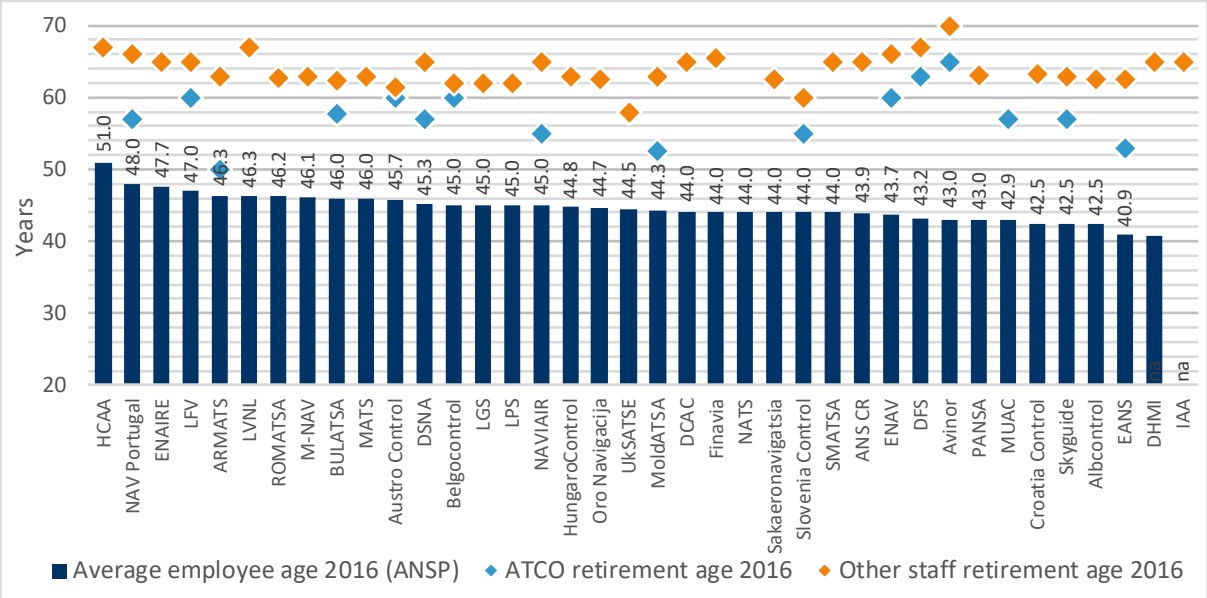


Figure 3.6: Average age of ANSP employees compared to the ATCO and other staff retirement age

A narrow gap between the average employee age and the retirement age suggests that ANSPs will have to meet a large share of their retirement obligations in the coming 10 to 20 years and could also suggest future issues with staff shortages.

As can be seen in Figure 3.6, there is a narrow gap between the two metrics at ARMATS, MoldATSA, NAV Portugal and NAVIAIR. All of those ANSPs have low ATCO retirement ages compared to the other ANSPs and the age gap between the average employee age and ATCO retirement age is 10 years or less[13].

IAA did not provide the average age of the employees and therefore their situation could not be analysed.

[12] The ATCO and other staff retirement age data is not available for NATS as there is no compulsory retirement age enforced in the UK and no additional information has been provided by NATS.

[13] The retirement age for the purpose of this analysis is the legal retirement age as documented by ANSPs in their ACE data submissions or consultation responses.

The ANSPs which offer the lowest retirement ages for ATCOs are ARMATS, MoldATSA and EANS, with 50, 52.5 and 53 years of age required to retire respectively. Non-ATCO staff can retire the earliest at UkSATSE (58 years) and at Slovenia Control (60 years – but only possible under certain conditions, see Slovenia Control fact sheet).

Currently Avinor has the highest retirement age for non-ATCO staff (70 years). It is closely followed by DFS, HCAA and LVNL, all of which have a retirement age of 67 years. Increasing the retirement age is one factor that can help reduce the risk associated with pension obligations. Figure 3.7 shows the retirement age of ATCOs in 2010 and 2016 and Figure 3.8 shows the same information for non-ATCO staff, shown as "other staff". Only those ANSPs that introduced a change to the retirement ages between 2010 and 2016 are included in those figures. The average values (orange bars and green dots) are the average retirement ages over the 38 ANSPs.

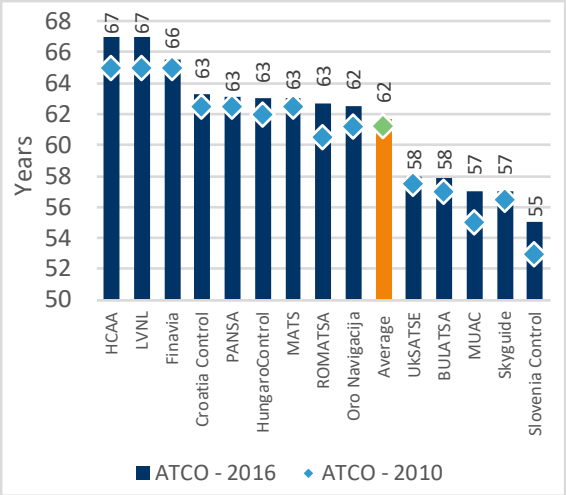


Figure 3.7: Changes in ATCO retirement age between 2010 and 2016

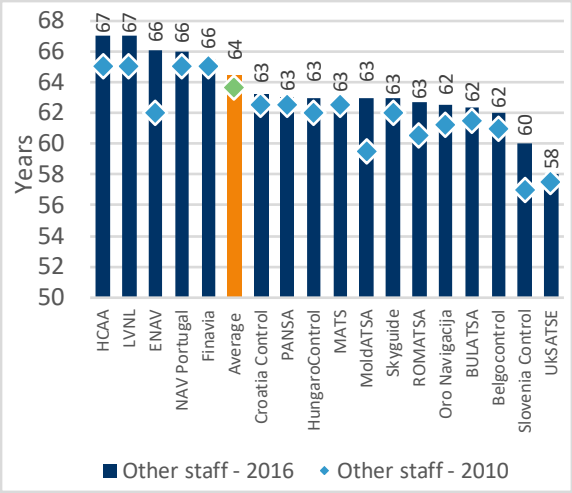


Figure 3.8: Changes in retirement age for other staff between 2010 and 2016

The largest increase in retirement age for ATCOs was observed at ROMATSA (+2.2 years), Slovenia Control, HCAA, MUAC and LVNL (+2 years for all four). The largest increases in the retirement age for other staff were seen at ENAV (+4.1 years), MoldATSA (+3.5 years), Slovenia Control (+3 years), ROMATSA (+2.2 years), HCAA and LVNL (+2 years for both).

3.4 Early retirement schemes

ANSP	Available to ATCOs	Available to other staff	ERS defined by the State/ ANSP
ARMATS	✓*	×	ANSP
Austro Control	✓	×	ANSP
Avinor	✓*	×	ANSP
Belgocontrol	✓*	×	ANSP
Croatia Control	✓	×	ANSP
DFS	✓	✓	ANSP
DHMI	✓	✓	State
DSNA	✓	✓	ANSP
ENAIRE	✓	✓	State
ENAV	✓	×	ANSP
Finavia	✓	✓	ANSP
HCAA	✓	✓	State
HungaroControl	✓	×	ANSP
LPS	✓*	×	ANSP
LVNL	✓	✓	ANSP
M-NAV	✓*	×	ANSP
MUAC	✓	×	ANSP
NATS	✓	✓	ANSP
NAV Portugal	✓	×	ANSP
NAVIAIR	✓	✓	ANSP/State
PANSA	✓	✓	State
ROMATSA	✓	✓	State
Skyguide	✓	✓	ANSP
Slovenia Control	✓	×	ANSP
SMATSA	✓	×	ANSP
UkSATSE	✓	✓	ANSP

Table 3.4: Early retirement scheme options offered by the ANSPs

✓* Although no formal early retirement scheme is in place, ATCOs can retire early receiving part of their salary or leave OPS.

Early retirement schemes offer employees an opportunity to retire and draw down benefits from their occupational pension before retirement age. Of the 38 ANSPs, 26 offer early retirement for employees in the form of an early retirement scheme or through collective or individual agreements to retire earlier than the specified retirement age.

The early retirement benefits are on many occasions available to selected groups only, often related to professions such as ATCOs. Out of the 26 ANSPs which offer early retirement for employees, 13 of them offer the early retirement to ATCOs only with early retirement occurring in general a few years before the normal retirement age (see Annex 2 for details).

For some ANSPs, the reduction in the number of working years that is provided by the early retirement scheme can be dependent on the number of years in operations, the employee's gender and/or the number of years an employee has been contributing to the pension scheme. In addition, early retirement is provided by national legislation for either civil servants or for all employees in certain countries; six ANSPs (DHMI, ENAIRE, HCAA, NAVIAIR, PANSA and ROMATSA) fall under this category where the early retirement arrangements are mandated by the State. NAVIAIR operates a mix of initiatives with the ANSP providing initiatives for ATCOs in addition to the State agreements such as "Senior agreements" and "reduced time" schemes for all staff.

Summary of key messages on ANSP staff profiles and costs:

- At European level, pension costs rose by +24.7% between 2010 and 2016, notwithstanding a decrease in staff numbers. This increase is also much higher than the increase in total ANSP costs (+3.7%).
- Pension costs rose for all types of pension schemes: first pillar schemes (+13.2%), DB schemes (+38.6%) and DC schemes (+39.3%).
- Average contributions per employee in 2016 vary considerably by type of pension scheme: first pillar 10 410 €; defined benefit: 27 169 € and defined contribution 8 048€.
- At European level, 65.4% of ANSP employees were aged over 40 in 2016. The average age was 44.2, ranging from 40.7 years (DHMI) to 51.0 years (HCAA).
- The average retirement age for ATCOs (61.6 years) is nearly three years lower than that for other staff (64.4 years).
- There is a skew towards an older workforce on average at ANSPs that offer DB schemes, with fewer employees under 40 and more employees in the 40 to 60 age group.
- 26 out of 38 ANSPS offer early retirement schemes. Out of the 26, 13 offer this to ATCOs only.

4. PENSION COSTS

4.1 Introduction

This chapter presents the total pension costs incurred by the 38 ANSPs in 2016, the evolution of the costs between 2010 and 2016, and an analysis of the key drivers of the evolution in costs. All costs in this chapter are presented in real terms with 2016 as the price base, and in Euros.

Total pension costs evaluated in this study include all pension-related expenses incurred by the ANSPs (as explained in Section 1.2, employee pension contributions are not included in the analysis below). The total pension costs include costs related to:

- **First pillar pension costs**: The portion of social security contributions paid to the State that is directed to the public pension scheme; and
- **Second pillar pension costs**: Pension costs incurred through the provision of an occupational defined benefit, defined contribution, or hybrid pension schemes.

Total pension costs include all pension costs incurred by ANSPs, regardless of whether they have been reported as staff or financial costs which can be the case for the DB schemes (this is discussed further in Chapter 5). The Fact Sheets in Part II of the report provide additional information on the reporting methodology applied by each ANSP in the allocation of pension costs to staff or financial costs.

The pension costs will be evaluated in absolute and proportional terms when compared to the costs as a portion of total costs incurred by the ANSP; the pension cost will also be evaluated on a per employee basis. The analysis will also consider the individual components of the pension costs in terms of first and second pillar schemes. The analysis of the second pillar pension costs will also explore the relative cost implications between defined benefit and defined contribution schemes.

4.2 Total pension costs

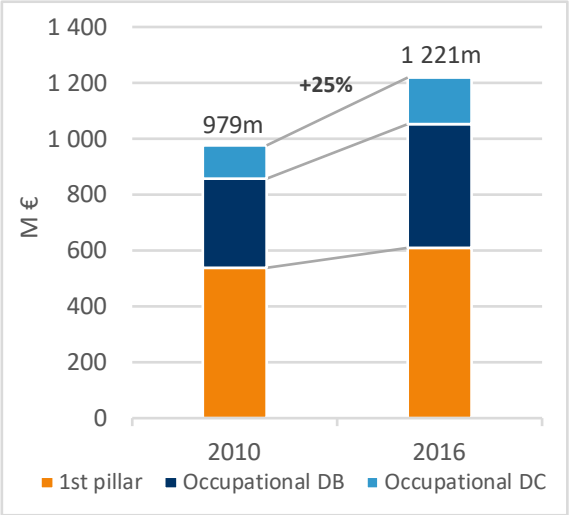


Figure 4.1: Total pension cost across the 38 ANSPs in 2010 and 2016

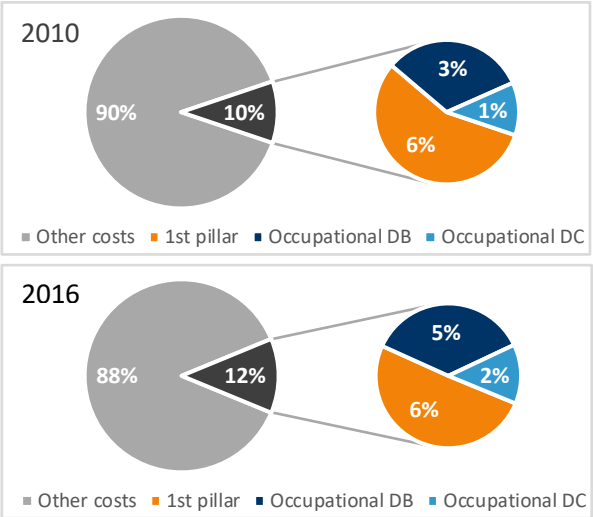


Figure 4.2: Share of pension scheme types in total ANSP costs in 2010 and 2016

Total first and second pillar pension costs of 1 221 M€ were incurred by the 38 ANSPs in 2016. As shown in Figure 4.1, this represents an increase of +24.7% between 2010 and 2016 (CAGR of +3.7%), which is much higher than the increase in total ANSP costs. As a result, the share of pensions in total ANSP costs increased from 10.4% in 2010 to 12.5% in 2016 as shown in Figure 4.2.

Figure 4.3 shows the proportion of the pension cost attributed to 1st pillar (state) pension benefits and occupational pension plans at individual ANSP level[14]. The ANSPs on the left-hand side of the graph contribute to the state pension only. This means that the risk borne by the ANSPs is small as the state pension is a responsibility of the government. However, there is still the risk that the State decides to increase future employer contributions to the 1st pillar if the state pension system has insufficient funds. As the proportion of total pension cost relating to the State pension contributions becomes smaller, the financial risk shifts to the ANSPs: ANSPs providing an occupational DB scheme take on the financial risk associated with funding those schemes. For ANSPs providing occupational DC schemes, their responsibility is generally limited to paying the defined contributions to the scheme.

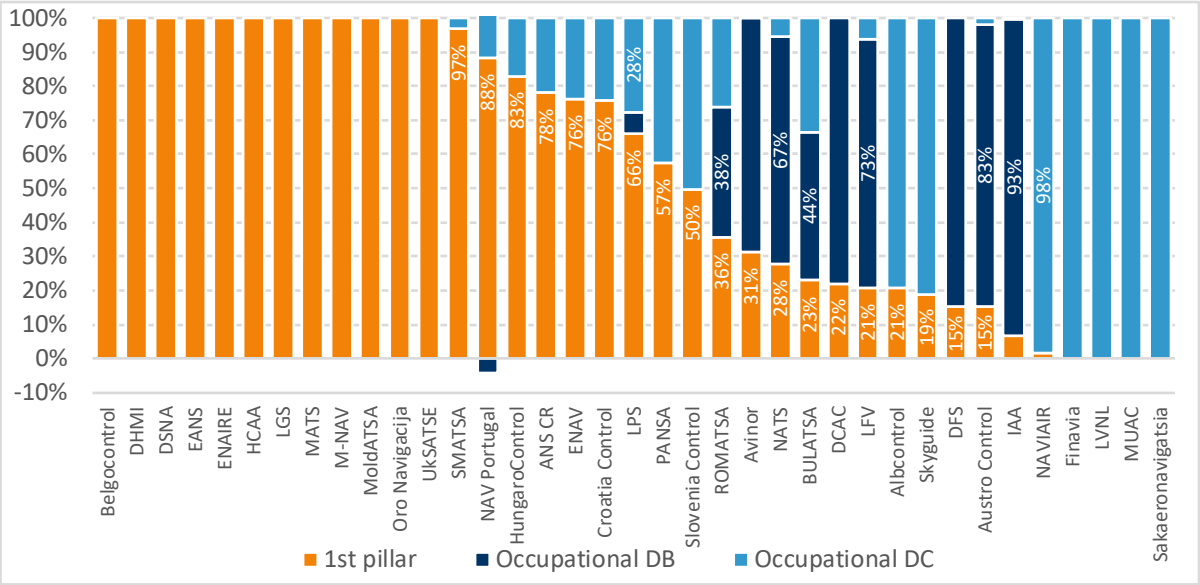


Figure 4.3: Cost of the state pension, defined benefit schemes and defined contribution schemes as a proportion of total pension cost on an individual ANSP level

However, there are several ways in which the risk has been confined. Currently only 5 ANSPs offer DB schemes which account for over 70% of their total pension expense. Of these five, Austro Control and LFV offer DB benefits only to employees who were born or joined before a set date, with other employees receiving DC benefits, and IAA introduced a hybrid section to their plan for new hires from 2012 which will help to limit the financial risks on these ANSPs for future benefit accrual. Across the remaining ANSPs occupational schemes for new joiners are generally DC, but where these have replaced a DB scheme it takes time for the transition from DB to DC to take place.

Occupational DC schemes showed the fastest rate of growth with cost growing with a Compound Annual Growth Rate (CAGR) of +5.7%. This growth was due to both an increase in the number of ANSPs operating DC schemes to complement or replace occupational DB schemes over this time period, as well as increasing costs of existing DC schemes (see Chapter 6 for more information). Although costs related to occupational DC schemes grew by a slower pace compared to the occupational DB schemes, they still grew faster than contributions to state pensions. This is likely to be caused by the impact of accounting standards IAS19 changes, and changes to the assumptions used in assessing the IAS19 liability, linked to low interest rates over the period; in particular the lower discount rates in 2016

[14] The defined benefit cost for NAV Portugal includes 6.4 M€ related to the two defined benefit schemes, and a negative cost of -7.0 M€ as a result of provision releases relating from the early retirement scheme. Hence a negative proportion of total pension cost is shown in the Figure.

compared to 2010, will have increased the DB pension costs calculated under IAS19. Chapter 5 covers this in more detail.

Pension costs for the 10 ANSPs with the highest pension costs in 2016 are shown in Figure 4.4. The largest proportional increase, by ANSP, in pension cost between 2010 and 2016 are shown in Figure 4.5. The values for all 38 ANSPs can be found in Annex 3.

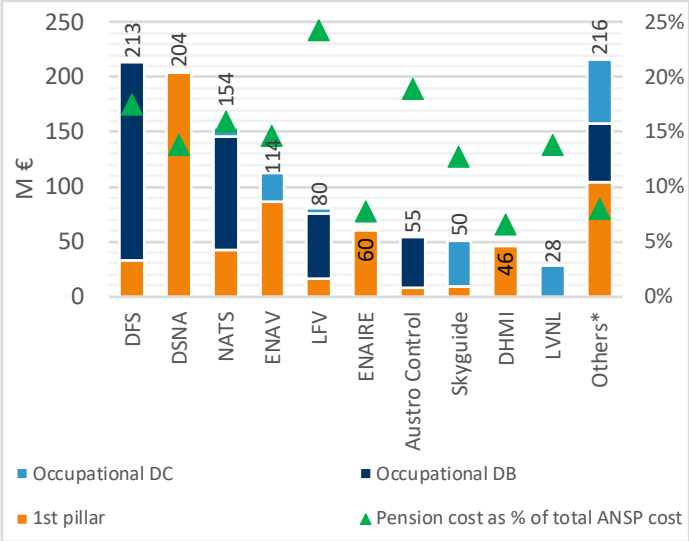


Figure 4.4: 10 ANSPs with the highest pension costs in 2016

*Note: "Others" include the total pension cost for the other 28 ANSPs.

Pension costs in excess of 100 M€ were incurred by four out of the five largest ANSPs in terms of costs, representing over 50% of the 38 ANSPs' aggregated pension costs. Notably, pension costs at DFS increased from 102.7 M€ in 2010 (including a one-off past service cost of 11.1 M€) to 213.3 M€ in 2016. This was driven principally by an increase in the current service cost of the occupational DB plans from 56.4 M€ in 2010 to 144.4 M€ in 2016. A large part of this increase will be due to the reduction in discount rates (from 5.5% in 2010 to 2.4% in 2016) reflecting the reduction in corporate bond yields.

While details of the sensitivity of the service cost to this assumption for the DFS plans is not available, reducing the discount rate from 5.5% to 2.4% could have the effect of doubling the current service cost. The remaining difference will be due to a combination of changes in the employee profile, changes to the benefits being accrued, as well as changes in other actuarial assumptions over the period. The IAS19 reporting changes (effective 2012) contributed to the pension cost increase to a lesser extent, as did an increase in the social security pension cost (which was 33.4 M€ in 2016 compared to 32.1 M€ in 2010). The reduction in corporate bond yields in the Eurozone, the UK and Scandinavia, and the consequential reduction in the discount rates increased DB costs for other ANSPs as well.

Although employees at Skyguide receive DB pension benefits through a separate entity called Skycare, the ANSP is only responsible for making contributions to the pension scheme and does not assume liability for any shortfall. As such, Skyguide's pension scheme has been classified as an occupational DC scheme under Swiss GAAP and for the purposes of this report.

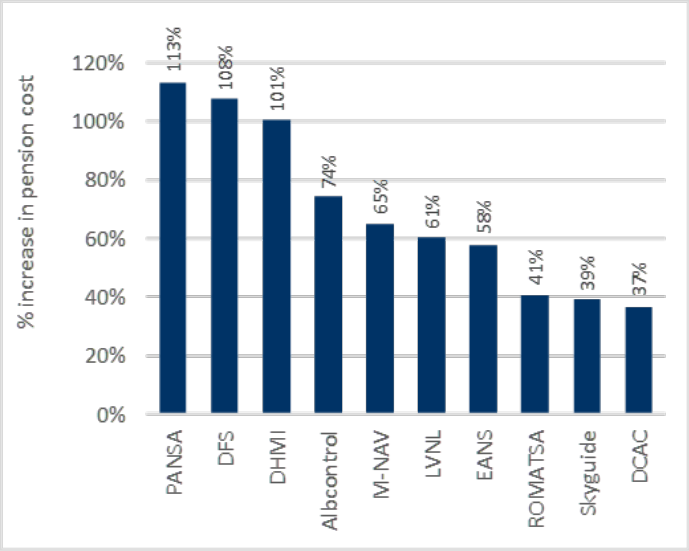


Figure 4.5: 10 ANSPs with the largest proportional increase in pension costs between 2010 and 2016

Only PANSA incurred relative pension growth rates higher than that incurred by DFS between 2010 and 2016. Increases at PANSA were driven by some growth in their staff numbers base but the main driver was an exceptional lowering of the contribution rate to the DC scheme (normal rate of 7% exceptionally reduced to 1% in 2010). The same cost drivers lead to significant pension cost raises at DHMI and Albcontrol which both recorded an increase of over 70%. Cost growth at M-NAV, which closes the top five of the ANSPs experiencing pension cost increases, was not staff related as there was no growth in its employee base between the two years.

Potential drivers of the cost growth could be factors related to its occupational DC scheme such as the contribution rate or the participation rate (active membership of scheme as a proportion of total employees).

Whereas most ANSPs incurred higher total pension costs in 2016 compared to 2010 in real terms, 10 ANSPs reduced total pension costs during this period. The most notable reduction was observed at NAV Portugal (reduction of 21 M€). Figure 4.6 shows, on the x-axis, the absolute change in pension costs between 2010 and 2016, and, on the y-axis, the change (in percentage points) in the share of pension within total ANSP costs.

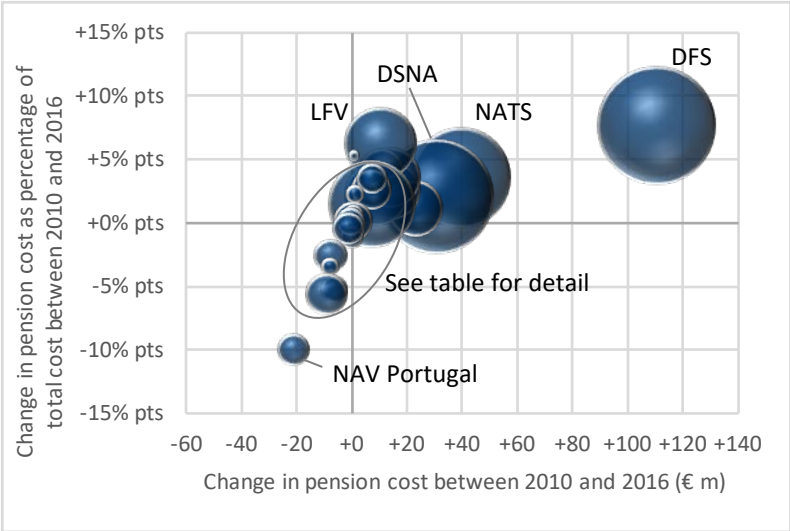


Figure 4.6: Change in absolute (M€) and relative (portion of total cost base, %pts) pension costs between 2010 and 2016

ANSP	%
ARMATS	-100%
UkSATSE	-65%
NAV Portugal	-58%
HungaroControl	-39%
Belgocontrol	-33%
IAA	-26%
Finavia	-8%
MoldATSA	-7%
MUAC	-4%
NAVIAIR	-4%

Table 4.1: ANSPs that reduced their pension costs between 2010 and 2016

*Note: The size of the bubble represents the magnitude of pension costs in 2016 in M€.

For the majority of ANSPs, the share of pension costs in their total costs have not changed by more than ± 10 pp. However, four ANSPs reduced their pension costs by more than a third between 2010 and 2016. Key drivers of the reductions observed in Table 4.1 are discussed in the following paragraphs:

- ARMATS shows a -100.0% reduction in their pension cost between 2010 and 2016 as the ANSP made contributions to the state pension in 2010 but did not make any contributions to it in 2016. The occupational DC scheme offered by ARMATS is now funded by employee contributions only, so the total pension cost for ARMATS in 2016 was zero.
- UkSATSE reduced their pension costs by nearly two-thirds. However, this change has been driven by a -28.4% reduction in the number of employees as UkSATSE had to adapt to the sharp decreases in traffic experienced since 2013.
- NAV Portugal recorded a significant reduction in pension costs between 2010 and 2016, which occurred predominantly due to the release of provisions related to the ERS scheme in 2016. This was due to a change in the contract to increase the age limit for ATCOs switching to non-operations duties from 65 to 66, and the appointment of some ATCOs to advisory positions which eliminated their early retirement entitlement. Underlying costs related to the DB scheme also reduced by 8.8 M€, primarily due to a reduction in net interest costs. It is also noteworthy that new national GAAP were applied for the first time in 2016, which further complicates the comparison with 2010.
- The reduction in the pension cost experienced by HungaroControl can be explained by changes to their occupational pension offer. Until 2013, the ANSP used to offer a DB scheme. In 2013 HungaroControl transitioned their pension scheme from DB to DC. The cost incurred by the ANSP in 2016 was therefore limited to contributions made to the DC scheme.

Average pension cost per employee

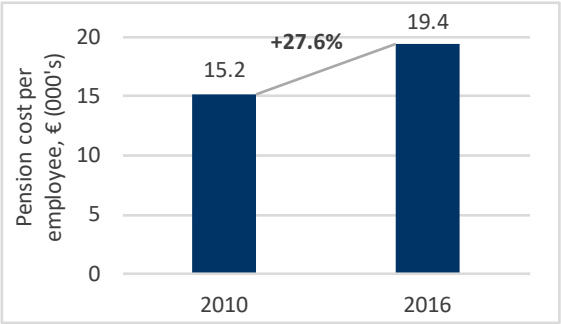


Figure 4.7: Pension cost per employee across 38 ANSPs in 2010 and 2016

Pension cost per employee was 19 375 € in 2016, representing growth by 27.6% (CAGR of +4.1%) between 2010 and 2016. This increase results from the combination of: an increase in total pension costs (+24.7%) and a decrease in the number of staff (-2.3%). In comparison, the total ANSP cost across the 38 ANSPs was 9 776 M€ in 2016, representing growth of +3.7% between 2010 and 2016. The pension cost per employee for each of the ANSPs is shown in Figure 4.8[15].

[15] The same staff numbers as presented in Chapter 5 have been used to calculate costs per FTE, i.e. no adjustments have been made to account for variations in the definitions used by ANSPs to report the number of employees working for the ANSP.

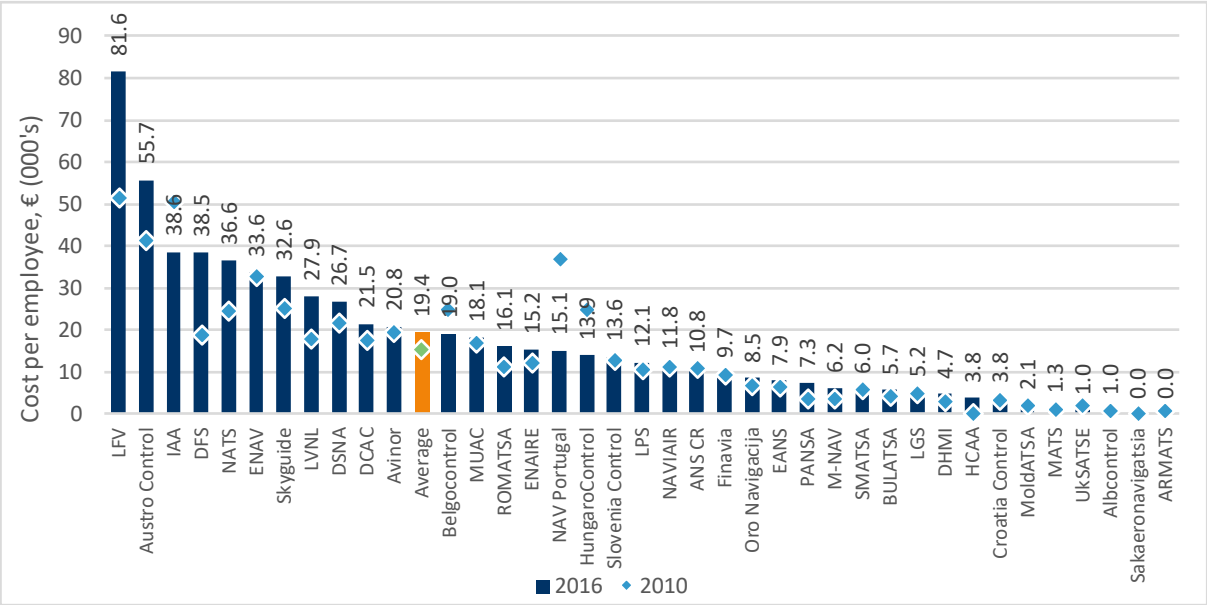


Figure 4.8: Pension cost per employee in 2010 and 2016, in €'000

The pension cost per staff member varies significantly between the 38 ANSPs. This can be due to a number of reasons. For example, LFV reports the remeasurements of its DB obligation following changes in actuarial assumptions as staff costs, while this is generally not the case for other ANSPs[16]. The impact of the reduction in discount rate on the service cost of the DB schemes of ANSPs in the Eurozone, the UK and Scandinavia has also been discussed above. Members of the pension schemes of all ANSPs with an above average pension cost per staff member in Figure 4.8 (with the exception of ENAV) receive some form of defined benefit at retirement. The arrangements for each of these ANSPs is shown in Table 4.2.

ANSPs	Type of scheme providing defined benefits
LFV, Austro Control, IAA, DFS, NATS and Avinor	Occupational DB scheme (funded), hybrid scheme for IAA.
ENAV	Occupational DB scheme (TFR) provided defined benefits until 2006, at which point the scheme was changed to a DC scheme. Benefits accrued will continue to be paid but all benefits accruing from 2007 have been on a DC basis.
LVNL	DB scheme managed by State (ABP)
Skyguide	DB scheme provided by third party (Skycare)
DSNA	First pillar and additional points-based scheme provided by the State
DCAC Cyprus	Occupational DB scheme (pay-as-you-go)

Table 4.2: Benefits received by members of pension schemes of ANSPs with above-average pension cost per employee in 2016

The employment costs have also been evaluated using Purchasing Power Parity (PPP). The index accounts for the differences in the cost of living and differences in the market wage rates in the economies of different countries in general. The PPP method is a useful tool used for international

[16] See Table 5.5 for a list of ANSPs that also report remeasurements as part of staff costs.

benchmarking, but there are several limitations which should be taken into account when interpreting the results. For example, the cost of living in particular regions of a country might be significantly higher than in different areas of the same country.

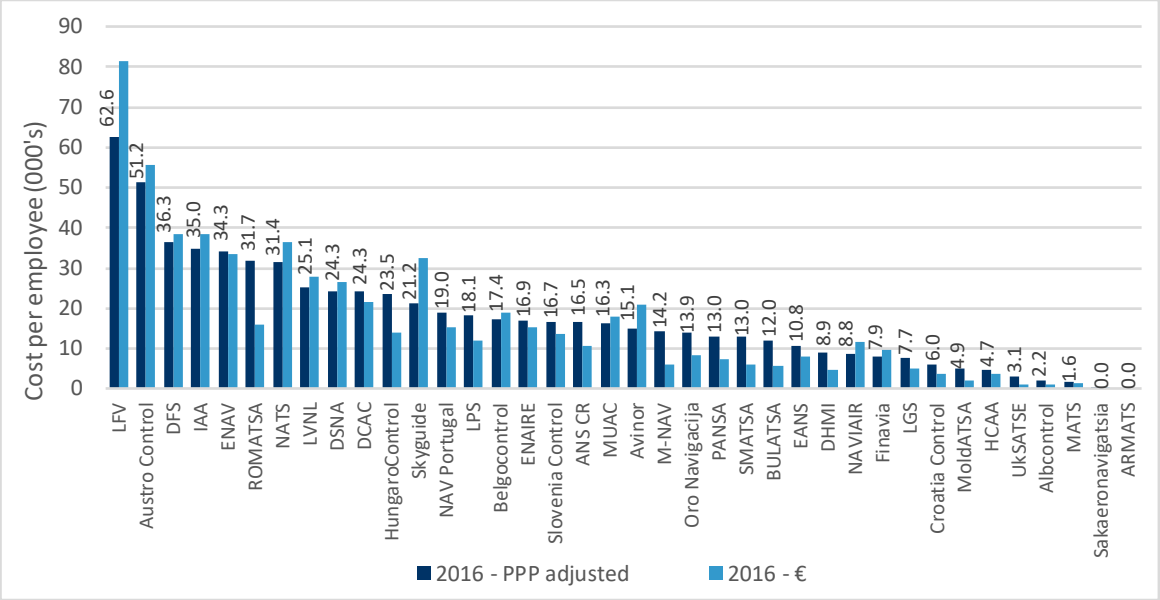


Figure 4.9: Pension cost per employee in 2010 and 2016 in € (Real 2016) and adjusted using PPP

Figure 4.9 shows that the ANSPs that incurred significantly higher pension costs per employee when using the PPP approach were ROMATSA, HungaroControl, LPS and M-NAV. On the opposite end of the scale, Avinor, LFV and Skyguide and incurred significantly lower pension costs per employee using the PPP approach.

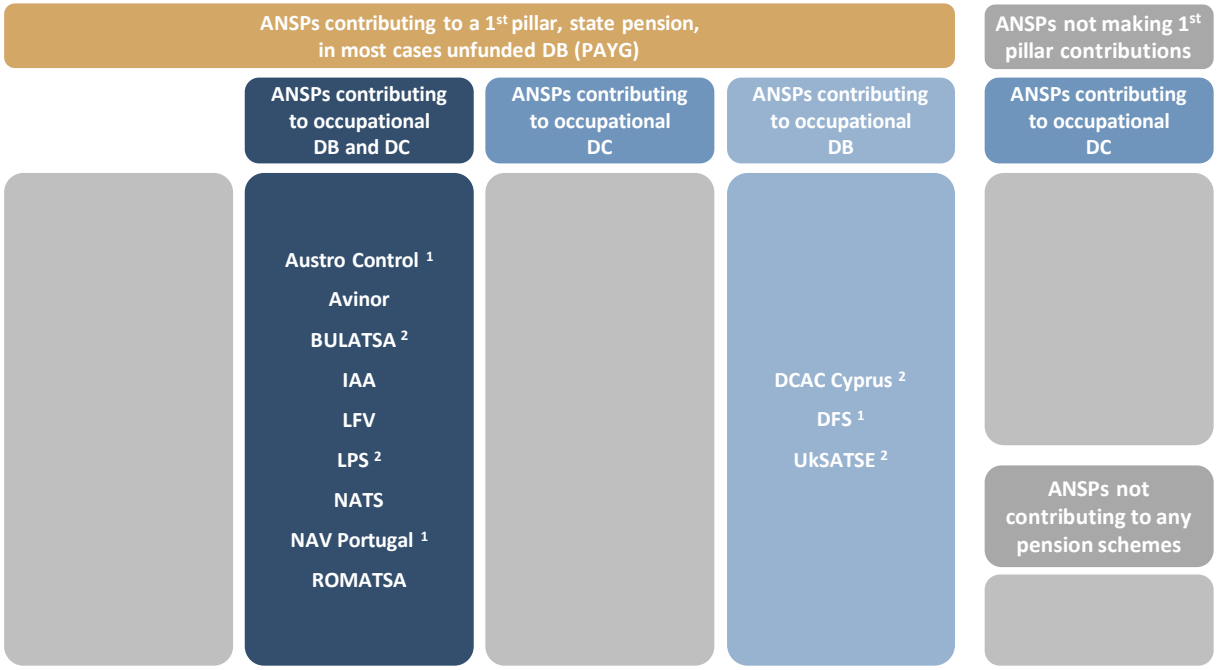
Summary of key messages on Pension Costs:

- Total pension costs of 1 221 M€ were incurred by the 38 ANSPs in 2016. This represented 12.5% of their total cost.
- Average pensions costs per employee have increased by +27.6% in real terms between 2010 and 2016.
- Nearly all the ANSPs with the highest total pension costs, or highest cost per employee, have either DB or first pillar schemes (with guaranteed levels of benefits).
- 26 out of 38 ANSPs have occupational pension schemes.
- 12 ANSPs were classified as contributing to occupational DB schemes and 23 ANSPs to occupational DC schemes. 32.7% of employees across the 38 ANSPs were members of schemes classified as DB schemes.

5. OCCUPATIONAL DEFINED BENEFIT (DB) SCHEMES

5.1 Introduction

12 out of the 38 ANSPs contributed to an occupational DB scheme to employees (excluding Finavia, LVNL, MUAC, NAVIAIR and Skyguide, which do not assume any liability for meeting the future obligations as shown in Table 5.3). Of these, three offer only DB schemes, whereas DB schemes at nine ANSPs are complemented by DC schemes as well. The ANSPs in scope in this chapter can be summarised in Figure 5.1 below. ENAV[17] and MATS[18] have not been considered in this section as although they have legacy DB obligations they are not actively contributing to a DB scheme.



Notes:
1 DB obligation includes provisions made to finance early retirement commitments.
2 Occupational DB obligation is financed on a PAYG basis.

Figure 5.1: ANSPs contributing to occupational DB schemes

This chapter explores two implications of occupational DB schemes: the annual cost related to the scheme, and the future liability borne by the sponsor of the scheme (i.e. the ANSP).

- The first section assesses the cost incurred by ANSPs resulting from occupational DB schemes in 2016, and the change in costs since 2010, before breaking the 2016 cost into its component parts to identify the key drivers.

[17] The ENAV defined benefit scheme ("TFR") was transitioned from a DB to a DC scheme in January 2007. The legacy obligations related to the TFR prior to 2007 remain and the interest expense (see below for definition) related to these obligations is charged to the Income Statement as incurred. Interest expense was 0.5 M€ in 2016.

[18] There is an unfunded defined benefit scheme at MATS, but only for employees that joined the public service before 1979 and were subsequently transferred to the company.

- The second section assesses the future liability borne by the ANSPs through an analysis of the net Defined Benefit Obligation (DBO) in 2016, its evolution since 2010 and the sensitivity of the DBO to the change in the underlying actuarial assumptions.

Note that the second section of this chapter focuses on funded occupational DB schemes, i.e. schemes where ANSPs make contributions, which are invested in plan assets to meet future retirement obligations. Through a comparison of the present value of the estimated future obligations and the current value of the plan assets used to meet these obligations, it is possible to identify any shortfalls in the funding of the pension plans.

The chapter concludes through the presentation of some measures that ANSPs have taken to mitigate the risks related to occupational funded DB schemes.

Table 5.1 below indicates the available information in 2016, for each ANSP offering an occupational DB scheme. Information is noted as available for the actuarial assumptions and sensitivity of the DBO to changes in assumptions where one or more of the assumptions of sensitivities are available.

ANSP	Pension cost	DBO 2010	DBO 2016	Plan Assets	Actuarial assumptions	Sensitivity of DBO to changes in assumptions
Austro Control	✓	✓	✓	✓	✓	✓
Avinor	✓	×	✓	✓	✓	✓
BULATSA	✓	✓	✓	×	✓	✓
DCAC Cyprus	✓	×	×	×	×	×
DFS	✓	✓	✓	✓	✓	✓
IAA	✓	✓	✓	✓	✓	✓
LFV	✓	✓	✓	✓[19]	✓	✓
LPS	✓	✓	✓	×	✓	✓
NATS	✓	✓	✓	✓	✓	✓
NAV Portugal	✓	✓	✓	✓	✓	×
ROMATSA	✓	✓	✓	×	✓	×
UkSATSE	×	×	×	×	×	×

Table 5.1 Summary of information for each ANSP that offer an occupational DB scheme

ANSP
BULATSA
DCAC Cyprus
LPS
UkSATSE

Table 5.2: ANSPs financing their occupational DB scheme on a PAYG basis

An alternative approach to funding the retirement obligations is to fund them on a PAYG basis, where benefits are paid as needed from the ANSPs corporate funds. It is not possible to evaluate these schemes in a similar manner, since the sponsor does not estimate the future obligation or ring-fence assets for the purpose of meeting these obligations. Information related to these schemes are included where possible (e.g. number of members), though the majority of information analysed

[19] The full value of the cash and bank balances from LFV's annual accounts has been used as a proxy for plan assets. As LFV have a large cash balance and the primary purpose of this cash balance is to pay for future pension obligations, the scheme is closer to a funded scheme than a pay-as-you-go one in nature.

for the funded schemes does not exist by nature for the PAYG ones.

Five ANSPs out of 38 contribute to funded occupational DB schemes, but do not assume any liability for meeting the future obligations (see Table 5.3 below). The pension plans are often run by a legally separate pension fund, and the only obligation falling on the ANSP is to make contributions to the scheme as specified by the fund manager. As a result, these schemes are closer to defined contribution schemes when assessing the risk to the ANSP and are therefore evaluated in Chapter 6 (Occupational defined contribution schemes). Additional information on these ANSPs is shown in Table 5.3.

ANSP	Party liable for occupational DB obligations	
Finavia	Ilmarinen	Pension insurance company
LVNL	Pensioenfonds ABP	Pension fund for government and education employees in the Netherlands
MUAC	EUROCONTROL	Parent company
NAVIAIR	Danish State	Occupational DB plan was transferred to the State; NAVIAIR still manages its occupational DC plan
Skyguide	Skycare	Legally separate entity responsible for managing Skyguide's pension fund

Table 5.3: ANSPs not liable for meeting obligations arising from the occupational DB plan

A key factor in the evaluation of DB schemes is the reporting standard that has been adopted by the ANSP when presenting financial information. EUROCONTROL specifies that Member States should present financial information according to International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS) through its "Principles for establishing the cost-base for en route charges and the calculation of the unit rates". Though some ANSPs covered by the study present financial information according to IFRS standards, a number of ANSPs present information in line with local Generally Accepted Accounting Principles (GAAP) due to national regulations. In some cases, even when IFRS is applied there may be exceptions for IAS19. Table 5.4 lists the ANSPs with key differences to IAS 19 principles in 2016[20].

ANSP	Key differences to IAS19 principles in 2016
Austro Control	Amortisation approach of the removal of the corridor method in 2012 understates the DBO by 25 M€ in 2016 compared to if IAS19 was applied.
IAA	Additional cash cost of 9.7 M€ recorded in IAA 2016 pension cost is not in line with IAS19 principles.
LFV	Significant differences from IAS19 principles mean a comparable valuation under IAS19 rules would not be possible without additional information.
LPS	Remeasurements are recorded as part of the P&L.
NAV Portugal	Uses different assumptions for the expected return on assets and the discount rate.

Table 5.4: ANSPs reporting to non-IFRS reporting standards

[20] Additional information on deviations between IFRS and local GAAP can be found in Annex 3.

5.2 Costs resulting from occupational DB schemes

Overview of occupational DB pension costs

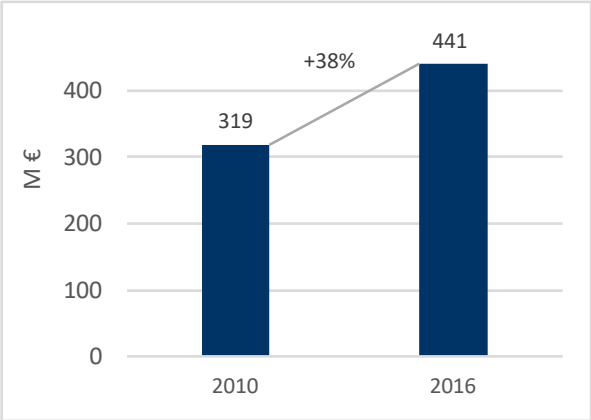


Figure 5.2: Change in the DB cost across 11 ANSPs between 2010 and 2016

In 2016, 20 598 employees (32.7% of the total staff) were members of occupational DB schemes, and the total costs incurred by the ANSPs in relation to these schemes was 441.2 M€. This means that, on average, the DB pension cost per member amounts 27 169 €[21]. Total DB costs incurred in 2016 represented an increase of +38.5% compared to 2010.

Key drivers of the 2016 occupational DB cost

The two primary components of the DB pension cost incurred by an ANSP are the current service cost and the interest expense:

- **Current service cost.** It represents the additional cost incurred by employees earning an additional year of benefits through working at the company for the year.
- **Interest expense related to pensions.** The interest expense is a function of the calculation that determines the present value of the expected future obligation. As a year passes, the interest expense represents the cost related to the removal of one year of discounting in the present value calculation. The calculation of the interest cost is therefore subject to a number of actuarial assumptions that are used both to estimate the expected future value of the obligation and then to discount the future value back to a present value. The interest expense is often presented as a net expense where the expense is netted against the interest on plan assets. The interest cost was reported by some ANSPs as part of staff costs, and by other ANSPs as a financial expense as shown in Table 5.5. These different reporting practices can affect ANSPs' staff cost comparisons.

ANSPs reporting interest costs as staff costs	ANSPs reporting interest costs as financial costs	ANSPs reporting remeasurements as part of P&L costs
Avinor	Austro Control	LFV
LPS	DFS	LPS
NATS	IAA	NAV Portugal (before 1 Jan 2016)
NAV Portugal	LFV	
ROMATSA		

Table 5.5: Reporting of interest costs and remeasurements in the financial statements

- **Remeasurements.** Under IFRS, remeasurements should not be recorded as part of the income statement and should be charged directly to Other Comprehensive Income in the financial statements. However, some ANSPs have included this in the P&L (see Table 5.5). Additional details

[21] The average does not include UkSATSE's employees to avoid dilution of the average cost since the DB scheme cost incurred by UkSATSE has not been provided.

on remeasurements can be found in the “Drivers of the change in the net DBO in 2016” section below.

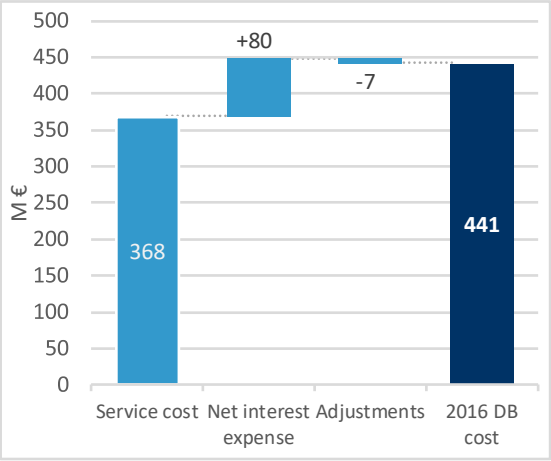


Figure 5.3: Breakdown of the DB pension cost across the 11 ANSPs that reported DB pension costs in 2016 (see Table 5.1)

The cost related to the defined benefit scheme therefore does not represent benefits being paid to retirees nor cash contributions paid into a pension fund.

The total cost of occupational DB schemes in 2016 was 441.2M€. This was predominantly driven by the service cost of the schemes, which was 368.0 M€ in 2016, as shown in Figure 5.3. Net interest expense of 80.0 M€ (regardless of whether they were reported as staff or financial costs) accounted for a much smaller portion of total DB costs.

Some of the key factors that combined to result in the "adjustments" figure (-7.0 M€) are outlined in Table 5.6.

ANSP	Adjustment amount (M€, Real 2016)	Explanation of adjustment
Austro Control	+7.5	Expense for termination benefits.
Avinor	+0.6	Reversal of cost to reflect 2% employee contribution, administration costs, and employer contribution (tax on pension costs directed to social security).
DFS	-3.4	Release of provisions from previous accounting periods.
IAA	+9.7	"Additional cash cost" reflecting contributions made above an actuarially determined value.
LPS	-0.4	Actuarial gains and losses.
NATS	-14.0	Primarily removal of salary sacrifice, though there are some administration costs and the removal of past service costs as well in this figure[22].
NAV Portugal	-7.0	Release of provisions following changes to the early retirement scheme (see Fact Sheet in Part II for further information on the changes). This resulted in a negative DB cost, outweighing service costs of 5.3 M€ and net interest costs of 1.1 M€.

Table 5.6: Breakdown of the adjustments component of the 2016 DB cost

[22] Note: salary sacrifice is removed to ensure that the employer cost only is reported. Under salary sacrifice the employee’s contribution is deemed to be that of the employer, and is reported on this basis in statutory accounts.

5.3 Future liabilities arising from occupational DB schemes

Overview of the net DBO

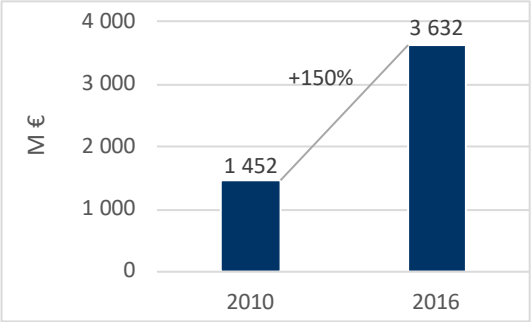


Figure 5.4: Change in the net DBO across 10 ANSPs between 2010 and 2016

The net DBO across the 10 ANSPs (information was not available for DCAC Cyprus and UkSATSE) in 2016 was 3 632 M€. This reflected a +150.2% increase (+16.5% CAGR) from the 2010 valuation of 1 452 M€. The net DBO of DFS accounted for over 60% of the total net DBO across the ANSPs in 2016. The relative size of DFS' net DBO compared to those of the other ANSPs can be seen in Figure 5.5.

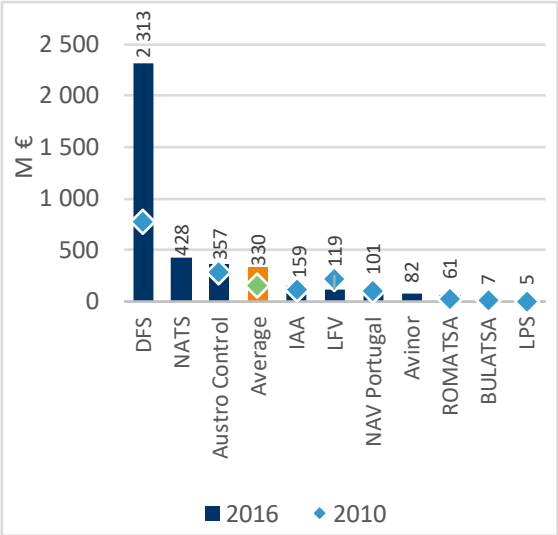


Figure 5.5: Net DBO (10 ANSPs)

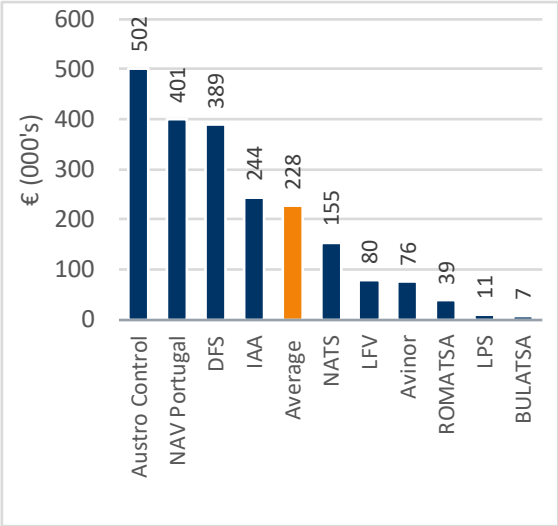


Figure 5.6: Net DBO per active scheme member at individual ANSP level in 2016

Figure 5.6 shows that, in 2016, the average net DBO per scheme member was 227.6 €'000, ranging from 6.9 €'000 for BULATSA to 502.3 €'000 for Austro Control. It is interesting to note that although DFS has a very large net obligation (2 313 M€), when accounting for the number of members in the DB scheme, the average net DBO per member for DFS (388.5 €'000) is lower than that of Austro Control and NAV Portugal.

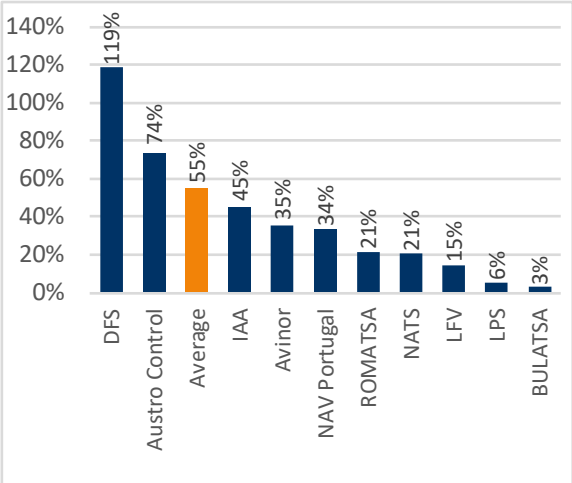


Figure 5.7: Net DBO as a percentage of the total assets at individual ANSP level in 2016

Figure 5.7 shows the ratio between the net DBO and the total assets on each ANSP's balance. Comparing the value of the shortfall to the assets of the ANSP can give an indication of the ANSP's potential to bridge that shortfall using the total company's assets[23].

The average ratio across the ANSPs was 54.9% (and would fall to 28.1% if excluding DFS from the sample). The majority of ANSPs have a ratio lower than 50%.

The two ANSPs with a ratio higher than 50% are DFS (119.0%) and Austro Control (73.5%). The value for DFS suggests that the shortfall in its pension obligations is larger than the total asset base of the ANSP.

Evolution of the net DBO between 2010 and 2016

Figure 5.8 shows the year-on-year evolution of the net DBO across the 10 ANSPs from 2010 to 2016. The large variations from 2012 result primarily from the changes to the IAS19 standards in 2011. This revision included two key points:

- **Removal of the corridor approach to amortise the impact of actuarial gains/losses.** Prior to 2012, a number of ANSPs, including Austro Control and DFS, used the corridor approach to spread the impact of changes in actuarial assumptions over multiple years. The revised guidance stated that all actuarial gains/losses should be expensed in the same year as the change in assumptions, with the gain/loss recorded as part of other comprehensive income. The ANSPs affected by the removal of the corridor approach recorded an adjustment in 2012 to expense the carry-over from actuarial changes in

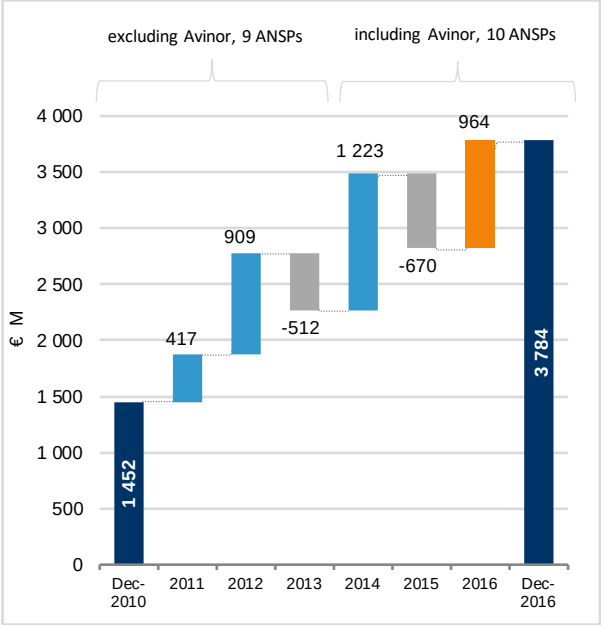


Figure 5.8: Evolution of the net DBO, 2010-2016 (10 ANSPs)[24]

[23] A different measure of the relative level of funding is the ratio of pension fund assets to obligations. However, this information is not available for all ANSPs. Under this measure the funding shortfall of NATS is 6% and not 21% as reported above.

[24] DCAC and UkSATSE are excluded as the values were not available. 2014 includes the addition of Avinor to the sample set as the ANSP was not separated from the wider Group until this date. As a result, the change in 2014, +1 223 M€ includes the full value of Avinor's net DBO in the year, 87.9 M€. The change in the net DBO in 2014 for the remaining 9 ANSPs was +1 135 M€.

previous years. Although the full impact of the gains/losses will be recorded in the year in which the actuarial change occurs, the ANSPs that are members of the SES scheme affected will continue spreading the impact of the gain/loss over two regulatory periods for charging purposes as permitted under the Performance and Charging Regulations (390/2013 and 391/2013).

- **Harmonisation of the discount rate and expected return on plan assets assumptions.** The revision replaced the interest cost and expected return on plan assets components of the finance cost with a single net interest expense calculation, to be based on the discount rate. This had the same effect as setting the expected return on plan assets assumption used in actuarial calculations to be the same as the discount rate. There was no impact on the net DBO of this change although it did generally result in higher P&L costs for entities. These higher P&L costs were offset in the reconciliation of the DBO by an increase in the amount recognised in as asset gains in remeasurements.

The first of these two changes resulted in an increase to the remeasurements (see below for further detail) in each of the years from 2012 to 2016, whereas the second affected the amount recognised in the P&L (with a corresponding offsetting impact in other comprehensive income) but does not affect the net DBO. There were two other key changes in the timeline presented in Figure 5.8:

- **Transition of HungaroControl's pension scheme from DB to DC in 2013.** In 2013, HungaroControl transitioned from a DB scheme to a DC one. Contributions in the scheme were transferred across to the new DC scheme, and there was no increase in the DBO except for gains/losses as a result of changes in actuarial assumptions for the legacy obligations.
- **Avinor Flysikring subsidiary created in 2014.** The reporting of the ANSP activities of Avinor were separated from the rest of the group following the creation of the Avinor Flysikring subsidiary in 2014. As Avinor did not publish the portion of the DBO that reflected the ANSP activities only up to that date, the total DBO in the years 2010 to 2013 do not include any values for Avinor. Therefore, the full value of the net DBO for Avinor Flysikring amounting to 87.9 M€ has been added in 2014 as opposed to the change in the net DBO between 2013 and 2014.

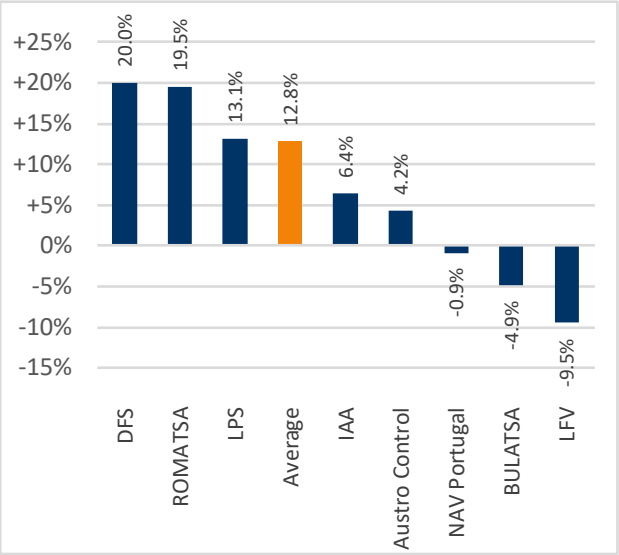


Figure 5.9: CAGR of the change in the net DBO between years 2010 and 2016 at individual ANSP level

Note: Data for NATS not available as the pension scheme was in surplus in 2010.

In general, the key driver of other year-on-year changes stem from changes in the actuarial assumptions that were used to calculate the future benefit obligation, especially the discount rate used to calculate its present value. The actuarial assumptions and the sensitivity of the DBO to them are explored further in the subsequent sections of this chapter.

Figure 5.9 shows the annualised growth rate of the net DBO for eight of the ANSPs (2010 figures were not available for Avinor). As can be expected from observation of the trends throughout this section, DFS scores highest in terms of the change in the net DBO between 2010 and 2016 with a CAGR of +20.0%.

ROMATSA almost matches this growth rate (+19.5% CAGR) but from a much lower base (net DBO of 20.8 M€ in 2010 growing to 60.5 M€ in 2016).

In contrast, three ANSPs (LFV, BULATSA, and NAV Portugal) reduced their net obligations compared to 2010 levels. Of these, LFV achieved the largest reduction in its net DBO with a reduction from 215.8 M€ in 2010 to 118.6 M€ in 2016 (CAGR of -9.5%). LFV's occupational DB scheme is managed by SPV (the National Government Employee Pensions Board). LFV does not report a net DBO figure in its accounts, and stated through the consultation process that the scheme was financed on a PAYG basis. However, the ANSP maintains a significant cash balance, with the primary purpose being the financing of the retirement obligations as they fall due and strict rules are imposed on how the cash can be invested. In this sense, the scheme has been treated as a funded scheme, with the ANSP's cash balance used as a proxy for plan assets. The growth in the cash balance between 2010 and 2016 has been a key contributor to the reduction in LFV net DBO value between these years.

Drivers of the change in the net DBO in 2016

The following building blocks determine the movement in the net DBO from one year to the next:

- **Expensed cost related to the DB scheme.** The service cost and interest cost are described in the DB cost section earlier in the chapter.
- **Past service costs and settlements.** These are one off events such as improvements to benefits or payments made to extinguish liability to provide future benefits.
- **Contributions paid.** Contributions made to the scheme increase the value of the assets and therefore reduce the net liability faced by the ANSP.
- **Benefits paid.** Paying benefits to retirees has two impacts. The first is an outflow of funds from the plan assets as cash is paid to the retirees. This reduces the value of the assets and increases the net liability. The second is a reduction in the future liability of the amount that has just been paid to the retirees. In a funded scheme, these two movements are equal and opposite and therefore have no impact on the net liability. In a PAYG scheme, however, there are no plan assets and there is consequently a reduction in the net liability.
- **Remeasurements.** Retirees generally receive a portion of their average or final salary through a DB scheme. This means the exact value of the benefits the retiree will receive is unknown until the individual retires. DB plans will therefore undergo actuarial valuations to estimate the value of these benefits based on factors like salary growth and the projected increase in benefits. The value of these benefits is then discounted to present value using a discount rate. Changes in the actuarial calculations, including changes in the yields of the bonds used to calculate the discount rate, will impact the value of the net liability. According to IFRS, changes in the net liability stemming from the actuarial assumptions are recorded as remeasurements and charged directly to other comprehensive income in the financial statements. However, we found three exceptions to this reporting principle (LFV, LPS and NAV Portugal prior to 2016). The implications of this are discussed in Chapter 8. Secondly, the difference between expected and actual return on assets is also recorded as remeasurements.

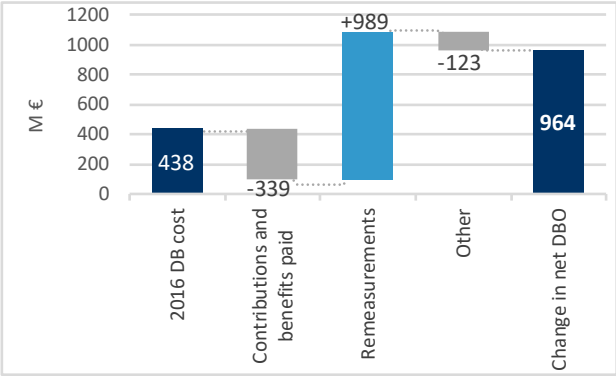


Figure 5.10: Breakdown of the change in the net DBO in 2016 (10 ANSPs)

Across the ANSPs, the total change in the net DBO was +964.1 M€ in 2016. In general, the contributions made to the pension schemes reflected approximately 75% of the DB cost incurred in 2016.

The key driver of the change in the net DBO was remeasurements resulting from changes in actuarial assumptions. This was particularly driven by remeasurements applied by DFS of +556.0 M€ (over 50% of the total across all ANSPs) and NATS of +355.6 M€ (approximately 35% of the total).

For LFV, the full value of the cash and bank balances from LFV's annual accounts has been used as a proxy for plan assets. The "other" category was predominantly driven by a change in cash (-109.7 M€) for LFV.

Actuarial assumptions used to calculate the DBO

The key actuarial assumptions used to calculate the DBO for ANSPs in 2010 and 2016 are shown in Figure 5.11. The range of values for each of these assumptions in 2016 is shown in Figure 5.12, with the dot representing the same mean value as in Figure 5.11[25].

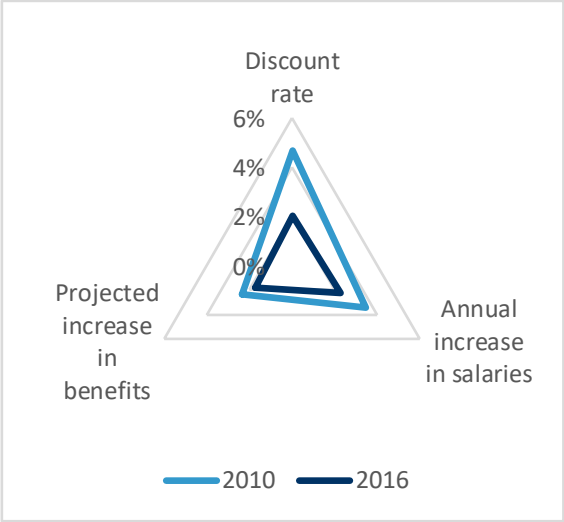


Figure 5.11: Average values of the key actuarial assumptions used to calculate the DBO in 2010 and 2016

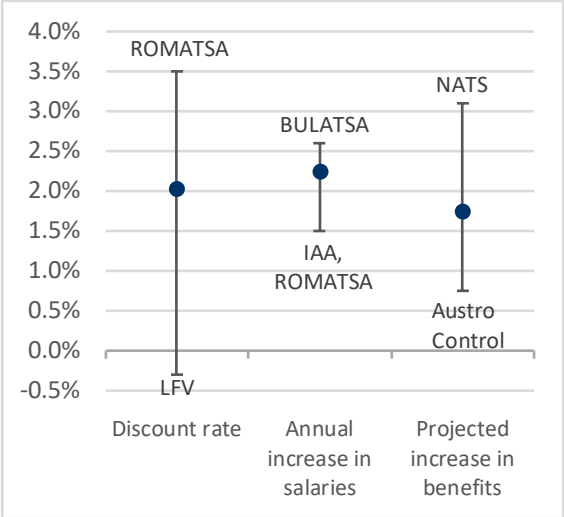


Figure 5.12: Range of values for the key actuarial assumptions in 2016[26]

[25] Some ANSPs only have data for certain actuarial assumptions – see Annex 4 for details. UkSATSE has not been included in this section or in the section on sensitivities, as we have not received any information on the defined benefit liability for the ANSP. UkSATSE reported salary growth rates of 26.3% in 2010 and 8.2% in 2016.

[26] Projected increase in benefits: covers the assumptions about increases after benefits have come into payment (or guaranteed increases as they apply). In the case of NATS we are aware of the transition described in Table 5.7 where there was a change in pensions accrued before and after 2013 (where after 2013 the indexation of future service at CPI, rather than RPI is applied).

As can be seen in Figure 5.11, the average value for all three actuarial assumptions reduced between 2010 and 2016. Although, all else being equal, the use of lower assumptions for the projected increase in benefits and annual increase in salaries reduces the future obligations, the use of much lower assumptions for the discount rate resulted in a large increase in future pension obligations. The underlying assumptions are heavily affected by macroeconomic factors, and thus are not variables that the ANSP can directly control. The harmonisation of the expected return on plan assets and discount rate assumptions as mandated as part of the IAS19 revision can also be seen in the 2016 values in this figure.[27] The assumption for the expected return on plan assets has not been included as according to IAS19 it should be equal to the discount rate. This was not the case for NAV Portugal which follows the Portuguese GAAP accounting standards.

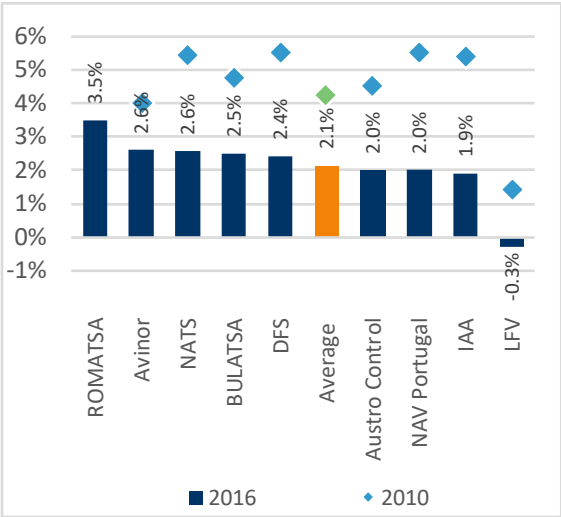


Figure 5.13: Changes in the discount rate assumption on an individual ANSP level between 2010 and 2016

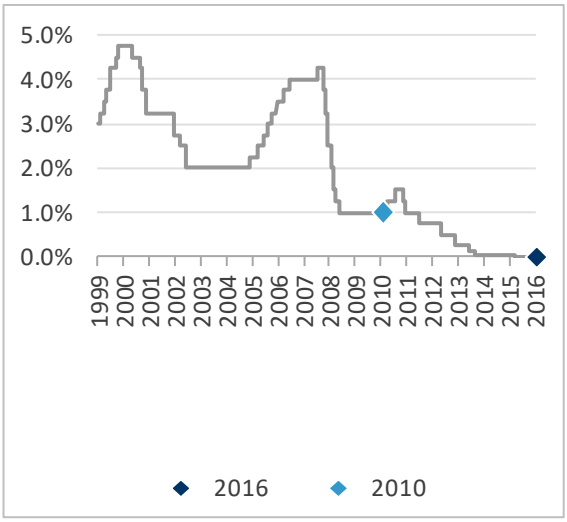


Figure 5.14: ECB main refinancing operations benchmark rate, 1999 to 2016

The change in the discount rate for each of the ANSPs that reported this is shown in Figure 5.13[28]. As with the other actuarial assumptions, the discount rate used to calculate the present value of the DBO will be dependent on macroeconomic conditions. IAS 19 mandates that companies should use the equivalent of AA-rated corporate bonds to discount pension obligations. This avoids companies using high risk financial instruments to discount the pension obligations, as there is a risk of undervaluing the ultimate obligation when companies use high discount rates. Note that some ANSPs in 2016 were using yields on Government bonds, which are likely lower yielding than the AA-rated bonds (these are noted in the Fact Sheets in Part II of the report where applicable).

Figure 5.14 shows the long-term evolution of interest rates in Europe by considering the European Central Bank (ECB) main refinancing operations benchmark rate from 1999 to 2016. This shows that although interest rates were low in 2010, they reduced further between 2010 and 2016. In 2016, ANSPs were operating in a very low interest rate environment, which naturally places an upward pressure on the value of the DBO.

[27] Data on discount rate in 2010 was not available for ROMATSA.

[28] LPS is not presented in Figure 5.13 as it discounts the future retirement obligations using the full yield curve. Interest rates used were between -0.7% and 1.37%.

Experts believe the market is already pricing in interest rate rises and these expected increases in interest rates are reflected in the actuary's estimates of future liabilities. If central banks raise rates at a faster rate than market expectations, then estimates of future liabilities could fall. There is, however, a risk for ANSPs that central banks continue to hold interest rates low or raise interest rates slower than the market expects; this could result in future liabilities increasing further.

Discount rates are affected by real interest rates and so inflation should be considered, with any movements against the yield curves to be taken into account.

The following section considers the potential impact of changes in the actuarial assumptions on the value of the DBO.

Sensitivity of DB obligation to changes in assumptions

The actuarial assumptions are an important factor in estimating the DBO and therefore any changes in the assumptions will have a significant impact on the value of the DBO. This section explores the sensitivity of the DBO to changes in two key actuarial assumptions: discount rate and salary growth.

One of the key differences between IAS 19 (IFRS) and local GAAP is the level of detail of the disclosures relating to the pension obligations that companies are required to provide in the accounts. Furthermore, not all companies record sensitivities relating to a ±1% change to the assumptions; for example, some record the sensitivity to a ±0.5% or ±0.25% change in the assumptions.

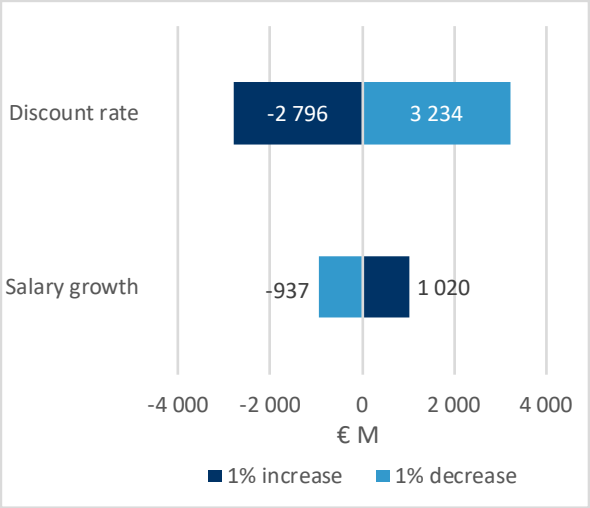


Figure 5.15: Sensitivity of the DBO to the changes in the actuarial assumptions on European level

In order to compare the sensitivity across ANSPs, the sensitivity has been scaled to match a ±1% change in the actuarial assumption; for example, if the ANSP reports the value calculated for the ±0.5% change, these values are doubled assuming a proportionate relationship. Although the sensitivity of the DBO to changes in actuarial assumptions is not linear in practice, the difference between a non-linear calculation and a simple scaling approach is generally considered as immaterial. For the purpose of this report a linear approach has been used to calculate an approximate value of the sensitivity.

Figure 5.15 shows the sensitivity of the defined benefit obligation to the changes in the two main actuarial assumptions on an European level. As stated above, not all ANSPs have provided the sensitivity of the DBO to all assumptions. The discount rate sensitivity reflects the total sensitivity across seven ANSPs[29], whereas the salary growth sensitivity reflects the total sensitivity across six ANSPs.

Figure 5.15 shows just how sensitive the DBO is to changes in the discount rate, which provides some context and insight to the large swings observed in the evolution of the net DBO between 2010 and

[29] This value excludes IAA as they only provide one-sided sensitivity on the discount rate. The value is 24.4% of the total DBO for a 1% decrease including IAA.

2016 (see Figure 5.8), as well as to the relative sizes of the DBO between ANSPs. For example, LFV has one of the highest DBOs out of the 38 ANSPs, but the fact that the SPV, the Swedish National Government Employee Pensions Board, set a negative discount rate will be a key contributing factor.

The sensitivity of the DBO to changes in the salary growth assumption is equal to 8.1% of the DBO for a 1% increase and -7.5% for a 1% decrease in the assumption. For the discount rate, it is -21.3% of the total DBO for a 1% increase and 24.6% for a 1% decrease. Those estimates are based on the total DBO of the ANSPs which provided the data on the sensitivity of their actuarial assumptions only.

The effects of changes to the discount rate on an individual ANSP level are shown in Figure 5.16.

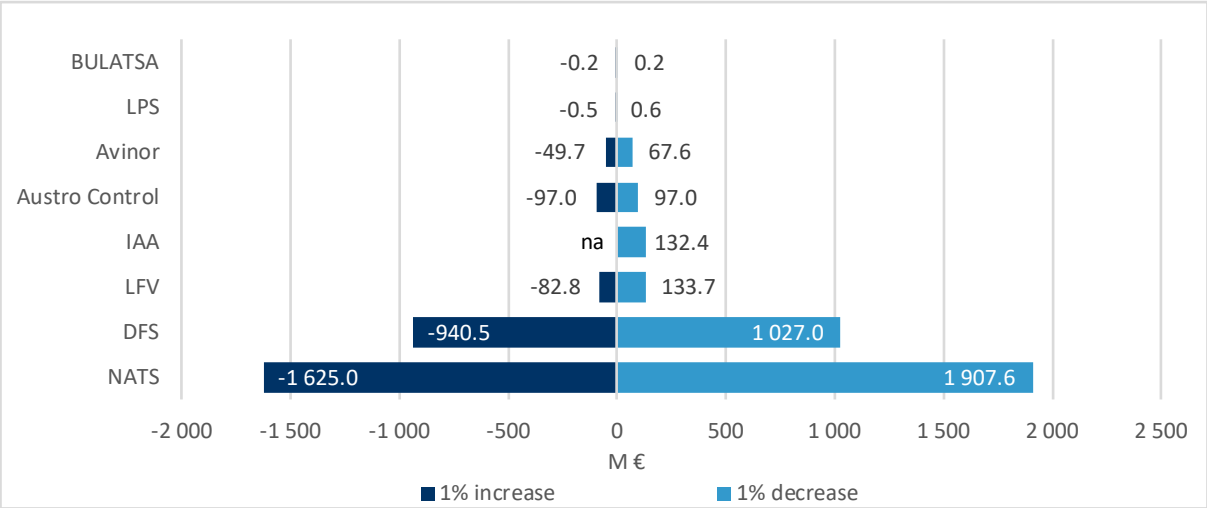


Figure 5.16: Sensitivity of the DBO to changes in discount rate assumptions on individual ANSP level

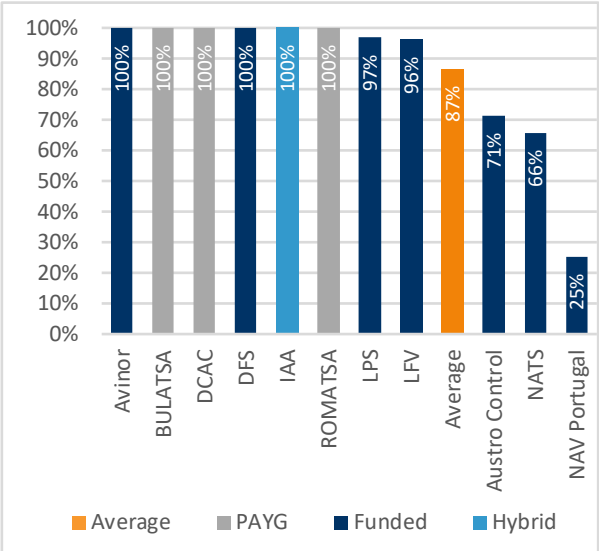


Figure 5.17: Active members of the defined benefit scheme as a proportion of total staff in 2016

Measures taken to reduce risks related to DB schemes

On average, 86.9% of employees at the 11 ANSPs that contributed to an occupational DB scheme were enrolled on such a scheme. The proportion of the staff base enrolled onto an occupational DB scheme at each of the ANSPs that operated at least one DB scheme in 2016 is shown in Figure 5.17.

Out of these 11 ANSPs, six ANSPs offer DB schemes to all staff and in some cases the DB benefit is mandatory or prescribed in a collective agreement, which restricts the ANSP's ability to change the benefit offered. Five of the 11 ANSPs have transitioned to DC schemes, whereby all employees that were born or joined the organisation after a certain date were only eligible to receive a DC pension. NAV Portugal has been the ANSP with an earlier transition compared to others, with only 25% of employees being active members of a DB scheme in 2016. It should be noted that low turnover at ANSPs due to the nature of the work and benefits offered

impacts the transition from a DB to DC scheme as any measures will take a long time to be implemented.

Details of the transitions made by each of these ANSPs, as well as measures taken by others (for example basing benefits received by members on average salary instead of final salary) are shown in Table 5.7.

Year	ANSP	Measures taken to mitigate pension risk
2016	NATS	New 11-year recovery plan implemented following 2015 valuation: additional monthly contributions starting at GBP'000 825 and increasing by 2.37% per annum to be made from 2017 until 2026. A lower cost pension cash alternative for staff deferring or transferring out of the DB scheme was introduced.
	DFS	Transitioning from its current insurance-based refinancing strategy to investing contributions in funds which yield higher returns.
	LFV	Staff born in or after 1988 only eligible for membership of a new DC scheme introduced in 2016 for all state employees.
2013	NATS	Deficit repair plan implemented following 2012 valuation: elevated level of contributions (following 2009 valuation) to continue to 2015; indexation linked to CPI instead of RPI; pensionable pay increases capped at CPI+0.25% from RPI+0.5%; annual deficit contributions starting at GBP 28.6m and rising by 2.37% per annum until 2023.
	HungaroControl	Transitioned its DB scheme to a DC scheme following negotiation with staff representatives.
2012	NAV Portugal	NAV Complementos (open to support staff) was transferred from DB to DC in March 2012.
	IAA	Staff joining from 2012 only eligible for the hybrid scheme, which has a DB and a DC component, instead of one of the full DB schemes.
2011	LFV	Agreed to transfer SEK 2bn (214 M€ in real 2016 prices) of its pension liability (representing retired individuals) to the National Government Pensions Board.
2010	NATS	Deficit repair plan implemented following 2009 valuation: monthly contributions starting at GBP 2.0m and rising by 3.5% per annum.
	IAA	Pension Recovery Plan agreed with employees including a cap on pensionable pay increases based on CPI up to 3% and an increase in employee and employer contributions.
	NAVIAIR	ATCO assistants and other staff joining from 2010 only eligible for membership of the DC scheme.
2009	NATS	Closure of defined benefit scheme to new members with a defined contribution scheme provided to new joiners from 1 April 2009. Introduction of a cap on increases in pensionable pay at RPI + 0.5%. Introduction of a salary sacrifice scheme, which reduced employer social security costs.
2007	NAV Portugal	ATCOs joining from 1 October 2007 only eligible for membership of the DC scheme.
	NAVIAIR	ATCOs joining from 2 May 2007 only eligible for membership of the DC scheme.
2006	ENAV	TFR changed from a DB to DC scheme. All contributions from 2007 for all members were made on a DC basis.
2005	DFS	Members that joined prior to 1 January 2005 receive a pension based on their final salary, whereas members that joined thereafter receive a pension based on their average salary.
1997	Austro Control	Staff joining from 1997 only eligible for membership of the DC scheme.
na	DCAC	A gradual increase in the mandatory retirement age by 2 years was implemented as well as an imposition of a penalty on early retirement.

Table 5.7: Measures implemented by ANSPs to mitigate pension risk

Summary of key messages on Occupational Defined Benefits (DB) Schemes:

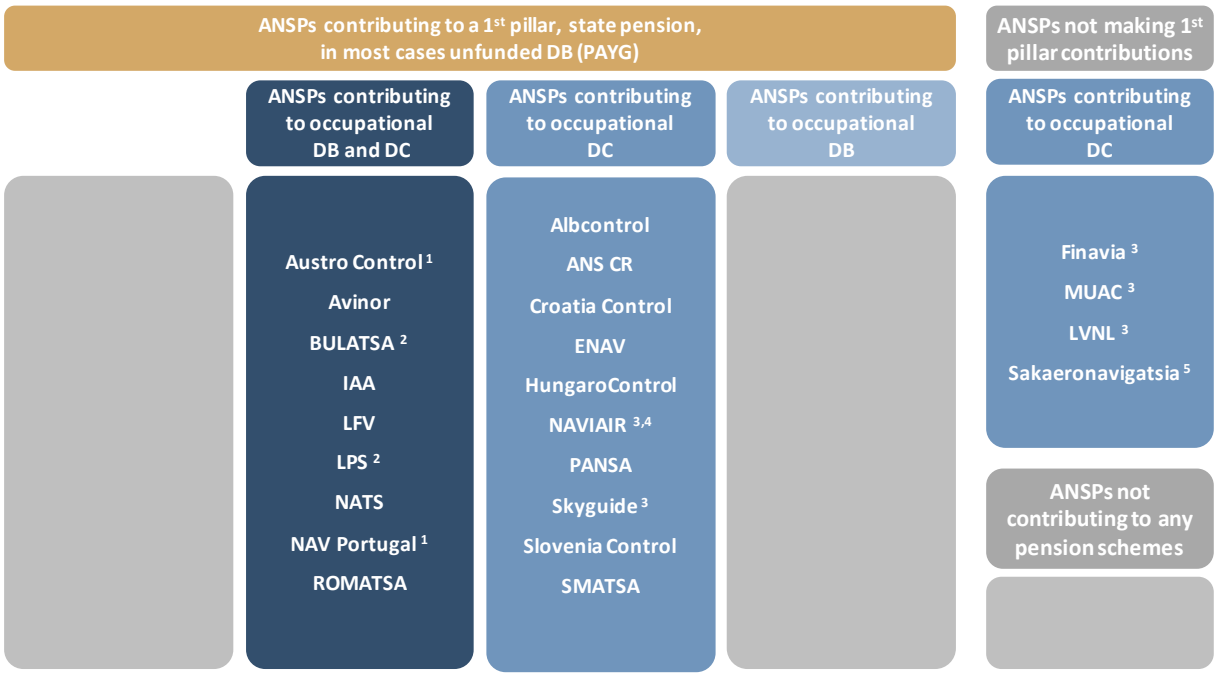
- 12 out of the 38 ANSPs contributed to an occupational DB scheme (Austro Control, Avinor, BULATSA, DCAC Cyprus, DFS, IAA, LFV, LPS, NATS, NAV Portugal, ROMATSA and UkSATSE). Of these, three (DCAC Cyprus, DFS and UkSATSE) offer only DB schemes, whereas DB schemes at nine ANSPs are complemented by DC schemes as well.
- Across the 38 ANSPs, 20 598 (32.7% of the total) employees benefited from the DB contributions made by these 12 ANSPs.
- The total cost incurred by the ANSPs in relation to DB schemes was 441.2 M€ in 2016, equivalent to a cost per member of 27 169€ and 36.2% of the total pension costs incurred by the ANSPs.
- The DB costs incurred in 2016 by these 12 ANSPs represented an increase of 38.5% compared to 2010.
- The net DBO across the 10 ANSPs (excluding DCAC Cyprus and UkSATSE) in 2016 was 3 784 M€. This reflected a +160.6% increase (+17.3% CAGR) from the 2010 valuation of 1 452 M€.
- The key driver of the change in the net DBO was remeasurements resulting from changes in actuarial assumptions. This was particularly driven by remeasurements applied between 2015 and 2016 by DFS and NATS.
- Actuarial assumptions are heavily affected by factors that the ANSP cannot directly control (e.g. interest rates, life expectancy, etc.).
- Although, all else being equal, the use of lower assumptions for the projected increase in benefits and annual increase in salaries reduces the future obligations, the use of much lower assumptions for the discount rate and expected return on plan assets resulted in large increase in future pension obligations.
- Interest rates are more likely to increase than decrease further in the future, which may result in an increase in the discount rate, and consequently a decrease in the value of the shortfall in the net DBO, in a higher interest rate environment.
- ANSPs have taken a number of measures to reduce their exposure to defined benefit pension scheme obligations over the 2010-2016 period.

6. OCCUPATIONAL DEFINED CONTRIBUTION (DC) SCHEMES

6.1 Introduction

In 2016, 23 out of the 38 ANSPs contributed to a scheme classified as an occupational DC scheme for the purpose of this study. Nine ANSPs contributed to DC schemes only, whereas DC schemes at nine ANSPs were complemented by DB schemes as well. Five additional ANSPs (Finavia, LVNL, MUAC, NAVIAIR and Skyguide) have been classified into the DC scheme category although they offer occupational DB schemes to their employees. This is because they do not assume any liability for meeting the future obligations. The pension plans for these five ANSPs are often run by a legally separate pension fund, and the only obligation falling on the ANSP is to make contributions to the scheme as specified by the fund manager. As a result, these schemes are closer to DC schemes when assessing the risk to the ANSP.

Across the 38 ANSPs, 20 880 (33.1%) employees were members of schemes classified as DC schemes for the purpose of this study. The ANSPs in scope in this section can be summarised in Figure 6.1 below.



Notes:
1 DB obligation includes provisions made to finance early retirement commitments.
2 Occupational DB obligation is financed on a PAYG basis.
3 Members receive defined benefits on retirement, but the pension obligation is managed by a separate entity that assumes liability to meet the future benefit payments. Since the ANSP only pays contributions to the pension fund, the ANSP's contributions are assessed as DC and not DB.
4 NAVIAIR contributes to both a DB scheme (obligation transferred to the State) and an occupational DC scheme (operated by NAVIAIR).
5 Scheme introduced in 2015 but not operational until March 2017.

Figure 6.1: ANSPs contributing to an occupational DC scheme

Whereas the level of benefit received by the scheme member is defined in a DB plan, sponsors only commit to providing a certain level or rate of contribution to the pension scheme in a DC plan. The risk of the pension value at retirement being higher or lower than expected with DC schemes lies with the scheme member. As a result, a number of ANSPs have used DC schemes to reduce their exposure to

the higher risk DB plans through, for example, migrating the DB schemes to DC, or only allowing new joiners access to a DC scheme while maintaining legacy obligations on the existing DB plans.

This chapter starts by identifying the costs related to DC schemes that were incurred by ANSPs in 2016, and the change in costs since 2010. The analysis of the change in cost is split into two factors: the growth in the adoption of DC schemes by ANSPs, and changes in the rate of contributions made to these schemes.

6.2 Overview of occupational DC pension costs

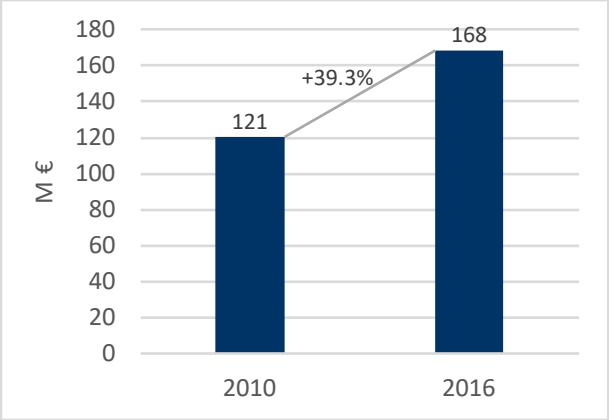


Figure 6.2: Change in cost of the DC schemes across all ANSPs between 2010 and 2016

The total cost incurred by the ANSPs in relation to DC schemes was 168.0M€ in 2016, equivalent to a cost per member of 8 048€ and 13.8% of the total pension costs incurred by the ANSPs. The DC costs incurred in 2016 represented an increase of +39.3% compared to 2010.

An increase in the number of DC schemes offered by ANSPs to employees, and an increase in the DC contribution rates are two of the key drivers behind the increase in costs between 2010 and 2016. These drivers are investigated further in the following section.

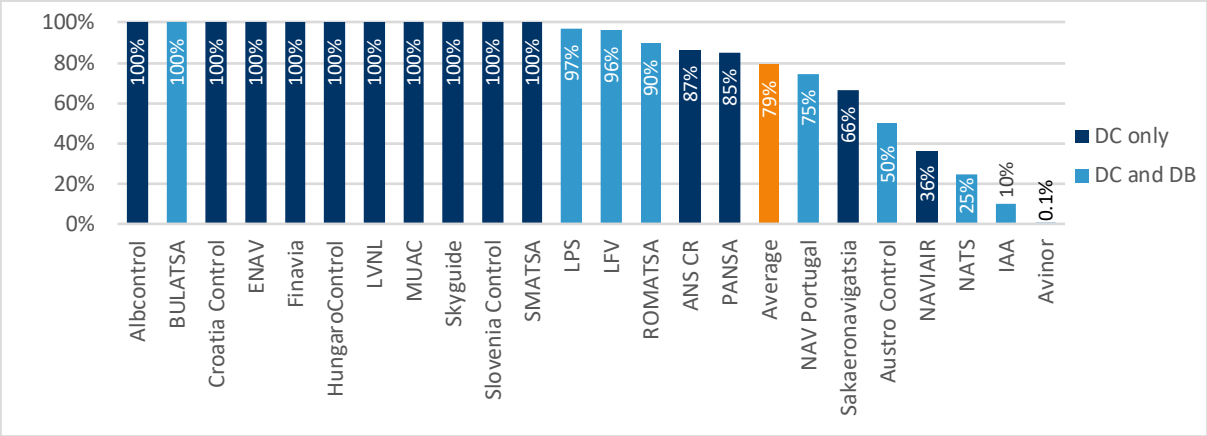


Figure 6.3: Active members of the DC scheme as a % of the employees at individual ANSP level[30]

[30] M-NAV DC costs were reported together with 1st pillar costs.

6.3 Key drivers of the change in occupational DC costs between 2010 and 2016

Introduction of new DC schemes

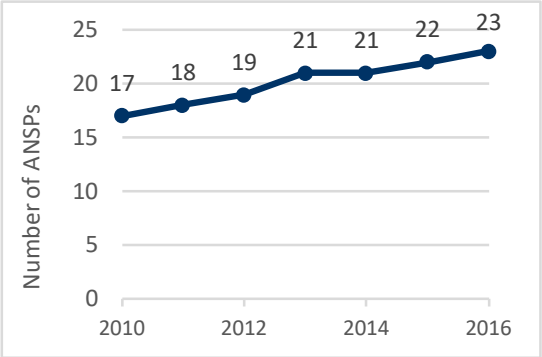


Figure 6.4: Number of ANSPs offering occupational DC schemes between 2010 and 2016

The number of ANSPs which contributed to a DC scheme steadily increased between 2010 and 2016, with 2014 being the only year in which no new DC schemes were introduced across the 38 ANSPs.

The shift towards the DC schemes, which by their nature carry less risk than the DB schemes, is noticeable. Between 2010 and 2016 an additional six ANSPs started offering occupational DC schemes to employees: Avinor, HungaroControl, IAA, ROMATSA, SMATSA and Sakaeronavigatsia.

Overall, including the ANSPs which had introduced the DC scheme before 2010, 23 of the 38 ANSPs covered in this study (over 60%) contributed to a DC scheme for its employees in 2016.

The increasing number of the DC occupational schemes offered by the ANSPs is one of the reasons for the increased cost of the DC schemes across the 38 ANSPs.

Contribution rates

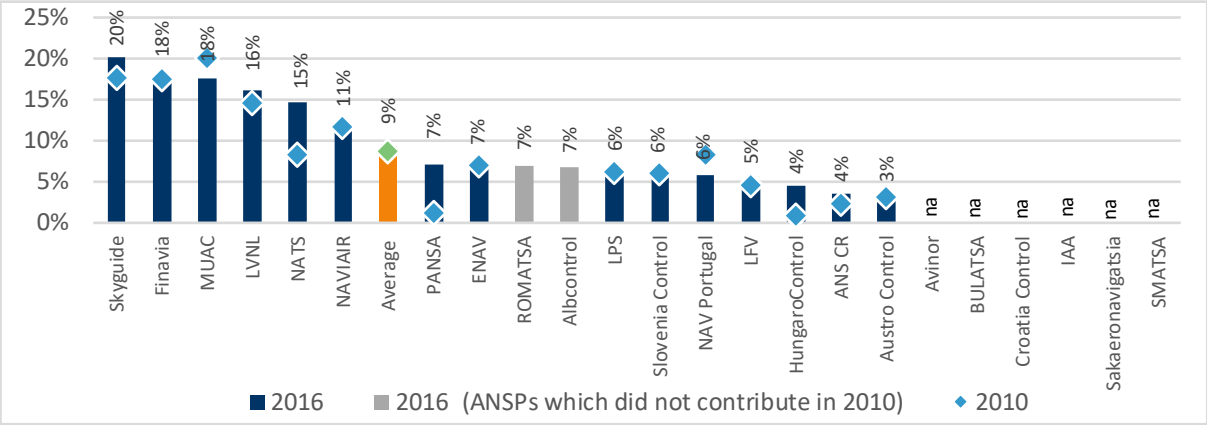


Figure 6.5: Defined contribution scheme contribution rate at an individual ANSP level in 2010 and 2016

The average DC contribution rate in 2016 was 9.3%, increasing by 0.8 percentage points from 8.5% in 2010. Only three ANSPs, NAV Portugal, NAVIAIR and MUAC, decreased their contribution rate across this time period. The biggest increases to the contribution rate were observed at NATS, PANSA and HungaroControl, with increases of 6.5pp, 6.0pp and 3.7pp respectively. A significant driver of the increase at HungaroControl was the transfer of the DB scheme to a DC scheme in 2013. PANSA has the possibility of temporary suspension or reduction (limitations) of the contributions to the DC scheme for not longer than 24 months in the period covering 48 consecutive calendar months. In 2010 the occupational pension contribution was reduced to 1% for a period of 12 months. At NATS there was also a transition from DB to DC and the higher average contribution rate in 2016 reflects the maturity of the scheme rather than the rules of the scheme (NATS matches individual's contributions on 2:1

basis up to a maximum level). The higher contribution rate reflects higher payments of employees or ATCOs into the scheme.

It is important to note that the results shown in Figure 6.5[31] do not take into account the basis on which the contributions have been calculated. Some ANSPs will make the contributions based on a basic salary, while other ANSPs might include bonuses and other employee benefits. Albcontrol and ROMATSA also took an alternative approach in years preceding 2014 and contributed a fixed amount which was not dependent on the employees' earnings.

Comparison of contribution rates between ATCOs and non-ATCOs in 2016

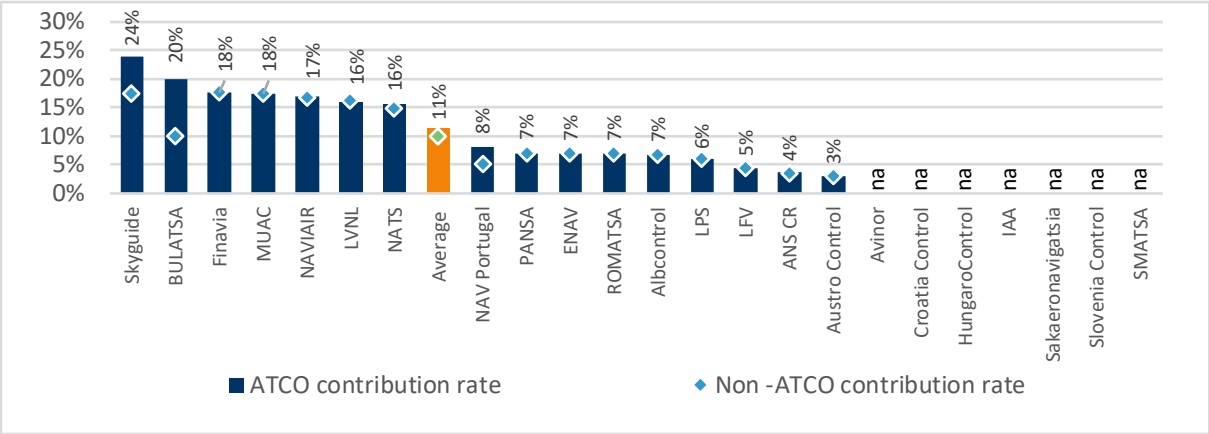


Figure 6.6: Comparison between the DC contribution rate offered to ATCOs and to the other staff

Depending on the legislation currently applicable in the different States, ANSPs might be allowed to offer different DC contribution rates to different categories of employees. This is the case for 6 of the ANSPs, although the majority offer the same rate to both ATCOs and other staff.

In 2016, the average contribution rate for ATCOs across the 16 ANSPs that provided information was 11.3%. The average rate for other staff was 10.0%.

Skyguide, BULATSA, NAVIAIR, NATS, ANS CR and NAV Portugal all offer a higher contribution rate to ATCOs. (Note NATS contribution rate is higher for ATCOs than other staff due to the level of ATCO vs other staff self-contributions on average being higher).

[31] See Annex 4 for the individual values for each ANSP.

Summary of key messages on Occupational Defined Contribution (DC) Schemes:

- In 2016, 23 out of the 38 ANSPs contributed to a scheme classified as an occupational DC scheme for the purpose of this study. They were only 17 in 2010.

  Nine ANSPs offered only DC schemes, and nine others (Austro Control, Avinor, BULATSA, IAA, LFV, LPS, NATS, NAV Portugal, ROMATSA) offered DB schemes as well.

- Five ANSPs offering DB schemes (Finavia, LVNL, MUAC, NAVIAIR and Skyguide) have been classified as making contributions to DC schemes for the purpose of this study. This is because they do not assume any liability for meeting future obligations. Their pension plans are often run by a legally separate pension fund, and the only obligation falling on the ANSP is to make contributions to the scheme as specified by the fund manager.

- 20 880 employees (33.1% of total employees at European level) benefited from the defined contributions made by these 23 ANSPs. The total cost incurred by the ANSPs in relation to DC schemes was 168.0 M€ in 2016, equivalent to a cost per member of 8 048 € and 13.8% of the total pension costs incurred by the ANSPs.

- The DC costs incurred in 2016 represented an increase of +39.3% compared to costs in 2010. This is a higher increase than for the 1st pillar and quite close to the increase for the occupational DB.

- The average DC contribution rate in 2016 was 9.3%, increasing by 0.8 percentage points from 8.5% in 2010.

7. FUTURE CHANGES

A number of planned changes in relation to pension schemes will take place in the EUROCONTROL Member States and through the ANSPs specifically. These measures include changes in the retirement age, changes to the occupational second pillar and the third pillar and are explored in this Chapter.

7.1 Retirement age

The majority of States covered in this study operate a defined benefit first pillar pension system on a PAYG basis. Under this funding mechanism, the retirement benefits need to be financed through employer and employee social security contributions and topped up with State funding as appropriate. The source and uses of funds is therefore directly related to the ratio between the working and retired population.

Increasing life expectancy has been putting pressure on the ability of States to maintain this funding system, as the proportion of the retired population has been growing. Two of the tools that governments can apply to mitigate these rising retirement costs are to increase contribution rates and to raise the retirement age. The former would increase the contributions per capita to service the higher total level of contributions required given the larger retired population, and the latter would rebalance the ratio in favour of the working population.

Table 7.1 shows the steps taken by the States covered in this review to rebalance the ratio between the working and retired population.

Country	Current retirement age	Future retirement age	Rate of increase
Austria	65 years (men) 60 (women)	Rising to 65 years (from 2024 to 2033)	-
Bulgaria	63 years and 10 months (men) 60 years and 10 months (women)	65 by 2029 (men) 65 years by 2030 (women)	Men: gradually rising by 2 months in 2017 and by 1 month a year thereafter Women: gradually rising by 2 months a year from 2017 to 2029 and by 3 months a year from 2030 to 2037
Croatia	65 years (men), 61 years and 6 months (women)	67 years (men and women)	Gradually rising by 3 months per year from 2031 to 2037
Czech Republic	63 years (men) and 62 years and 4 months (women)	-	Men: 2 months each year with no upper limit Women: 4 months each year until reaching the men's retirement age
Denmark	65 years	Rising from 2019 to 67 years by 2022 and 68 years by 2030	The retirement age will be indexed to life expectancy increases from 2025
Estonia	63 years	65 years by 2026	3 months a year
Finland	63 to 68 years	68 to 70 years	3 months a year from 2017

Country	Current retirement age	Future retirement age	Rate of increase
Georgia	65 years (men) 60 years (women)	-	The retirement age will be indexed to life expectancy increases following 2017 reforms.
Germany	65 years	Rising to 67 years from 2012 to 2029	-
Ireland	66 years	67 years by 2021 and 68 years by 2028	-
Italy	66 years and 7 months (public sector staff) 65 years and 7 months (private sector staff)	66 years and 7 months by 2018	-
Latvia	63 years and 3 months	65 years by 2025	3 months a year
Lithuania	63 years and 4 months (men) 61 years and 8 months (women)	65 years by 2026 (men and women)	2 months a year (men) 4 months a year (women)
Netherlands	67 years and 3 months	-	Decision taken by government
Portugal	66 years	67 years by 2029	-
Romania	65 years (men) 60 years (women)	63 years by 2030 (men and women)	-
Slovakia	62 years and 139 days	-	Indexed to life expectancy – approximately 60 days per year
Spain	65 years and 4 months	67 years by 2027 (if contributed less than 38 years and 6 months)	-
UK	65 years (men) or 64 years reaching 65 years at end of 2018 (women) - for basic state pension	66 years by 2020,67 years from 2026 to 2028 and 68 from 2044 to 2046	-

Table 7.1 Changes to the retirement age

7.2 Planned changes to 2nd pillar (occupational) pension schemes

In 2016, 12 of the 38 ANSPs did not contribute to an occupational scheme (ARMATS, Belgocontrol, DHMI, DSNA, EANS, ENAIRE, HCAA, LGS, MATS, M-NAV, MoldATSA and Oro Navigacija). Note that ARMATS, EANS and UkSATSE offer occupational DC schemes to employees, but these schemes are funded by employee contributions only. First pillar pensions for employees of DSNA and EANS consist of the basic state pension supplemented by a mandatory occupational pillar as part of social security contributions.

Two ANSPs that introduced an occupational pension pillar between 2010 and 2016 are:

- Sakaeronavigatsia (introduced an occupational DC scheme in 2015, with operations starting in March 2017); and

- SMATSA (introduced an occupational DC scheme in 2016).

ENAIRE continues to operate an occupational DC scheme, but has not contributed to the scheme since 2012 following a Royal Decree. As such, the ANSP made contributions to the occupational scheme in 2010, but not in 2016.

All ANSPs which did not contribute to an occupational pension scheme in 2016, in response to our questionnaire indicated no planned changes to introduce an occupational pension scheme. Table 7.2 shows a summary of the changes that ANSPs expect to make or be made to the first or second pillar pension schemes offered to employees.

ANSP	Expected changes relating to pension schemes
Avinor	From 1 January 2018, the financing of deferred pension rights for employees who leave an organisation will be transferred from the Norwegian Public Service Pension Fund to the organisation in question. The increase in pension liability in the second quarter was subsequently charged to the profit and loss accounts in 2017 resulting in +170 M NOK. In 2018, the labour market parties agreed a new occupational pension scheme for public sector employees. If the agreements are agreed by various associations and adopted by the Norwegian government it will likely come into effect from 2020. This will impact how Avinor's pension expenses and obligations are calculated but the expected impact is not currently known.
BULATSA	Gradual increase of the pension contribution percentage can be expected (1% per year in the foreseeable future), given the published mid-term budgetary forecast of the government.
Croatia Control	The national legislation regarding arduous and hazardous occupations is expected to be revised. Information regarding the timeframe, scope and/or magnitude of changes is not currently known.
HungaroControl	An occupational pension scheme (similar to the state early retirement scheme which was terminated in 2014) allowing ATCOs to retire before 60 years is intended to be introduced. The cost is expected to be approximately 13% of salary.
LPS	Current benefits are transitional for the period before new legislation on retirement of ATCOs becomes valid. The new benefit is contingent on the agreement between the employee and the Enterprise. Provisions only capture benefits until the expected introduction of new legislation.
NAVIAIR	In the future, only 18% of the basic salary and salary allowance for ATCO assistants will be covered by the defined contribution scheme. For technicians this will be reduced from approximately 22% of the basic salary to 15%.
Oro Navigacija	A reform of the pension system in Lithuania is currently being worked on by the Government. This could have implications for a potential introduction of an occupational pension scheme.

ANSP	Expected changes relating to pension schemes
PANSA	The Polish Parliament has adopted an amendment to the social security scheme that would cancel the taxable limit for the calculation of first pillar pension contributions. This amendment could increase first pillar pension costs for PANSA by approximately PLN 90m per annum if the President signs off on the amendment.
ROMATSA	Changes to the taxation base led to employer contributions to the first pillar-state pension increasing by 94% from 1 February 2017. As of 1 January 2018, employer contributions to the first and second pillars were transferred to the State and employees respectively.
Skyguide	Skycare modified the contribution grids for non-ATCOs in 2016 in response to an ageing population. Similar adjustments for ATCOs were planned for 2017. In 2017, Skyguide also made an exceptional contribution of CHF 53 million in Skycare to offset the underfunding resulting from the changes in actuarial assumptions (reduction of the discount rate) which led to a sizeable actuarial shortfall.
Slovenia Control	The contribution rate will increase from 8% for all ATCOs on 2017 to 8.2% for ATCOs that joined after 1 January 2001 in 2018, and 9.25% on 1 July 2019, if no additional changes happen before then.

Table 7.2: Expected changes to pension schemes offered to employees

7.3 Third pillar

As the scope of the study was to present employer contributions to pension schemes, the focus of the report has been on ANSP contributions to the first (state pension) and second (occupational pension) pillars. As highlighted in the introduction to the report, individuals can also receive retirement benefits from a third pillar, which consists of voluntary contributions by members to a private pension. These schemes are DC in nature as there is no separation of risk between parties (i.e. the member is the sole contributor to pension and assumes full liability for the final benefits available at retirement). This third pillar is generally offered as a voluntary pension scheme or through individual insurance products.

Summary of key messages on Future Changes:

- Most states covered in this review are taking actions to rebalance the ratio between the working and retired population (mainly by extending the future retirement age).
- 11 of 38 ANSPs do not currently contribute to an occupational scheme although some have enhanced state pensions related to mandatory occupational contributions (e.g. DSNA and EANS).
- 11 ANSPs in their response to the questionnaire indicated they expected some changes to their pension schemes in the coming years (e.g. changes to contribution rates, eligibility criteria, pensions reform, etc.).

8. CONCLUSIONS

8.1 Introduction

Understanding the underlying pension costs and risks borne by ANSPs related to the various pension schemes to which employees have access is not always straightforward. Attempting to benchmark the pension schemes can be even more complex, as defined benefit and defined contribution schemes adopt fundamentally different approaches to providing retirement benefits for employees. Defined benefit schemes place the burden of meeting pre-agreed benefits on the sponsor of the scheme, whereas the risk of the value of benefits received lies with the member in a defined contribution scheme.

Even within defined benefit schemes, the risk may be borne by the State (first pillar) or the ANSP (second pillar). In terms of mechanisms used to meet pension obligations as part of defined benefit schemes, ANSPs can also opt to either set assets aside to meet the future obligation (funded scheme, where benefits paid to members stem from contributions paid for those members) or use contributions raised in a year to pay the retirement benefits in the same year (pay-as-you-go, involving an intergenerational transfer where contributions paid for one set of members – current employees – is directed to retirement benefits for a different set of members – retirees).

This chapter presents a summary of the key issues identified in the preceding chapters. The first section identifies the type of risk associated with each category of pension scheme and highlights ANSPs that fall within each risk category. The subsequent sections present reporting issues that have imposed limitations to the analysis underpinning the study, and identify potential adjustments for benchmarking purposes.

8.2 Risks associated with different types of pension schemes

Each of the pension scheme methodologies presented in the introduction attempts to achieve the same objective: setting aside sufficient funds during an individual's career to provide an adequate source of income through pension for when the individual retires. There is no single mechanism to achieve this as can be seen by the variety in the methodologies employed by governments, companies and individuals in the pursuit of this objective. As such, each methodology has its benefits, but is also subject to a number of risks to the sponsor and/or member of the scheme. Some of the key risks of each scheme type that apply to ANSPs are presented in Table 8.1.

Type of scheme	ANSPs in scope	Risk to ANSP
First pillar		
Defined benefit, pay-as-you-go	All except: ARMATS Croatia Control Finavia MUAC NAVIAIR Sakaeronavigatsia	As life expectancy increases, the amount that Governments pay through retirement benefits has also been increasing. As described in Chapter 7, a number of States are increasing the legal retirement age to reduce this risk. Ultimately, the State may choose to increase the contribution rate if there continues to be an imbalance in the ratio of the working : retired population.

Type of scheme	ANSPs in scope	Risk to ANSP
Second pillar		
Defined benefit, funded	Austro Control Avinor DFS IAA LFV NATS NAV Portugal ROMATSA	In funded defined benefit schemes, the ultimate retirement benefits are funded from employer contributions and interest earned on these contributions. Low interest rate environments increase the risk of the current value of the plan assets being lower than the present value of retirement benefits to be paid (i.e. of the schemes being underfunded). In the long term, consistently low interest rates imply the ANSP will have to pay relatively higher contributions to maintain the same level of benefits. ANSPs that are obliged to pay defined benefit annuities to employees on retirement are also exposed to longevity risk. As individuals live longer, so does the cost of these annuity plans to the sponsor. Although actuaries factor life expectancy in to their calculations to help sponsors build up sufficient assets to cover the expected level of payments, increasing life expectancy remains a risk to sponsors of defined benefit plans. Chapter 5 presents instances of some ANSPs with large shortfalls in their funded defined benefit pension scheme. When known, this shortfall can be dealt with by, for example, making extraordinary contributions to the scheme (e.g. NATS, DFS) or by increasing general contribution rates. If the shortfall is unknown, the ANSP may not have sufficient time to recapitalise in the short term, and is likely to have to increase contribution rates in the long term to fill the gap.
Defined benefit, pay-as-you-go	BULATSA DCAC Cyprus LPS UkSATSE	ANSPs that operate pay-as-you-go defined benefit schemes do not set aside assets to fund the future retirement benefits. Whether the "scheme" is sufficiently capitalised is therefore unknown. Longevity increases this problem further as the ratio of the working : retired population decreases over time (see first pillar defined benefit, pay-as-you-go above). This could result in employees facing more onerous contribution rates as sponsors look to fund the benefit payments.
Defined contributions into a multi-employer defined benefit scheme	Finavia LVNL MUAC NAVIAIR Skyguide	Contributions to multi-employer funds are treated as defined contribution schemes as the ANSP is only liable to make these pre-determined contributions and does not face the risk of fulfilling obligations to members on retirement. Although this suggests that the ANSP is protected from the risks inherent in defined benefit schemes, multi-employer funds can increase contribution rates if it is in a poor funding position.

Type of scheme	ANSPs in scope	Risk to ANSP
		In the short term, the fund may not be able to sufficiently increase contribution rates to make up the shortfall, e.g. ABP Pensioenfunds and LVNL. In this case, there is a risk that benefits paid out to members by the fund could be frozen while it recapitalises. This course of action has another risk whereby the fund will face arrears of benefit increases that will need to be accommodated once it is in a healthier financial position. In either case, the ANSP may face higher contribution rates into the multi-employer scheme. For this reason, IAS 19 specifies that companies should disclose the funding status of the fund providing the ultimate benefit to members (e.g. the Skyguide annual report includes the funding position of the Skycare fund).
Defined contribution scheme offered by the ANSP	Albcontrol ANS CR Austro Control Avinor BULATSA Croatia Control ENAV[32] HungaroControl IAA LFV LPS NATS NAV Portugal PANSA ROMATSA Sakaeronavigatsia Slovenia Control SMATSA	As described in Chapter 5, defined contribution schemes avoid the risks of defined benefit ones by not specifying the benefits that members will receive at retirement. Schemes can therefore be set up with relatively low pension costs by having low employer contribution rates. Although this is likely to result in lower costs in the short term, there could be longer term structural implications of this policy. If members do not accumulate sufficient benefits to retire at the normal retirement age, they could look to delay their retirement until they have accumulated sufficient benefits to meet their expected living costs (where legally feasible)[33]. This could result in a situation where the average age of the workforce increases and fewer younger hires are made while employees work for longer. Eventually, once these employees retire, there could be a structural imbalance whereby there are insufficient employees to handle the workload as a result of the hiring freezes that were made to accommodate the elongated careers of retired employees. This situation could therefore present more of a long term operational risk to the organisation rather than a financial risk.

Table 8.1 Risks borne by ANSP in relation to different types of pension schemes

[32] In Italy the date of retirement is established by law. ENAV recognised that they are not in a situation in which members look to delay their retirement until they have accumulated sufficient benefit.

[33] We note that in some organisations staff are obliged to retire at a certain age and the option to work longer is not always possible.

8.3 Limitations of the report

Non-provision of annual reports

This report has relied on a number of sources as the basis for the analysis. The key sources used can be found in Annex 1. As described in Chapter 1, the main source of information used in the production of this report has been the annual reports of the ANSPs. The provision of annual reports is specified in the EUROCONTROL SEID Section 3.1.6 and in Commission Regulation No 2096/2005. We have been unable to review the 2010 or 2016 annual reports of the following ANSPs:

- ARMATS;
- DCAC Cyprus;
- DSNA;
- HCAA;
- M-NAV; and
- MoldATSA.

Annex 1 provides a list of information we have used to supplement annual reports where we have not been able to review them.

Reporting standards

Chapter 5 identified some of the key differences between IFRS and local GAAP in terms of reporting requirements. The comparability of information for ANSPs reporting using local GAAP to those reporting using IFRS depends on the principles that were used to present the pension costs and liabilities.

For example, a number of ANSPs that report using local GAAP calculate the pension costs and liabilities using the Projected Unit Credit Method, the same method as IAS 19. The key difference when comparing the reporting of these ANSPs is the level of detail provided in the disclosures. IAS 19 provides for a consistent set of detailed information that needs to be included in the notes to the annual report, including:

- breakdowns of the pension expense in the year;
- details of the movement in the defined benefit obligation and plan assets (and therefore the net liability); and
- values of, and sensitivities of the defined benefit obligation to, actuarial assumptions.

Local GAAP accounting principles are not, however, consistent with IAS19 principles in a number of other jurisdictions. The information presented in the annual report is not as comparable in these instances. A list of departures from IAS19 disclosed by ANSPs are presented in Annex 3.

Disclosure requirements for DB and DC schemes

As mentioned in the previous section, IAS19 mandates a comprehensive list of disclosures for companies offering DB plans to employees. The disclosure mandated for DC plans, however, are much lighter, resulting in less transparency over costs related to DC schemes.

As a consequence, the reporting of DC costs in Parts I and II of this report has been possible in a large part due to the responses received by ANSPs through the consultation process.

8.4 Implications for benchmarking purposes

Understanding the costs and risks borne by ANSPs in relation to the various pension schemes employees have access to is not always straightforward. Attempting to benchmark the pension schemes can be even more complex, as defined benefit and defined contribution schemes adopt fundamentally different approaches to providing retirement benefits for employees.

Even when focusing only on DB schemes, it appears that some ANSPs report the net interest expenses relating to DB schemes as staff costs while others disclose them under financial costs. These different practices can significantly affect comparisons and trends in the context of benchmarking analysis.

Similarly, it appears from the study that there are different practices in the reporting of remeasurements related to DB schemes (mainly impacts of changes in actuarial assumptions). Although the majority of ANSPs report remeasurements as other comprehensive income (in line with IAS19), a few ANSPs do not follow this method (see Table 5.5) and report remeasurements in the income statement. This creates a bias when making cost comparisons since for some ANSPs staff costs are inflated by a cost that is not realised. It also creates more variability in time series since actuarial assumption are revised annually. ACE benchmarking analysis could therefore be improved if, in their ACE data submissions, all ANSPs were excluding the remeasurements of the year, and would instead report these costs only when they are charged to airspace users (through the costs exempt mechanism for SES ANSPs).

Summary of key messages on Conclusions:

- There are risks associated with both DB and DC plans.
- Defined benefit schemes financed using a pay-as-you-go mechanism can carry an elevated level of risk as the underlying funding position of the scheme is not known, and there is no other mechanism that allows the ANSP to reduce the risk of the scheme beyond increasing contribution rates.
- Defined contribution schemes and contributions to multi-employer funds are not completely risk free, with potential long term operational implications.
- The study has identified two important factors to be considered in the context of benchmarking analysis:
  - More consistent comparisons of staff costs could be made if all ANSPs were reporting net interest expenses relating to DB schemes as part of staff costs (not as a financial cost).
  - Similarly, there are different practices in the reporting of remeasurements related to DB schemes (mainly impacts of changes in actuarial assumptions). In the context of ACE benchmarking, staff cost comparisons and trend analysis could be improved if all ANSPs were excluding the remeasurements of the year, and would instead report these costs only when they are charged to airspace users (through the costs exempt mechanism for SES ANSPs).

PART II: FACT SHEETS WITH READER'S GUIDE

1. FACT SHEET READER'S GUIDE

1.1 Introduction

The objective of this guide is to facilitate the understanding of the information presented in the ANSP pension fact sheets. The analysis reflects whenever possible the situation presented in ANSPs annual reports, since this is the source providing the most accurate and detailed description of the pension arrangements. As a result, most of the fact sheets evaluate the situation for the ANSP as a whole (including the staff involved in oceanic ANS, internal MET and non-ANS activities when relevant). The fact sheets therefore provide a wider scope than the ATM Cost-Effectiveness (ACE) benchmarking report (focusing on continental ATM/CNS provision costs). When ANSPs annual reports are not available or do not provide a sufficient level of detail, the fact sheets are prepared based on ACE data. A note is provided in the ANSP fact sheet (at the bottom of the first page) when this is the case.

The analysis is structured into three parts: overview of pension costs for 2016, defined benefit and defined contribution; each part is presented on a separate page. The overview page is presented for all ANSPs, but the defined benefit and defined contribution pages are only included for ANSPs that operate an occupational pension scheme of that type.

The year 2016 has been selected to conduct this study since it is the last year for which ANSPs annual reports are available. Reference to 2010 is also made in order to analyse changes over time. The reason for selecting the year 2010 as a reference is that it is before the 2011 amendment of IAS 19 (Employee benefits) which could significantly affect the valuation of pension obligations.

The fact sheets present graphs, tables and comments in "boxes", with each box focusing on a particular aspect of the analysis. The data presented in the boxes is compiled from a number of sources, which are identified in the sections below. The fact sheets will also include information sourced directly from the ANSP through a consultation process. All monetary amounts are presented in nominal terms and in local currency. The sections that follow provide explanations on the content of the boxes in each of the three parts of the analysis.

1.2 Overview of pension costs for 2016

1. Contextual economic information
Box 1 presents a summary of key macroeconomic data relevant to the country that the ANSP operates in. Specifically, it presents the national currency, the 2016 exchange rate against the Euro if the ANSP does not report in Euros, and the inflation and long-term interest rates in 2010 and in 2016. The exchange rate is taken from the EUROCONTROL ATM Cost-Effectiveness (ACE) database for 2010 and 2016. Inflation rates are sourced from Eurostat and the International Monetary Fund (IMF). The long-term interest rate represents government bonds with maturities of close to 10 years; this information is sourced from the European Central Bank or the national bank of the State in which the ANSP operates as appropriate.

2. Overview of the first and second pension pillars in the country

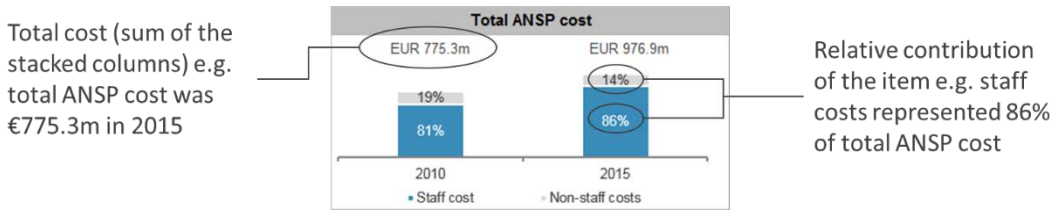
Box 2 is separated into three sections: an overview of the first pillar (state pension), an overview of the second pillar (occupational pension), and the identification of any interaction between the pension pillars. The first pillar contains an overview of the state pension in the country in which the ANSP operates, whereas the second pillar contains a description of the occupational pension scheme(s) operated by the ANSP.

Information is sourced from public data, the operator of the national pension system, ANSP annual reports, information collected by EUROCONTROL as part of the benchmarking exercises, and information from the Study on Cost of Capital, Return on Equity and Pension Costs of Air Navigation Service Providers prepared by Steer Davies Gleave in February 2014. For the ANSPs which did not provide the information about the first pillar the data has been collected from sources such as budget documents and EUROSTAT.

3. Pension costs as a proportion of total ANSP costs (nominal)

Box 3 is split into three sections: presentation of the staff costs as a portion of total ANSP costs, the pension costs as a portion of staff costs, and the breakdown of the pension costs by scheme type respectively. The key item being considered (i.e. staff costs in the 'total ANSP costs' box, and pension costs in the 'staff costs' box) is presented at the bottom, so that the magnitude of the monetary change in the item between 2010 and 2016 can be easily identified.

The following illustration provides a guide to the interpretation of the numbers presented in each box:



The costs are sourced from annual reports where possible. ACE 2010 and 2016 data is used where cost information is not provided in annual reports.

Columns shaded in green refer to first and second pillar pension costs. Columns shaded in blue refer to overall staff costs.

The pension cost in the box in the centre includes first and second pillar pension costs. Where the pension portion of social security contributions cannot be isolated (even after interaction with the ANSP), the items that are included in the pension cost are documented in Box 9. Note that social security refers to the first pillar; defined contribution and defined benefit refers to the occupational schemes.

4. Employees
Box 4 is also separated into three sections: the number of employees, the retirement age for the ANSP's employees, and the evolution of the age profile of the population in the country in which the ANSP operates between 2010 and 2016. As with Box 2, data in Box 3 is provided for 2010 and 2016 to enable the reader to assess the evolution of changes over time. Where available, the age profile of the ANSP's employees is also provided in the box on the right in this section. The labels in the chart refer to the age profile of the ANSP's employees where this information is available. If the age profile of the ANSP's employees is not available, the labels in the chart refer to the age profile in the country in 2016. Information regarding the number of employees is sourced from the ANSP's annual reports, or the ACE 2010 and 2016 data set where this information is not provided in the annual reports. Information on the retirement age for employees of the ANSP is sourced from ANSP submissions received as part of the ACE 2010 and 2016 processes. The national age profile is sourced from the 'World Development Indicators' database published by The World Bank.
5. Occupational pension schemes
Box 5 presents a list of the occupational pension schemes that the employees of the ANSP can subscribe to. The following information can be found in this section: the name of the scheme, the type of scheme (e.g. defined benefit or defined contribution), the number of employees for which the ANSP is contributing to the scheme (absolute numbers and as a percentage of the total number of employees working for the ANSP), and any eligibility criteria for membership of the scheme. Information is sourced from ANSP annual reports, and information collected by EUROCONTROL as part of the benchmarking activities.
6. Pension costs as a proportion of total ANSP costs
Box 6 presents a breakdown of the contribution of pension costs in relation to total ANSP costs. Pension costs are segmented into the pension portions of staff costs (shaded in green with a lighter shade for first pillar costs and a darker shade for second pillar costs), and finance costs (shaded in purple). The breakdown for the ANSP is compared to a pan-European system average, which is calculated as the mean contribution rate for each section across the sample of the 38 ANSPs analysed in this study. The costs are sourced from annual reports where possible. ACE 2010 and 2016 data is used where cost information is not provided in annual reports.

7. Key pension indicators
Box 7 consists of two sections: the first presents 5 summary indicators and the second details measures implemented by the ANSP to mitigate pension cost risks. The summary indicators presented in the first section are: • the net liability in monetary terms and as a proportion of total assets in 2016; • the change in the net liability between 2010 and 2016, calculated as a compound annual growth rate (CAGR); • the pension cost as a percentage of staff costs in 2016; • the ratio between active scheme members and pensioner members in 2016 (defined as members drawing down from a pension plan) for members of a defined benefit pension scheme; and • the average age of the employees of the ANSP in 2016. The first metric enables the reader to compare the ANSP's pension liability with its total asset base. A ratio of one indicates that the ANSP would need to liquidate all assets that it owns to pay the pension liability if the entire liability needed to be paid down at any point in time. A ratio higher than one suggests that the ANSP would need to supplement this asset liquidation with finance from elsewhere in order to meet its obligation in this hypothetical scenario. Note that the net liability and pensioner member metrics will only be available for ANSPs that operate a defined benefit occupational pension scheme. This box is populated with information sourced from annual reports. The second section describes any measures that have been implemented by the ANSP to mitigate pension cost risks, e.g. closing the defined benefit scheme to new employees from a certain date, or changing benefits accrued by members from final to average salary.
8. Early retirement scheme
Box 8 presents an overview of any early retirement schemes operated by the ANSP. This information is sourced from disclosures sent by the ANSPs to EUROCONTROL as part of the ACE exercise.
9. Additional notes
Box 9 contains any additional notes to supplement information presented in the rest of the document. It also includes any forward-looking information related to the national or occupational pension systems.

1.3 Occupational pension – defined benefit (funded)

When several DB occupational schemes are in place, the fact sheet provides an aggregated view on the overall costs and liabilities of the different schemes. When this is the case, the situation in documented in Box 9.

1. Key details
Box 1 contains an overview of the key details of the defined benefit scheme, where applicable. Specifically, the following information can be found in this section: • eligibility criteria for the scheme; • whether the scheme is managed by the ANSP or a third party; • the accounting standard used to present information in the financial statements; • the number of active scheme members; • the number of pensioner members; • the ratio between active and pensioner scheme members. Information is sourced from ANSP annual reports and disclosures sent by the ANSPs to EUROCONTROL as part of the ACE exercise.
***2*. Benefits received**
Box 2 outlines the benefits received by scheme members when they retire. Information is sourced from ANSP annual reports.
3. Accounting treatment
Box 3 presents a summary of the key accounting principles affecting the presentation of the pension information in the ANSP's annual report. Specifically, the following components are considered: • the accounting principles adhered to in the presentation of pension expenses; • any differences to International Accounting Standards (IAS) principles; • the accounting treatment applied to changes in actuarial assumptions; • the impact of revisions to IAS19 that mandated the removal of the corridor approach to spreading the impact of changes in actuarial assumptions; • the impact of revisions to IAS19 that mandated the use of AA corporate bonds to calculate the discount rate; and • any specific accounting treatments used for charging purposes. There is also a section to supplement this information with additional detail. Information is sourced from ANSP annual reports.

4. Drivers of the change in the net defined benefit obligation in 2016
Box 4 contains an overview of the key drivers of the change in the net defined benefit liability in 2016. The drivers are divided into three sections: • pension costs included in staff costs; • pension costs included in finance costs; and • other changes in the net defined benefit obligation. The individual elements of the pension costs included in staff costs (service costs, net interest expenses and other staff DB costs) are presented in the light green columns. Service costs correspond to the sum of current and past service costs. These three elements are then summed in the dark green column "DB portion of staff costs". The amount shown in this column is consistent with the defined benefit costs presented in box 3 of the summary page. This is followed by two elements of the pension costs included in finance costs (interest expenses and expected return on assets). These elements are presented in the light purple shading. When the breakdown between these two elements is not known, only the net expense or the net expected return is shown. The dark purple column, "DB costs in the Income Statement" contains the sum of all of the light green and light purple shaded columns. The amount shown in the column is consistent with the sum of the dark green and dark purple segments in box 6 of the summary page. The final four bars (shaded in orange) document other changes in the net defined benefit obligation, such as contributions by the ANSP, benefits paid and remeasurements. These elements are presented in the columns shaded in light orange, and are followed by a "change in the net DBO" column shaded in dark orange, which contains a sum of all of the preceding light-coloured columns. The figure shown in the dark orange bar is consistent with the 2016 change in net liability shown in box 5. Information is sourced from ANSP annual reports.
5. Evolution of the net defined benefit obligation, 2010-2016
Box 5 contains the evolution of the net pension liability from December 2010 to December 2016. The dark blue columns in the chart present the net liability position at the end of 2010 and 2016, and the light blue columns present the year-on-year change in net liability. The orange column contains the same year-on-year change for 2016 as identified by the column shaded in the same colour in Box 4. The table below the chart presents the benefit obligation, plan assets and consequent net liability position at the end of each of the financial years in this time period. The information is sourced from ANSP annual reports.

6. Additional information on plan assets
Box 6 contains an overview of the type of investments that ANSP and employee contributions to the defined benefit scheme are invested in to finance the obligation. Information is sourced from ANSP annual reports.
7. Actuarial assumptions
Box 7 documents the actuarial assumptions used to calculate the net pension liability in 2016 (in the dark blue bar). This is compared to the assumptions that were used to calculate the liability in 2010 (in the light blue bar) and the pan-European system average for each assumption (in the light grey bar). Information is sourced from ANSP annual reports.
8. Sensitivity of the obligation to changes in assumptions
Box 8 provides an indication of the sensitivity of the defined benefit obligation to a subset of the actuarial assumptions provided in Box 7. The sensitivity to an increase in the assumption is shown in the blue bar and the sensitivity to a decrease in the assumption is shown in a light grey bar. Information is sourced from ANSP annual reports. The impact is shown for a ±1.0% change in the underlying assumption. Although the relationship between the magnitude of the impact and change in assumption is not linear, the difference in applying a linear approach is not materially different to the more accurate non-linear method. Therefore, where the impact is stated for a change in the assumption of a different magnitude, the impact has been scaled linearly as appropriate e.g. if the obligation would increase by €1m as a result of a +0.5% increase in the assumption, the chart will show the impact of a +1.0% increase as a €2m increase.
9. Additional notes
Box 9 contains any additional notes to supplement information presented in the rest of the document.

1.4 Occupational pension – defined contribution

1. Key details
Box 1 contains an overview of the key details of the defined contribution scheme, where applicable. Specifically, the following information can be found in this section: • eligibility criteria for the scheme; • whether the scheme is managed by the ANSP or a third party; • the accounting standard used to present information in the financial statements; • the number of employees for which the ANSP is contributing to the scheme (active members); • the date of inception of the defined contribution scheme. Information is sourced from ANSP annual reports and disclosures sent by the ANSPs to EUROCONTROL as part of the ACE exercise.
2. Contributions to the pension scheme
Box 2 is split into three sections: total contributions to the scheme (dark blue column); contribution rates expressed as a % of the gross wages; and contribution rate split by staff type (ATCOs and other staff). Contribution and amount rates in the first two boxes is presented from 2010 to 2016. Information is sourced from ANSP annual reports.
3. Additional notes
Box 3 contains any additional notes to supplement information presented in the rest of the document, including qualification criteria to draw down from the scheme.
Additional information
This box contains additional information in case there is not enough space in the first two pages of the fact sheet.

2. FACT SHEETS AT ANSP LEVEL IN NOMINAL, LOCAL CURRENCY

ALBCONTROL: Albania

Overview of pension costs for 2016

1. Contextual economic information

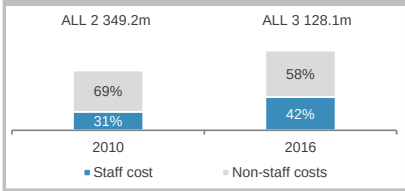
National currency:	ALL		Exchange rate 2016: 1 EUR = 139.0 ALL	
Inflation rate:	2010:	3.6%	2016:	1.3%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	na

2. Overview of the first and second pension pillars in Albania

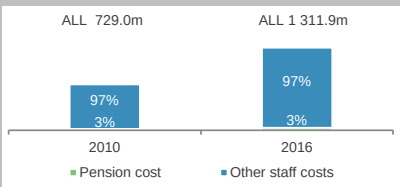
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The Albanian state pension system offers defined benefits to individuals. It is financed on a pay-as-you-go basis through contributions from employees (8.8% of covered monthly earnings) and employers (12.8% of the covered monthly payroll subject to maximum and minimum earnings levels as stated in Box 9). Benefits are dependent on the retirement age and years of contributions as stated in Box 9.	The defined contribution pension scheme operated by Albcontrol came into operation on 1 September 2010.	

3. Pension costs as a proportion of total ANSP costs (nominal)

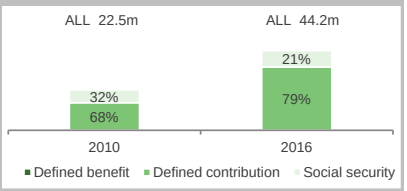
Total ANSP costs



Staff costs

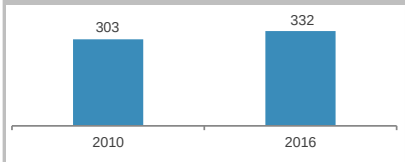


Pension costs

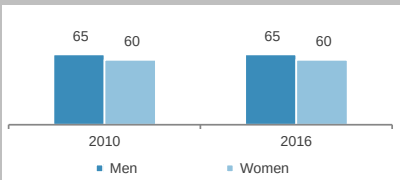


4. Employees

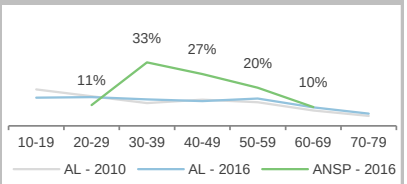
Number of employees (FTEs)



Retirement age (Albcontrol)



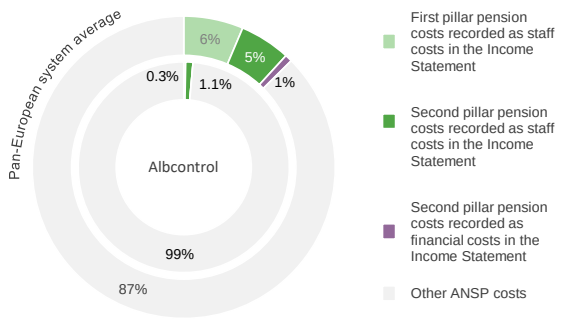
Age profile (Albania /Albcontrol)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	332	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	1%
Active / pensioner members (DB)	na
Average employee age	42

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

9. Additional notes

The maximum monthly earnings from which employer contributions can be taken is ALL 97 030 and the minimum is ALL 22 000. A minimum of 35 years of contributions is necessary to draw down pension benefits if individuals retire at the legal age. Partial benefits are available for individuals that retire at this age with at least 15 years of contributions. All information for 2010 has been taken from ACE data. Pension cost information for 2016 has been taken from ACE data. First pillar pension costs in Box 3 is the amount directed towards financing of the state pension system.

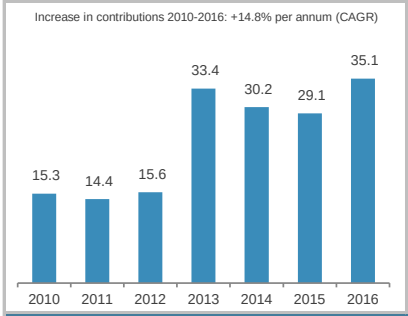
ALBCONTROL: Albania — Occupational pension - defined contribution

1. Key details

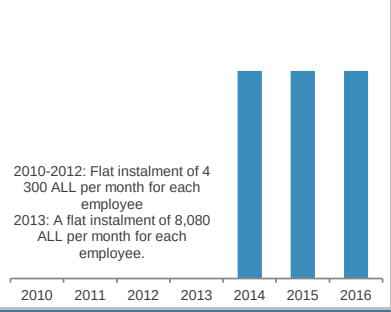
Scheme open to:	All staff	Active members:	332
Scheme managed by:	Sigal (insurance company)	Date of inception:	1 September 2010
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

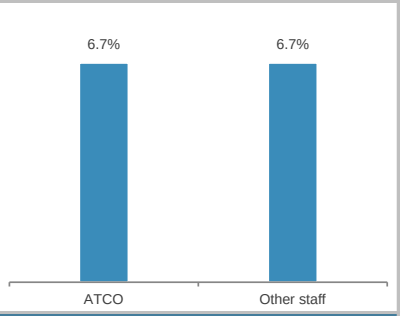
Total contributions (ALLm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The same contribution rate applies for all categories of employees.

ALBCONTROL: Albania — Additional information

Additional information

Additional information Pension cost:
The state allocates 12.79% of total social security contributions towards financing the state pension.

Additional information (Summary page, box 6):
First and second pillar pension costs in Box 6 account for 0.3% and 1.1% of total ANSP costs respectively; pension costs sum to 1.4% of total ANSP costs.

ANS CR: Czech Republic

Overview of pension costs for 2016

1. Contextual economic information

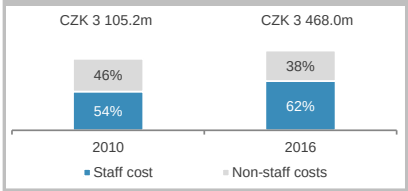
National currency:	CZK		Exchange rate 2016: 1 EUR = 27.0 CZK	
Inflation rate:	2010:	1.2%	2016:	0.6%
Government bond yields with maturities of close to 10 years:	2010:	3.9%	2016:	0.4%

2. Overview of the first and second pension pillars in Czech Republic

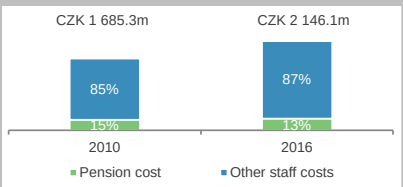
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The state pension is a defined benefit scheme, funded through a pay-as-you-go mechanism with contribution rates of 21.5% of earnings for employers and 6.5% for employees. A reform in 2013, which was subsequently scrapped in 2016, diverted 3% of employees' earnings from the first pillar to new second pillar pension, supplemented by an additional contribution of 2% of gross wages.	ANS CR provides a defined contribution occupational scheme to all employees. ANS CR contributes to employees' additional pension insurance based on signed collective agreements. These pension funds are managed by third parties, with the amount of contributions defined by the provisions in the collective agreement.	

3. Pension costs as a proportion of total ANSP costs (nominal)

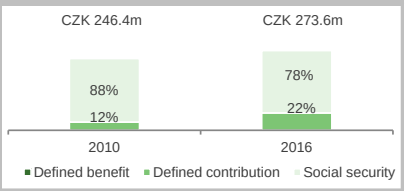
Total ANSP costs



Staff costs

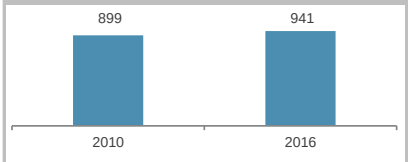


Pension costs

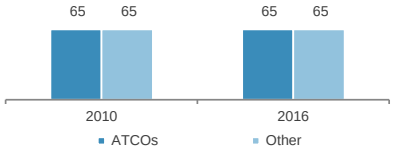


4. Employees

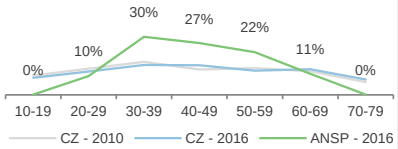
Number of employees (as at 31 Dec)



Retirement age (ANS CR)



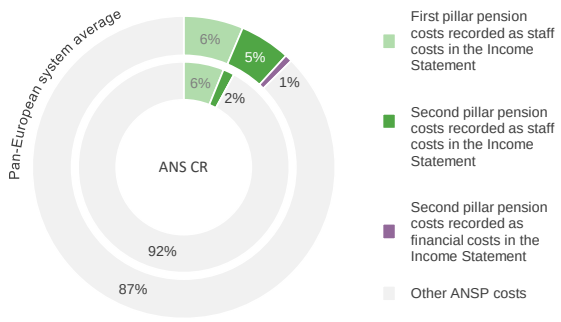
Age profile (Czech Republic/ANS CR)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	815	87%	Based on collective agreements and internal guidelines

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

9. Additional notes

ANS CR's annual report presents separate financial statements according to Czech accounting standards and IFRS. This fact sheet is based on the IFRS accounts. Contributions to the defined contribution scheme and the state pension in Box 3 have been provided by ANS CR , all other costs are taken from the annual report. Social security costs recorded include amount of contribution directed towards the State pension only. There is no single retirement age as the legal retirement age depends on the employee's date of birth, with younger employees due to retire later than older ones.

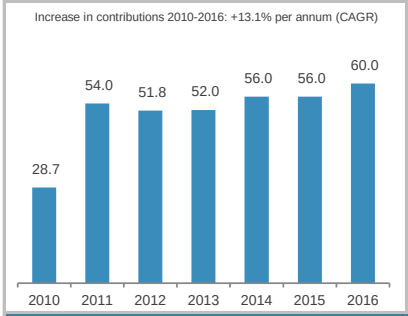
ANS CR: Czech Republic

Occupational pension - defined contribution

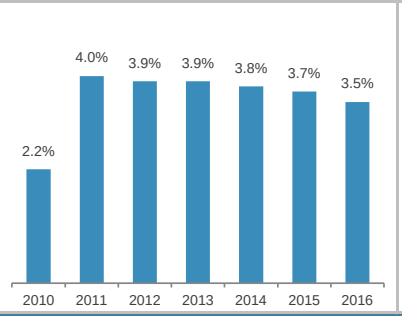
1. Key details			
Scheme open to:	Based on collective agreements and internal guidelines	Active members:	815
Scheme managed by:	Third party	Date of inception:	August 2001
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

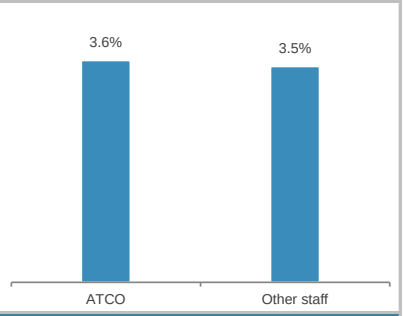
Total contributions (CZKm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The contribution rate above applies to gross salaries including bonuses.

ANS CR: Czech Republic

Additional information

Additional information

None

ARMATS: Armenia

Overview of pension costs for 2016

1. Contextual economic information

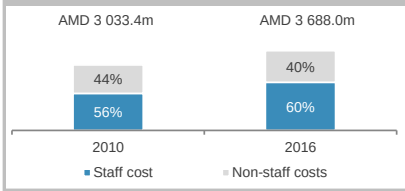
National currency:	AMD		Exchange rate 2016: 1 EUR = 528.0 AMD	
Inflation rate:	2010:	7.3%	2016:	-1.4%
Government bond yields with maturities of close to 10 years:	2010:	6.5%	2016:	7.3%

2. Overview of the first and second pension pillars in Armenia

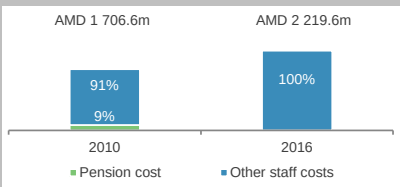
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution (no employer contribution)	
Non-contributory, flat rate residency-based social pension is available to persons aged over 65 who cannot benefit from public occupational pension. The second component, public occupational pension, depends on years of service (minimum of 10 years) and is available to persons aged 63 and over. State pension is funded through social contributions made by employers and employees.	ARMATS has a privately managed defined contributions scheme for employees born after the 1st January 1974. The defined contribution scheme was introduced on 1st January 2014. The contributions to the pension fund are made by employees only.	

3. Pension costs as a proportion of total ANSP costs (nominal)

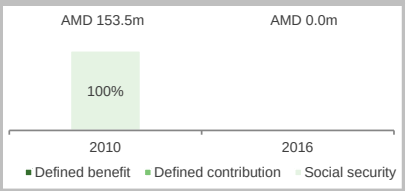
Total ANSP costs



Staff costs

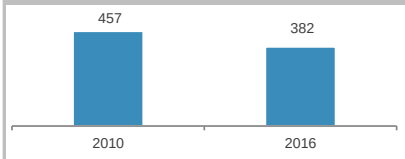


Pension costs

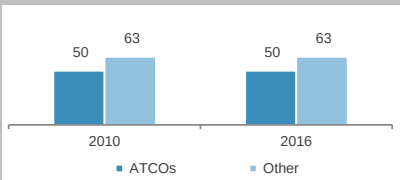


4. Employees

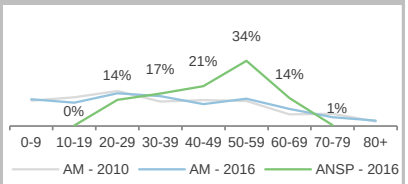
Number of employees (FTEs)



Retirement age (ARMATS)



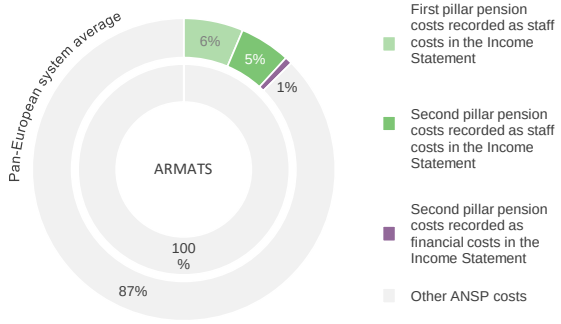
Age profile (Armenia /ARMATS)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	0	0%	Employees born after 01/01/1974

6. Pension costs as a proportion of total ANSP costs



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	na
Active / pensioner members (DB)	na
Average employee age	46

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There is no early retirement scheme in place at ARMATS. Legal retirement age for ATCOs in OPS is 50 if the mandatory requirement of continuous job seniority of 15 years in ATC service is met. The retired ATCOs may continue to work on other duties.

9. Additional notes

Employees contribute 3% of gross earnings as social contributions. Employer contributions as of 2012 followed a schedule as follows: base rate for wages up to AMD 20,000: AMD 7,000 fixed rate; additional amount applied to wages between AMD 20,000 and AMD 100,000: 15%; and additional amount applied to wages over AMD 100,000: 5%. Data for staff costs (2016 only) and the number of employees (2010 and 2016) have been taken from ACE data as these were not provided in the respective financial statements. ARMATS did not report any social security costs for 2016 in ACE. All of the social security costs in 2010 relate to pension costs.

AUSTRO CONTROL: Austria

Overview of pension costs for 2016

1. Contextual economic information

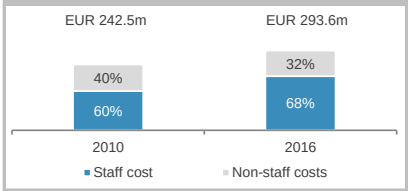
National currency:	EUR			
Inflation rate:	2010:	1.7%	2016:	1.0%
Government bond yields with maturities of close to 10 years:	2010:	3.2%	2016:	0.4%

2. Overview of the first and second pension pillars in Austria

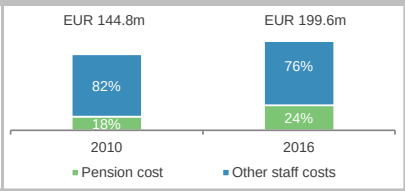
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
Pay-as-you-go state pension system is financed by employer contributions of 12.55% and employee contributions of 10.25%. Benefits are dependent on the length of contributions made by the individual and the age at which they retire. Calculations are based on individuals' 18 highest-paid years and can sum to 80% of their average lifetime salary if contributions have been made for at least 45 years.	Austro Control has a funded defined benefit and defined contribution pension scheme. Staff that joined the ANSP before 1 January 1997 are members of the defined benefit scheme, whereas those that joined after this date are eligible for the defined contribution one.	

3. Pension costs as a proportion of total ANSP costs (nominal)

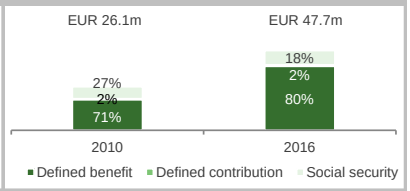
Total ANSP costs



Staff costs

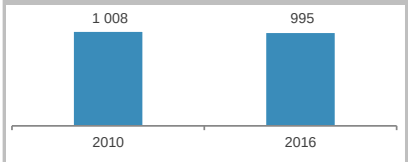


Pension costs

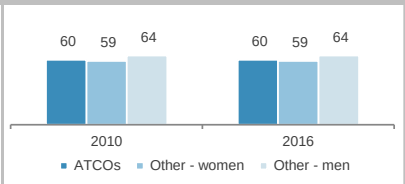


4. Employees

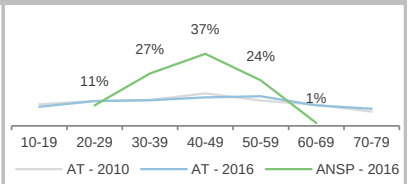
Number of employees (average)



Retirement age (Austro Control)



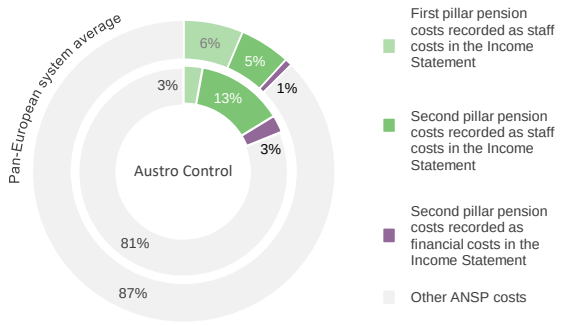
Age profile (Austria/Austro Control)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (funded)	711	71%	Staff that joined before 1 January 1997
Scheme 2	Defined contribution	494	50%	Staff that joined after 1 January 1997

6. Pension costs as a proportion of total ANSP costs



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 357m, 74% of total ANSP assets
2010-16 change in net DB liability	+6% per annum (CAGR)
Pension % of total ANSP costs	19%
Active / pensioner members (DB)	107%
Average employee age	46

Measures implemented to mitigate pension cost risks

A defined contribution scheme was introduced for staff that joined after 1 January 1997.

8. Early retirement scheme

An early retirement scheme is in place for ATCOs at the age of 55. The costs of this scheme are accounted through a provision, which is drawn down as the early retirement packages are granted. The costs relating to the scheme are reported as staff costs in the ANSP's corporate accounts.

9. Additional notes

The pension costs and liabilities presented in this fact sheet include those incurred for pensions and termination benefits. The current service cost of the defined benefit scheme has been assumed to be the same as the pension expenses due to lack of detailed breakdown in the annual report. First pillar pension costs in Box 3 includes the social security contributions directed towards state pensions only, as provided through Austro Control's consultation response. Termination benefits or provisions for severance payments are included in the DB cost in Box 3.

AUSTRO CONTROL: Austria

Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	Staff that joined before 1 Jan 1997	Active members:	711
Scheme managed by:	VBV Pensionskasse AG	Pensioner members:	667
Accounting standard used:	Austrian GAAP	Active members / pensioner members:	1.07

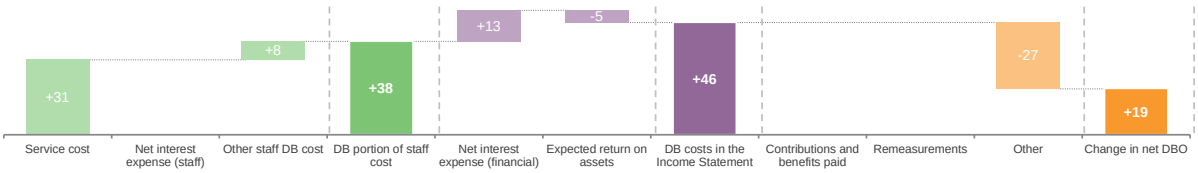
2. Benefits received

Up to 20% of gross salary depending on service duration; members with 35 service years are entitled to receive the full benefit.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	Principles, but not presentation, consistent with IAS 19
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Accumulated loss of EUR 126.3m spread to 2017 in 5 equal tranches
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	-
Specific accounting treatments used for charging purposes (if different from above):	Costs exempt spread over the next 2 regulatory periods
Additional detail on accounting treatment:	See additional information on the following page

4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



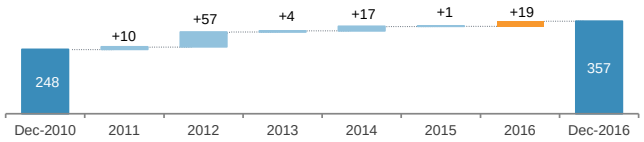
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

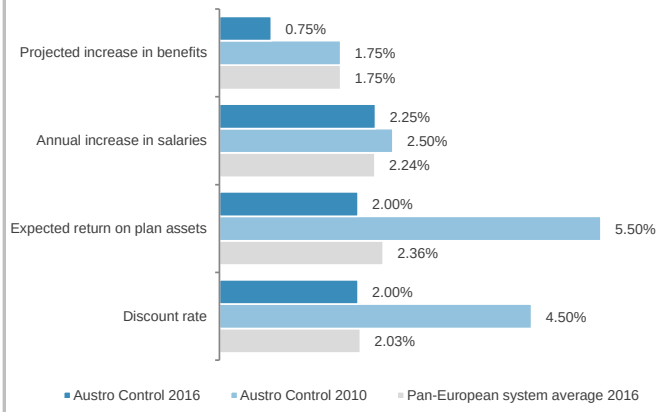


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	414	428	495	506	533	538	569
Plan assets	165	170	179	186	196	200	212
Net liability	248	258	316	320	337	338	357

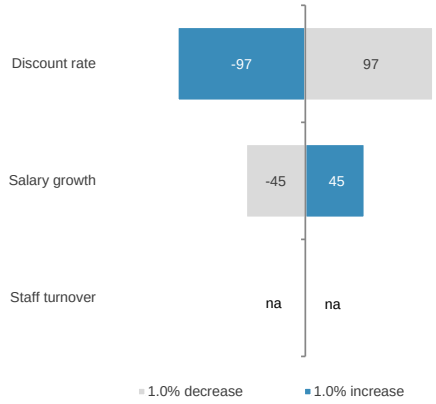
6. Additional information on plan assets

The annual report indicates that the "bulk of the investments are bonds and shares".

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

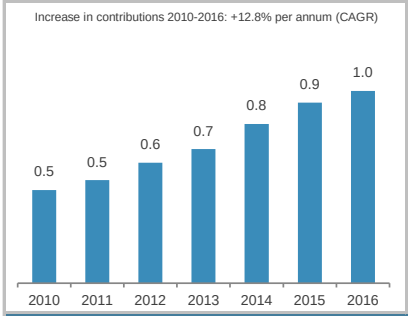
The defined contribution pension cost is not presented separately in the annual reports; the service cost in Box 4 represents the full value of the pension employee expense, part of which is likely to include the defined contriution cost. The other staff costs in Box 4 represent termination benefit expenses (severance payments that are due at retirement and are subject to Austrian GAAP, social security legislation and collective bargaining agreements) of EUR 7.5m in 2016. The accounts provide insufficient information on pension cost (e.g. service cost, net interest expense) to reconcile the pension and termination cost of EUR 46m presented in the income statement, and the movement in the net DBO from 2015 to 2016 of EUR 44m.

AUSTRO CONTROL: Austria — Occupational pension - defined contribution

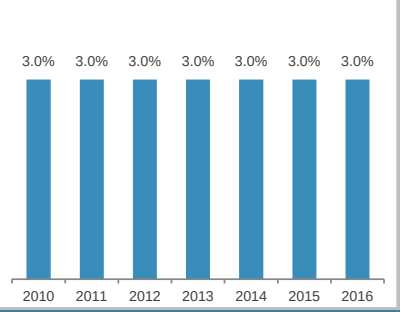
1. Key details			
Scheme open to:	Staff that joined after 1 January 1997	Active members:	494
Scheme managed by:	VBV Pensionskasse AG	Date of inception:	1 January 1997
Accounting standard used:	Austrian GAAP		

2. Contributions to the pension scheme

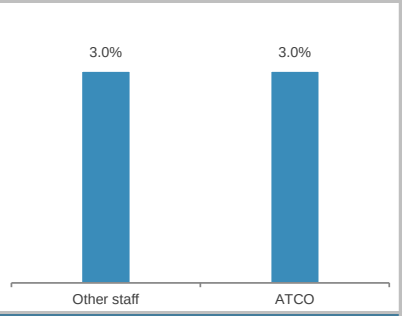
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

Austro Control makes a contribution to the scheme of 3% of pensionable salary. The defined contribution cost is not presented separately in Austro Control's annual reports. The full value of the pension expense is recorded as the defined benefit service cost in this fact sheet. Part of this service cost value is likely to include the defined contribution element of the pension cost. The DC scheme is applicable to all employees who joined Austro Control after 1 January 1997.

The contribution rate applies to a base (gross) salaries excluding bonuses, overtime payments and other perks. There is a qualifying period of 5 years to participate in defined contribution scheme (no past service).

It is optional for employees to contribute to the scheme the number of active members (estimated) contributing to the scheme has been provided through consultation.

AUSTRO CONTROL: Austria — Additional information

Additional information

Additional information on the defined benefit scheme:
The actuarial valuation follows the projected unit credit method in accordance with IAS 19. Following IAS 19 guidelines, an expense of EUR 12.6m was included in other interest and similar expenses for employee benefit obligations.
The difference between the DB costs in the income statement and the net DBO reported in 2016 as represented by the Other in the figure above is due to the termination of the corridor method in 2013.

AVINOR: Norway

Overview of pension costs for 2016

1. Contextual economic information

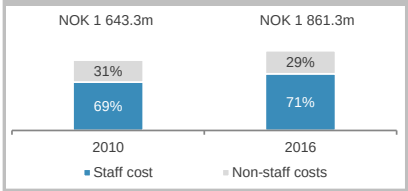
National currency:	NOK		Exchange rate 2016: 1 EUR = 10.0 NOK	
Inflation rate:	2010:	2.3%	2016:	3.9%
Government bond yields with maturities of close to 10 years:	2010:	2.0%	2016:	0.5%

2. Overview of the first and second pension pillars in Norway

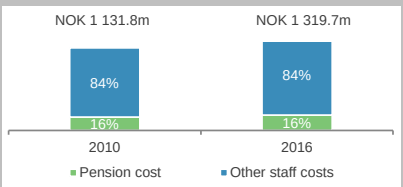
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
The Norwegian state pension is a defined benefit system, funded by pay-as-you-go contributions from employers and employees (aged 13 to 75). The maximum contribution rate for employers in 2015 was 14.1%. Pensions can be received from the age of 62. Individuals born after 1963 are subject to the new, post-reform system introduced in 2011, with benefits of up to 18.1% of pensionable income.	Norwegian Public Service Pension Fund (SPK) manages the funded defined benefit pension scheme. Payments are guaranteed by the Norwegian State. The basis for calculating the pension entitlement is capped at 12 times the basic amount. Senior executives receive a defined contribution top-up pension for the portion of salary exceeding this cap. The pension is paid at 67.	Occupational pension is harmonised with the state pension- they are both paid out by SPK. The payments associated with the defined benefit scheme as well as the state pension are managed by SPK and guaranteed by the Norwegian State.

3. Pension costs as a proportion of total ANSP costs (nominal)

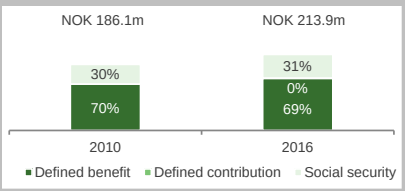
Total ANSP costs



Staff costs

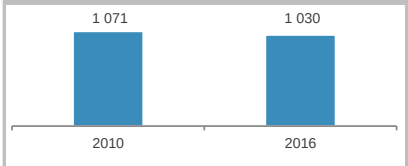


Pension costs

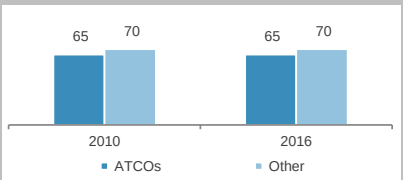


4. Employees

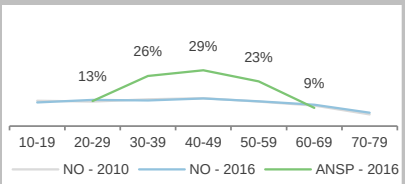
Number of employees (FTEs)



Retirement age (Avinor)



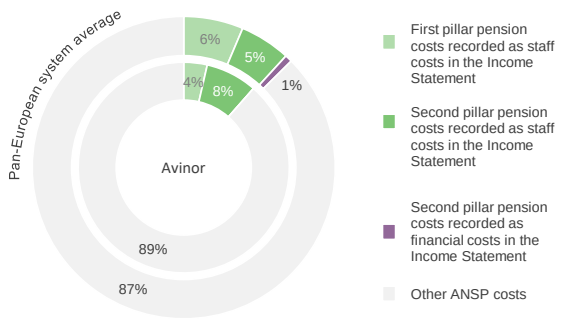
Age profile (Norway/Avinor)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (funded)	1 066	100%	All staff
Scheme 2	Defined contribution	1	0%	Senior executives appointed before 13 February 2015

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	NOK 812m, 35% of total ANSP assets
2014-16 change in net DB liability	-1% per annum (CAGR)
Pension % of total ANSP costs	11%
Active / pensioner members (DB)	1 748%
Average employee age	43

Measures implemented to mitigate pension cost risks

The basis for calculating pension entitlement is capped at 12 times the basic amount. Avinor has established a defined contribution scheme for the portion of salary exceeding this cap. The defined contribution scheme is not available for executive employees appointed after 13 February 2015.

8. Early retirement scheme

The legal retirement age for ATCOs was 65 in 2016 (62 in 2010). Some ATCOs have negotiated individual agreements whereby they earn 72% of the full salary between the ages of 60 and 62 (the legal early retirement age) with no obligation to work. Provisions are made for future costs and drawn down as staff costs as the packages are granted.

9. Additional notes

All costs value for 2016 refer to Avinor Flysikring. All costs values and the number of employees for 2010 are taken from the ACE submission. Avinor Flysikring financial accounts are only available since 2014, but since the scope of ACE reporting is similar to that of Avinor Flysikring, ACE has been used as a proxy for 2010 data. The average employee age in Box 7 refers to all Avinor Group employees and is not limited to employees of Avinor Flysikring. The Norwegian 2016 State budget has been used to approximate the pension percentage of social security costs for 2010 and 2016 in Box 3.

AVINOR: Norway

Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	All staff	Active members:	1 066
Scheme managed by:	SPK	Pensioner members:	61
Accounting standard used:	IFRS	Active members / pensioner members:	17.48

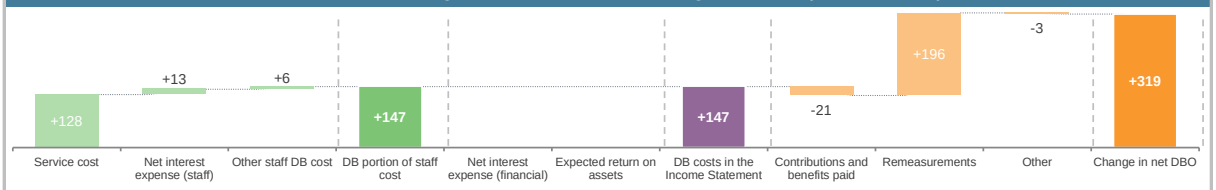
2. Benefits received

Guaranteed at 66% of the basis of entitlement for individuals born before 1959. The basis of entitlement depends on final salary, part-time work agreements and years of pensionable service (up to a maximum of 30 years) and is capped at 12 times the basic amount. The percentage has not yet been set for individuals born after 1959, but is likely to be lower than 66%.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	IFRS (IAS 19)
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	-
Impact of revisions to IAS 19 (removal of corridor approach):	-
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	-
Specific accounting treatments used for charging purposes (if different from above):	-
Additional detail on accounting treatment:	Charges calculated using an imputed occupational pension model, which sets the discount rate equal to the expected long term return on assets, rather than a corporate bond rate that fluctuates annually.

4. Drivers of the change in the net defined benefit obligation in 2016 (NOKm, nominal)



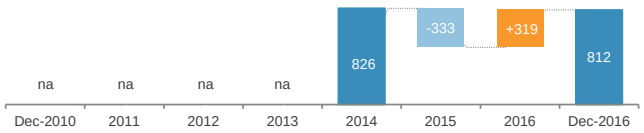
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (NOKm, nominal)

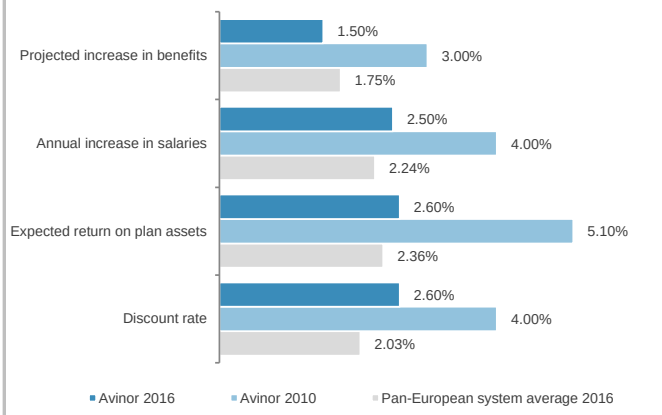


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	-	-	-	-	2 711	2 580	2 982
Plan assets	-	-	-	-	1 885	2 087	2 170
Net liability	-	-	-	-	826	493	812

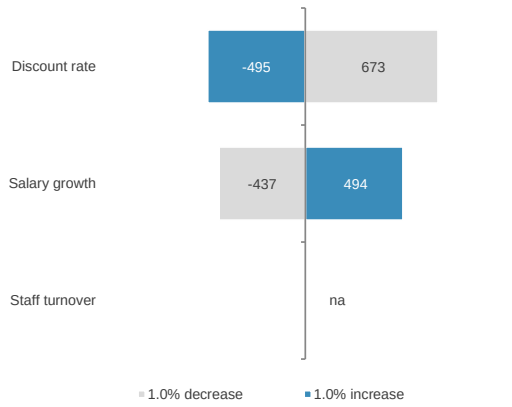
6. Additional information on plan assets

Administration of the allocated fund (fictitious fund) is simulated as if the funds were placed in long-term government bonds. The pension scheme is not movable in the same way as private pensions schemes and it is assumed that the pension scheme will be continued in SPK. In the simulation it is assumed that the bonds are held to maturity. The pension fund is therefore estimated at nominal value plus the return on the fund. The determination of premium levels and the calculation of provisions for pension obligations are based on ordinary actuarial principles.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (NOKm)



9. Additional notes

The benefit obligation includes retirement, disability and dependent pensions and is calculated by SPK. The discount rate is calculated based on Norwegian covered bond interest rates. See additional information on the following page for further details on the cost components included in Box 4. In line with IAS 19 guidance, the assumption for the expected return on assets in 2016 is assumed to be the same as the discount rate used to calculate the defined benefit obligation (Box 7). Actuarial assumptions for 2010 relate to Avinor Group. Box 5 includes data from 2014 only, as Avinor Flysikring financial accounts are only available from 2014. The 319m NOK in Box 4 is before social security tax.

Additional information
Additional information on the first pension pillar in Norway (overview, Box 2): Benefits received under the new scheme are subject to a cap of 7.1 times a basic amount (NOK 89,502 in 2015). Individuals born prior to 1954 are still subject to the old system, with benefits determined by the individual's 20 best income years, with 40 years of service required in order to earn a full pension. Pensions for individuals that born between these two years are calculated using a blended average. Additional information on the pension portion of ANSP costs (overview, Box 3): A defined contribution has been in operation since 24 June 2013 with contribution rates of 20% of pensionable income from 12 to 18 times the basic amount, and 15% above that. There is currently only one member actively contributing to the scheme. Additional information on the defined benefit costs (defined benefit - funded page, Box 4): Avinor Flysikring shows a service cost of NOK 128m in the Income Statement, but NOK 131m in the movement in the net DBO. The following items are included in staff costs in the Income Statement, but not in the movement in the net DBO: contribution from the employees (NOK -17.4m), administration fee (NOK 3.1m), payroll tax and employers contribution (NOK 20.3m). These items are included as other staff costs in Box 4, but an adjustment is included to net these items out again in the penultimate column (other). The pension obligation's weighted average duration is 29 years. Avinor Flysikring AS was demerged from Avinor AS in June 2014, but remains a wholly owned subsidiary. There are therefore no financial statements for Avinor Flysikring AS earlier than 2014. All employees are subject to a 2% deduction in their ordinary salary, called "Pensjonstrekk" (Pension deduction). This is compulsory in accordance with the act relating to the Norwegian Public Service Fund (SPK). This reduces the pension cost, and the total cost for the Company. Additional information on defined benefit costs (defined benefit - funded page, Box 4): There is an assumption that 15 % of the employees with a right to the contractual pension will take advantage of the opportunity of early retirement when they are 62 years of age. The purpose is to include early retirement in the gross pension obligation. Additional information on defined benefit benefits received (defined benefit - funded page, Box 2): Maximum pension for people born before 1959 is guaranteed at 66 % of the basis of pension entitlement. The basis of pension entitlement is a product of the variables; end-salary, position percentage (compared to full time-position), and years of pensionable service (30 years maximum). For people born in 1959 or later the percentage (66 % over) can, and probably will be lower in the future. However, this has not been determined yet. Future changes: From the 1 January 2018 the financing of deferred pension rights for employees who leave the organisations will be transferred from the Norwegian Public Service Pension Fund to the organisation in question. This change has been reflected in the accounts for 2017. The labour market parties have in 2018 agreed a new occupational pension scheme for public sector employees. The agreement will be sent for approval by the various associations, which will have four months to make their decision. If all associations approve, the Norwegian government will present a new bill before the Norwegian parliament as quickly as is practicable. If the agreement is adopted, it will be due to take effect from 2020. This will have consequences for how Avinor's pension expenses and obligations are calculated in its accounts. However, at this moment in time there is an insufficient basis for calculating the impact. The impact on the accounts will have to be taken into account from when the new scheme is adopted.

BELGOCONTROL: Belgium

Overview of pension costs for 2016

1. Contextual economic information

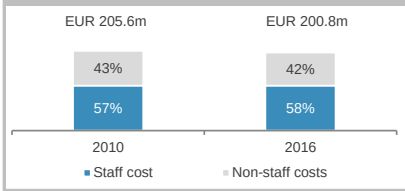
National currency:	EUR			
Inflation rate:	2010:	2.3%	2016:	1.8%
Government bond yields with maturities of close to 10 years:	2010:	3.5%	2016:	0.5%

2. Overview of the first and second pension pillars in Belgium

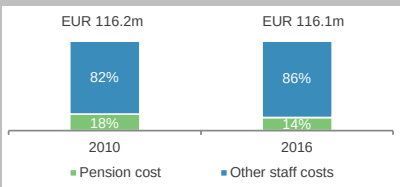
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The state pension in Belgian consists of an earnings-related pension. The pension earned ranges from 60% to 70% of pensionable income, with the exact amount dependent on previous earnings, current income level and marital status. Benefits are funded by contributions of 8.86% for contractual employees, with employers paying contributions of 35% for statutory personnel.	Belgocontrol employees receive a state pension only; Belgocontrol does not provide an additional occupational pension to employees. For contractual employees Belgocontrol pays premiums to an insurance company (ETHIAS) under an extra group insurance contract.	

3. Pension costs as a proportion of total ANSP costs (nominal)

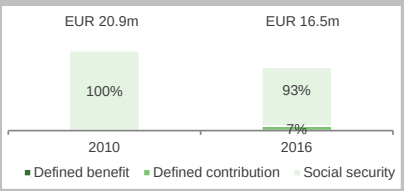
Total ANSP costs



Staff costs

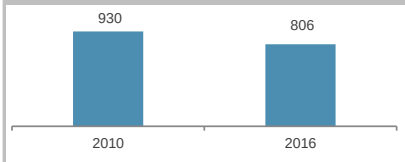


Pension costs

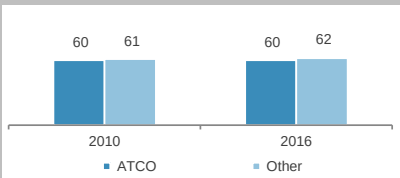


4. Employees

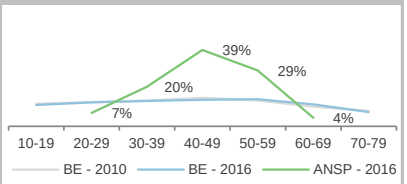
Number of employees (as at 31 Dec)



Retirement age (Belgocontrol)



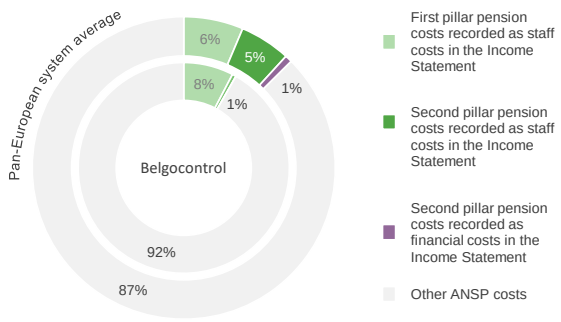
Age profile (Belgium/Belgocontrol)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There is no distinct early retirement scheme in place at Belgocontrol, though from 2017, ATCOs can choose to leave OPS 5 years before retirement while continuing to receive a significant part of their salary while not being on active duty.

9. Additional notes

The legal retirement age will be further increased to 66 years from 2025 and 67 years from 2030 for all staff. From 2016 to 2019 there is a transitional period for statutory as well as contractual staff members in which age and career conditions will be gradually increased, additional details of the plan have been provided by the ANSP. Belgocontrol does not isolate its social security contributions in its annual reports. Pension cost data in Box 3 has therefore been taken from ACE submissions. A new Royal Decree was introduced which allows Belgocontrol the ability to revoke the non-active status of ATCOs. There were 278 contractual employers in 2016.

BULATSA: Bulgaria

Overview of pension costs for 2016

1. Contextual economic information

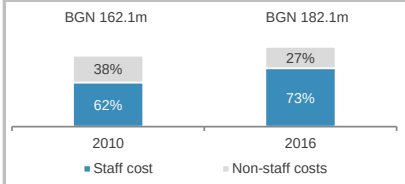
National currency:	BGN		Exchange rate 2016: 1 EUR = 2.0 BGN	
Inflation rate:	2010:	3.0%	2016:	-1.3%
Government bond yields with maturities of close to 10 years:	2010:	6.0%	2016:	2.3%

2. Overview of the first and second pension pillars in Bulgaria

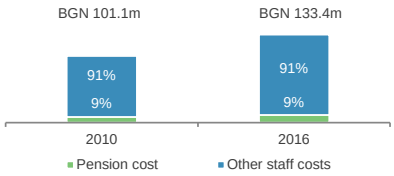
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
The state pension in Bulgaria is a defined benefit scheme, financed through pay-as-you-go contributions of 17.8% (in 2013) from employers (9.9%) and employees (7.9%). The contributions are supplemented by proceeds from privatisations and 50% of the general budget surplus.	Defined contribution and defined benefit plans are offered in accordance with collective agreements. The pension funds are not managed by BULATSA.	For individuals born in or after 1960, 5% of the 17.8% contribution (2.8% of the 9.9% employer contribution and 2.2% of the 7.9% employee contribution) is allocated to individual accounts. From 1 August 2015, workers born after 1959 can switch between the first-pillar pay-as-you-go (PAYG) social insurance program and the second-pillar individual accounts until 5 years before retirement.

3. Pension costs as a proportion of total ANSP costs (nominal)

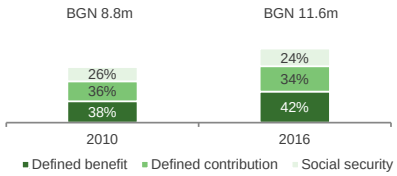
Total ANSP costs



Staff costs

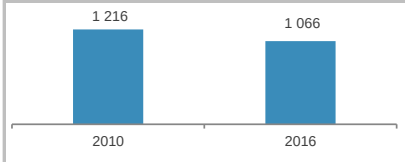


Pension costs

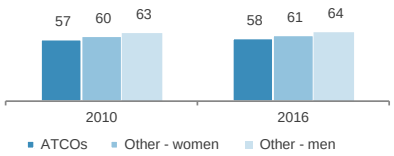


4. Employees

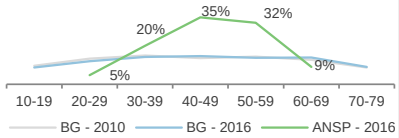
Number of employees (FTEs)



Retirement age (BULATSA)



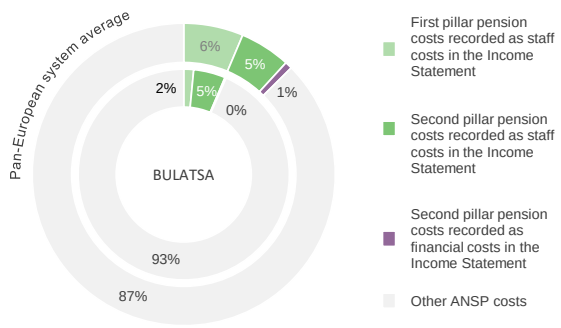
Age profile (Bulgaria /BULATSA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	1 066	100%	Not provided
Scheme 2	Defined contribution	1 066	100%	Not provided

6. Pension costs as a proportion of total ANSP costs



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	BGN ,14m, 3% of total ANSP assets
2010-16 change in net DB liability	-5% per annum (CAGR)
Pension % of total ANSP costs	7%
Active / pensioner members (DB)	na
Average employee age	46

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

BULATSA does not operate an early retirement scheme.

9. Additional notes

First pillar pension costs in Box 3 include all social security costs. The number of employees in Box 4 has been taken from BULATSA's annual reports. The national retirement age in Bulgaria is 63 years and 10 months for men and 60 years and 10 months for women with at least 38 years and 2 months (men) or 35 years and 2 months (women) of contributions. The normal retirement age for men is gradually rising by 2 months in 2017 and by 1 month a year thereafter until reaching age 65 by 2029. For women, the normal retirement age is gradually rising by 2 months a year from 2017 to 2029 and by 3 months a year from 2030 to 2037 reaching 65 years.

BULATSA: Bulgaria

Occupational pension - defined benefit (pay-as-you-go)

1. Key details

Scheme open to:	Not provided	Active members:	1 066
Scheme managed by:	External funds	Pensioner members:	Not provided
Accounting standard used:	IFRS	Active members / pensioner members:	na

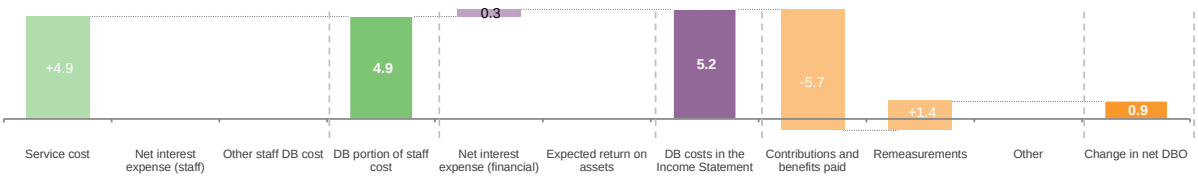
2. Benefits received

We have not seen any information on the benefits received by members of the defined benefit pension scheme.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	IAS 19
Differences to IAS principles (if applicable):	See below
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Equity balance at 1 January 2013 restated to reflect BGN 1.0m impact
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	Not provided
Specific accounting treatments used for charging purposes (if different from above):	Not applicable
Additional detail on accounting treatment:	There is an annual past service cost due to the development of the liabilities which are reserved for next 5 years only – departure from IAS 19 (full lifetime of members)

4. Drivers of the change in the net defined benefit obligation in 2016 (BGNm, nominal)



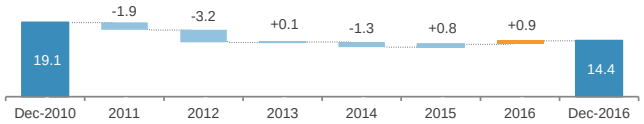
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (BGNm, nominal)

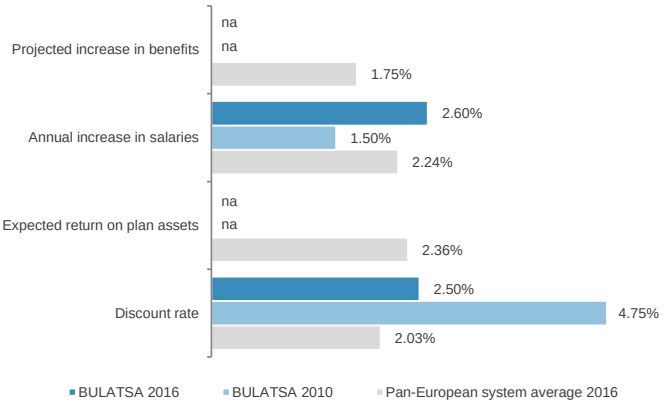


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	19.1	17.2	14.0	14.1	12.8	13.6	14.4
Plan assets	-	-	-	-	-	-	-
Net liability	19.1	17.2	14.0	14.1	12.8	13.6	14.4

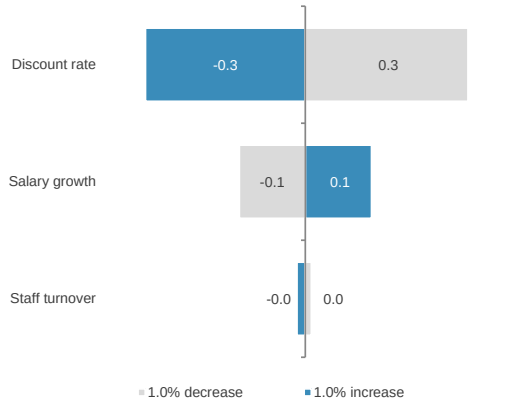
6. Additional information on plan assets

The full value of the defined benefit obligation is recorded as a liability resulting from pension obligations, suggesting that the pension obligations are financed on a pay-as-you-go basis.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (BGNm)



9. Additional notes

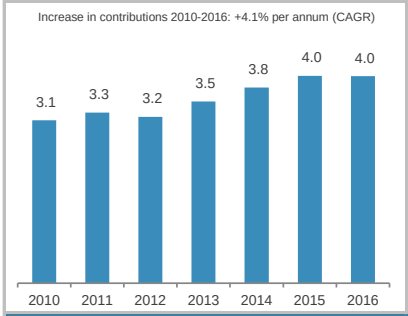
BULATSA records the present value of the defined benefit obligation as the pension liability in its balance sheet. This amount is calculated using the projected unit credit method ("credit method of estimated units") and is reviewed annually by independent actuaries. BULATSA's SEID submission in 2010 suggests the ANSP only operated a defined contribution occupational pension scheme. However, the ANSP documents a defined benefit obligation of BGN 19.1m in its 2010 annual report. The impact of the staff turnover assumption in Box 8 relates to a 1 year increase or decrease in the assumption.

BULATSA: Bulgaria — Occupational pension - defined contribution

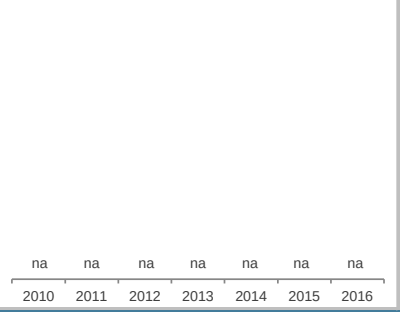
1. Key details			
Scheme open to:	Not provided	Active members:	1 066
Scheme managed by:	State fund (first pillar) and private funds (second pillar)	Date of inception:	na
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

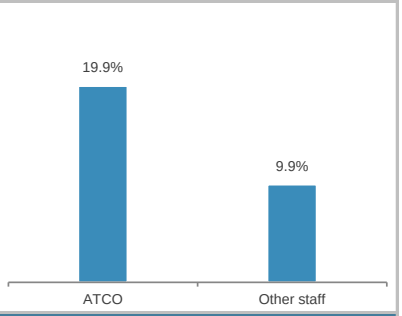
Total contributions (BGNm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

Contribution rate as below:
2010: 8.90% Other staff, 18.90% ATCOs, applicable to maximum social security income 2,000 BGN
2011: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,000 BGN
2012: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,000 BGN
2013: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,200 BGN
2014: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,400 BGN
2015: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,600 BGN
2016: 9.90% Other staff, 19.90% ATCOs, applicable to maximum social security income 2,600 BGN

For employees born after 31.12.1959 the pension contribution is split between state fund (first pillar) and private fund (second pillar, neither operated nor managed by BULATSA).
The contribution for pensions on behalf of the employer is 9.9% (for employees born after 1959: state fund 7.1%, private fund 2.8%); and on behalf of the employee 7.9% (for employees born after 1959: state fund 5.7%, private fund 2.2%)

BULATSA: Bulgaria — Additional information

Additional information

None

CROATIA CONTROL: Croatia

Overview of pension costs for 2016

1. Contextual economic information

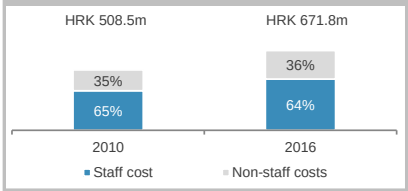
National currency:	HRK		Exchange rate 2016: 1 EUR = 7.5 HRK	
Inflation rate:	2010:	1.1%	2016:	-0.6%
Government bond yields with maturities of close to 10 years:	2010:	6.3%	2016:	3.5%

2. Overview of the first and second pension pillars in Croatia

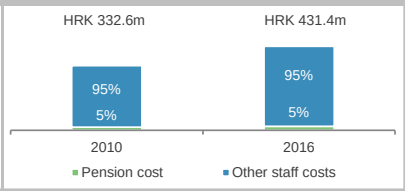
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined contribution pay-as-you-go	**Defined contribution**	
The state pension operates on a defined contribution pay-as-you-go basis. The pension is funded by employee contributions of 20% of gross salary and additional funding from the state budget revenues. Employers only pay contributions for employees in arduous and hazardous occupations. The national pensionable age is 65 for men and 61 years and 6 months of age for women.	Croatia Control provides an occupational defined contribution scheme for employees.	

3. Pension costs as a proportion of total ANSP costs (nominal)

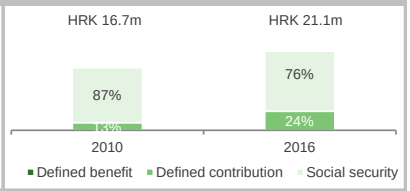
Total ANSP costs



Staff costs

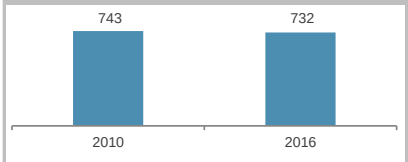


Pension costs

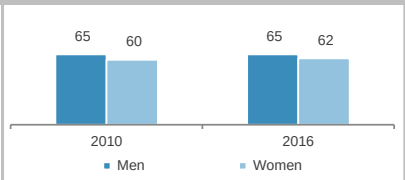


4. Employees

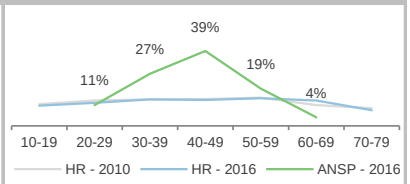
Number of employees (as at 31 Dec)



Retirement age (Croatia Control)



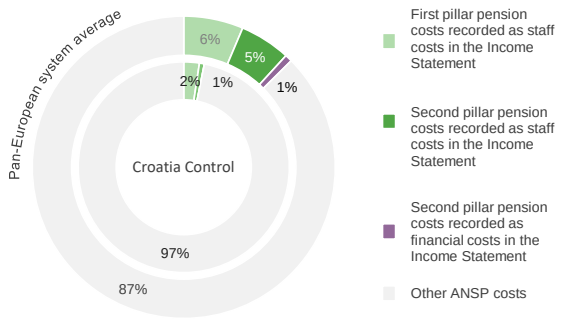
Age profile (Croatia /Croatia Control)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	732	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	3%
Active / pensioner members (DB)	na
Average employee age	43

Measures implemented to mitigate pension cost risks

Croatia Control offered both defined benefit and defined contribution schemes in 2010. The defined benefit scheme has now been closed.

8. Early retirement scheme

All ATCOs have rights for accelerated retirement based on the actual years of service completed in OPS.

9. Additional notes

Receipt of benefits is subject to 15 years of coverage for the first pillar. The retirement age is for women is set to increase by 3 months per year to reach 65 in 2030.

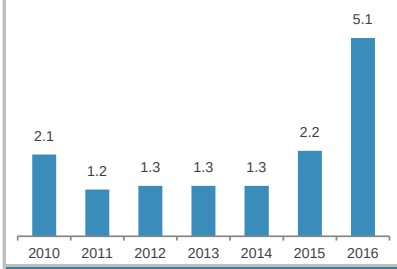
CROATIA CONTROL: Croatia — Occupational pension - defined contribution

1. Key details			
Scheme open to:	All staff	Active members:	732
Scheme managed by:	Closed investment fund	Date of inception:	Before 2008
Accounting standard used:	IFRS		

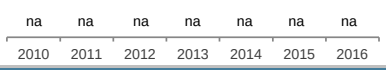
2. Contributions to the pension scheme

Total contributions (HRKm, nominal)

Increase in contributions 2010-2016: +15.9% per annum (CAGR)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)

3. Additional notes

None

CROATIA CONTROL: Croatia — Additional information

Additional information

None

DCAC: Cyprus

Overview of pension costs for 2016

1. Contextual economic information

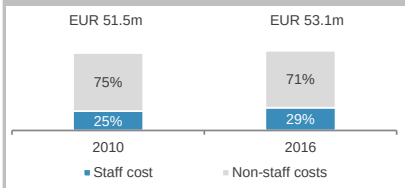
National currency:	EUR			
Inflation rate:	2010:	2.6%	2016:	-1.2%
Government bond yields with maturities of close to 10 years:	2010:	4.6%	2016:	3.8%

2. Overview of the first and second pension pillars in Cyprus

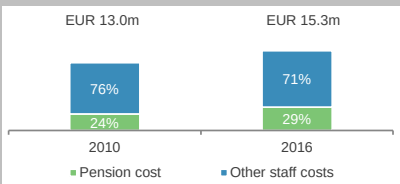
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit, pay-as-you-go	
The state pension is a defined benefit scheme financed through pay-as-you-go employer and employee social insurance contributions. For permanent staff, the employer and insured person contribute 11.65% and 3.95% of covered earnings, respectively, towards the state pension scheme. For non-permanent staff the employer and insured person contribute 7.8% each.	DCAC offers a defined benefit pension scheme financed on a pay-as-you-go basis to its employees. It is managed by the Central Government, which manages pension funds for all government employees.	

3. Pension costs as a proportion of total ANSP costs (nominal)

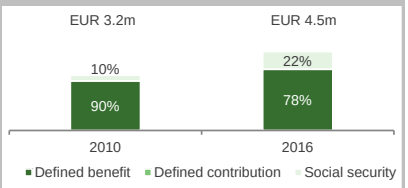
Total ANSP costs



Staff costs

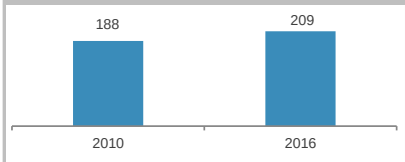


Pension costs

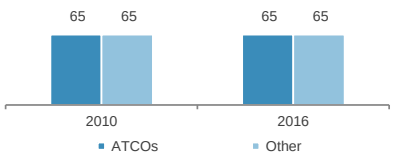


4. Employees

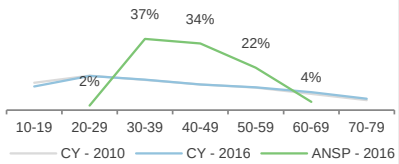
Number of employees (FTEs)



Retirement age (DCAC)



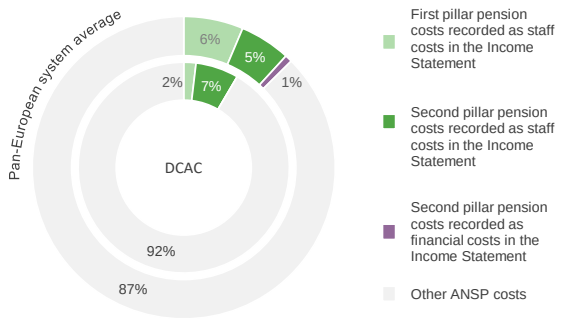
Age profile (Cyprus/DCAC)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	209	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

Employees recruited after 1 October 2011 are no longer included in the Government pension plan, but will instead have a Provident Fund.
A gradual increase in the mandatory retirement age by 2 years was implemented. In addition, an imposition of a penalty on early retirement and expansion of the age of lump sum and pension payment in cases of premature voluntary retirement has been implemented.

8. Early retirement scheme

DCAC does not currently have an early retirement scheme in place, but employees are allowed to retire early.

9. Additional notes

All cost and headcount information has been taken from ACE data unless otherwise stated. Total ANSP cost has been calculated from ACE data as: Total costs (sum of service provision costs + total institutional costs) - cost of capital + financial costs (if any). First pillar pension contributions in Box 3 includes contribution to the penions first pillar only. This amount was provided by DCAC for 2016 and estimated using Eurostat data for 2010. Amounts in Boxes 6 and 7 have been rounded: first and second pillar costs are 1.87% and 6.58% (total: 8.45%) of total ANSP costs. The occupational DB scheme is financed on a pay-as-you-go basis and so a liability for future pension obligations is not recorded.

DFS: Germany

Overview of pension costs for 2016

1. Contextual economic information

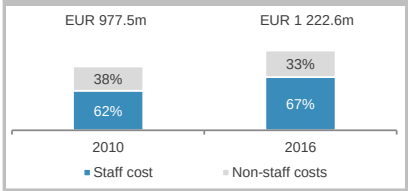
National currency:	EUR			
Inflation rate:	2010:	1.1%	2016:	0.4%
Government bond yields with maturities of close to 10 years:	2010:	2.7%	2016:	0.1%

2. Overview of the first and second pension pillars in Germany

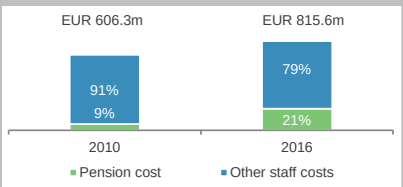
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	**Defined benefit, funded**	
Financed using contributions of 19.5%, split equally between employees and employers (annual contribution assessment ceiling of EUR 74,400 in West Germany and EUR 64,800 in East Germany in 2016). Early retirement is possible from 63 years of age subject to contributions for a minimum of 35 years and deductions of up to 14.4% for retiring 48 months before the recommended retirement age.	Defined benefit scheme based on a collective agreement for all staff employed at DFS, and is split into two plans. Plan A is based on final salary (see defined benefit page for details). ÜVersTV is a transitional payment scheme bridging the gap between ATCOs leaving OPS and receiving their statutory pension where the benefit received is based on final salary.	

3. Pension costs as a proportion of total ANSP costs (nominal)

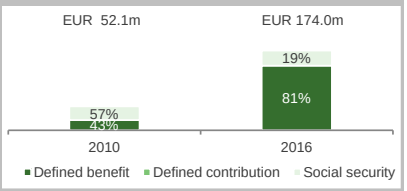
Total ANSP costs



Staff costs

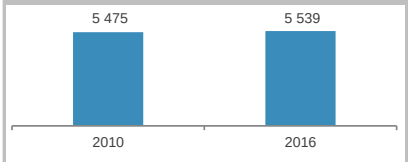


Pension costs

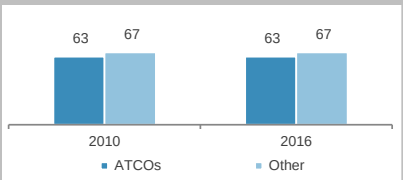


4. Employees

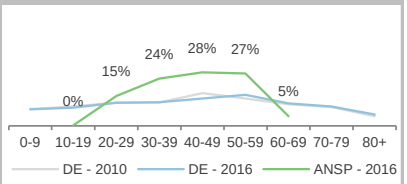
Number of employees (as at 31 Dec)



Retirement age (DFS)



Age profile (Germany/DFS)

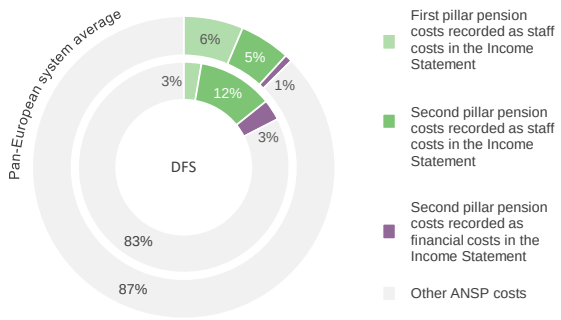


5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
VersTV	Defined benefit (funded)	5 954	100%	All staff
ÜVersTV	Early retirement	2 520	45%	Transitional payments for ATCOs leaving OPS pre-retirement

Active members of VersTV include 2 520 that are also members of Üvers TV.

6. Pension costs as a proportion of total ANSP costs



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 2 313m, 119% of total ANSP assets
2010-16 change in net DB liability	+22% per annum (CAGR)
Pension % of total ANSP costs	17%
Active / pensioner members (DB)	3.38
Average employee age	43

Measures implemented to mitigate pension cost risks

DFS switched from final salary to average salary benefits for new members from January 2005.

8. Early retirement scheme

DFS uses a retirement age of 63 for ATCOs and 67 for other staff. ATCOs also have access to a transitional pension scheme (ÜVersTV), which pays out between 55 and 63. For non-ATCOs the early retirement scheme depends on individual contracts.

9. Additional notes

Legal retirement age is increasing to reach 67 by 2029. Social security costs are not separated out in the 2010 report, and are reported in the DB column in Box 3. The second pillar pension cost is recorded in the DFS 2016 annual report as EUR 141m. Box 3 uses a bottom up calculation consistent with the rest of this fact sheet, consisting of the service cost portion of the DB scheme (EUR 144m) and the contriution to the DC scheme (EUR 36m). The reconciliation between these numbers will be sought from the ANSP. First pillar pension costs in Box 3 include all social security costs and expenses for assistance.

DFS: Germany

Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	All staff	Active members:	8 474
Scheme managed by:	DFS	Pensioner members:	2 505
Accounting standard used:	IFRS	Active members / pensioner members:	3.38

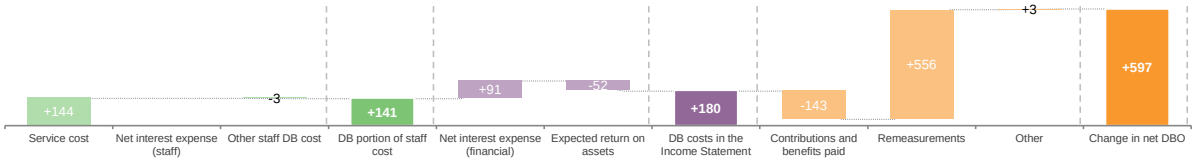
2. Benefits received

Members that joined prior to 1 January 2005 receive a pension based on their final salary, whereas members that joined thereafter receive a pension based on their average salary. The mentioned plans are "Teil A" with effect until December 2004 and "Teil B" with effect from January 2005. Under new laws, individuals need to be an active member for 3 years including the transitional period to draw down pension benefits. This was previously 5 years.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	IFRS (IAS 19)
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Gains/losses fully recognised in equity; no income statement impact
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	EUR 1.3bn due to reduction in discount rate from 4.5% to 2.9%
Specific accounting treatments used for charging purposes (if different from above):	Costs exempt spread over the next 2 regulatory periods
Additional detail on accounting treatment:	Charges calculated using an imputed occupational pension model, which sets the discount rate equal to the expected long term return on assets, rather than a corporate bond rate that fluctuates annually.

4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



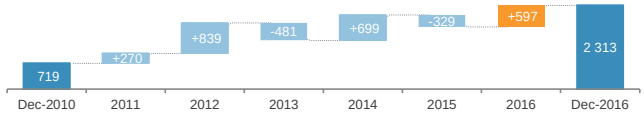
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

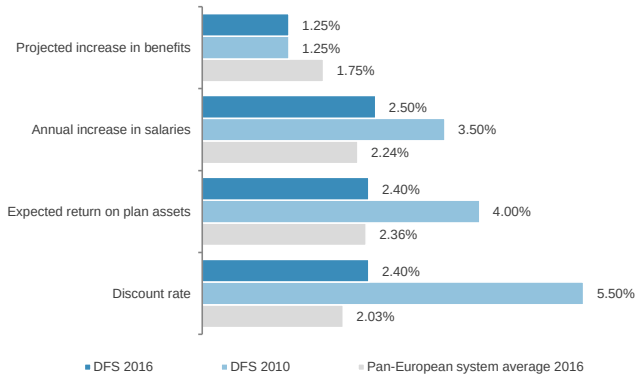


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	2 036	2 418	3 420	3 084	4 008	3 827	4 566
Plan assets	1 317	1 430	1 593	1 737	1 963	2 111	2 252
Net liability	719	988	1 827	1 346	2 045	1 716	2 313

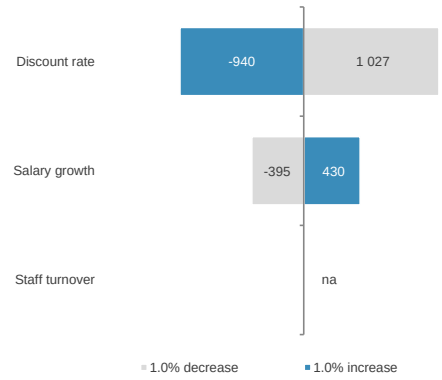
6. Additional information on plan assets

The defined benefit pension plans (VersTV and ÜVersTV) are financed using reinsurance policies as plan assets. This contract required investment in the general cover fund of the insurer and a separate fund-based investment to increase returns on the assets. Investment in the latter is restricted to half of the whole capital reserve of the reinsurance contract. A low interest rate environment has limited the returns earnt on the pension plan assets. As a result, DFS seeks to replace the reinsurance contract with a fund-based solution, with a consevative strategy, to increase investment in "asset forms with a more attractive risk/return ratio".

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

Actuarial assumptions: a 1.25% projected increase in benefits is applicable for the guaranteed adjustment for staff with benefits under VersTV 2009. An adjustment of 2.00% is applicable for staff with benefits under VersTV 1993. The weighted duration of the pension obligation is 21.9 years. The numbers on this page include all costs and obligations related to the VersTV, ÜVersTV, KTV and other defined benefit plans. Active members (including vested entitlement former employees) in Box 1 include 2 520 for VersTV and 5 954 ÜVersTV. Pensioner members include 431 for VersTV and 2 074 ÜVersTV. Other staff DB costs in Box 4 relate to release of provisions made in previous years, and Other relates to reversal of this release.

Additional information
Additional information on pension costs (overview, Box 3): 'Staff cost' does not include 'Cost of personnel belonging to the Federal Aviation Office (LBA)' listed in the Annual report which amounts to EUR 19.5m in 2010 and EUR 22.9m in 2016. Additional information on defined benefits received (defined benefit - funded, Box 2): There is a cap on benefits of 40 years of service under 'Teil A'. The 'Teil B' plan does not feature a similar cap. Additional information on accounting treatment - impact of revisions to IAS 19 (defined benefit - funded, Box 3): All changes resulting from IAS19 were booked directly on equity. This resulted in reduction of EUR 1 294m in 2012, addition of EUR 555m in 2013, reduction of EUR 688m in 2014, addition of EUR 399m in 2015, reduction of EUR 556m in 2016. Total amount booked directly on equity account at the end of 2016 was EUR 1 584 m. There were no other changes in provisions. Additional information on costs related to the defined benefit scheme (defined benefit - funded, Box 4): Costs related to the KTV (Insurance) scheme are for the preservation of vested rights referring to health insurance and it´s unique to employee which were civil servants in former times (until 1993, before privatisation). They have an entitlement to monthly additional allowance regarding health insurance including their family. The defined contribution scheme noted from the annual reports is not an occupational pension but a state pension. Future changes: DFS is starting negotiations with the labour union (GdF) this year. Implications on costs will depend on the outcome of these negotiations, but no changes are foreseen.

DHMI: Turkey

Overview of pension costs for 2016

1. Contextual economic information

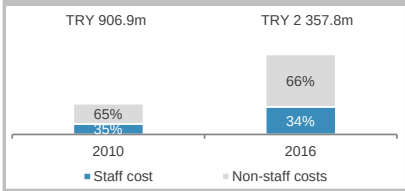
National currency:	TRY		Exchange rate 2016: 1 EUR = 3.3 TRY	
Inflation rate:	2010:	8.6%	2016:	7.7%
Government bond yields with maturities of close to 10 years:	2010:	9.6%	2016:	10.5%

2. Overview of the first and second pension pillars in Turkey

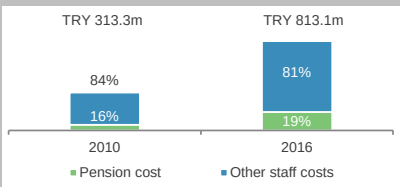
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Employee contribution only	
The state pension is a defined benefit scheme, financed on a pay-as-you-go basis. Benefits are financed by contributions from employees (9%), employers (11%) and the government (25% of the total contributions made). Pensions are calculated based on the average monthly earnings of the insured person across their entire working life multiplied by an accrual rate.	Employees are entitled to voluntarily enrol in occupational pensions corresponding to the second pillar. There is no information to suggest that employees of DHMI are enrolled in any such schemes.	

3. Pension costs as a proportion of total ANSP costs (nominal)

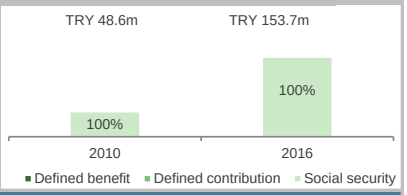
Total ANSP costs



Staff costs

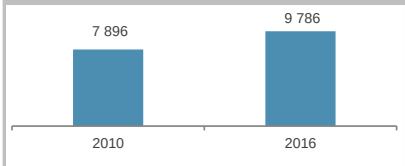


Pension costs

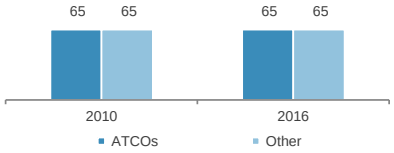


4. Employees

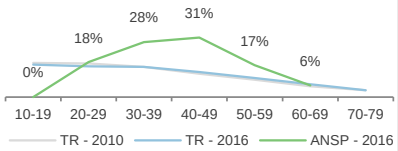
Number of employees (FTEs)



Retirement age (DHMI)



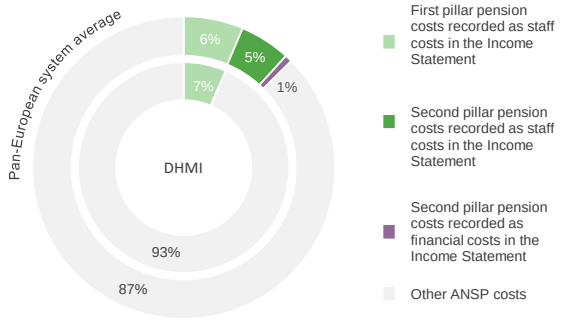
Age profile (Turkey/DHMI)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	7%
Active / pensioner members (DB)	na
Average employee age	41

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There is no early retirement scheme in place for DHMI employees. Women employees who have completed a working life of 20 years may retire at the age of 58, and men employees who have completed a working life of 25 years may retire at the age of 60. However, those who wish so, may continue working until they reach the age of 65 at which they are then obliged to retire.

9. Additional notes

State pension payments accrue at 2% of the average earnings for each 360-day contribution period (subject to a maximum rate of 90%). Government bond yield data in Box 1 has been sourced from Eurostat for 2010 and route charges data provided by DHMI for 2016. Total ANSP costs, sourced from annual reports cover all DHMI activities (ANS and non ANS), and pension costs directed towards the state pension has been provided through DHMI's consultation response. The number of employees for 2010 and 2016 has been provided through DHMI's consultation response.

DSNA: France

Overview of pension costs for 2016

1. Contextual economic information

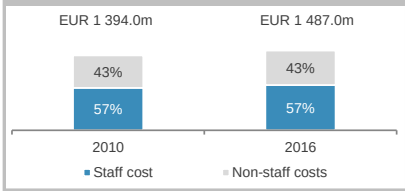
National currency:	EUR			
Inflation rate:	2010:	1.7%	2016:	0.3%
Government bond yields with maturities of close to 10 years:	2010:	3.1%	2016:	0.5%

2. Overview of the first and second pension pillars in France

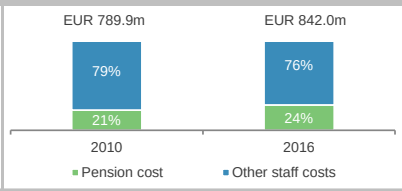
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Additional points-based scheme (state)	
The basic state pension consists of a defined benefit scheme funded through a pay-as-you-go mechanism using contributions from employees (6.9% of covered earnings and 0.35% of total earnings) and employers (8.55% of the covered payroll and 1.85% of the gross payroll). The gross salary of each DSNA employee excludes bonuses and variable payments.	DSNA contributes to a mandatory occupational pension for all employees, which is managed by the French State. This scheme is supplementary to the state pension, with benefits defined by a points-based scheme, driven by factors of the employee's working history (e.g. year and length of service). Employee contributions total 5% and employer contributions total 10%.	Civil servant state pensions in France are formed of the basic state pension plus a mandatory complementary (occupational) system known as RAFP. The contribution rate (including the pay-as-you-go contributions) is agreed yearly between the French Ministry of Finance and DSNA.

3. Pension costs as a proportion of total ANSP costs (nominal)

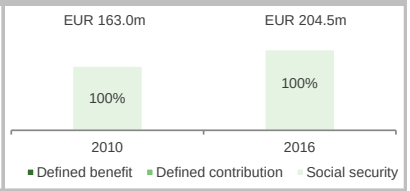
Total ANSP costs



Staff costs

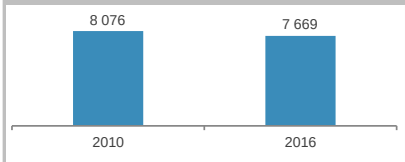


Pension costs

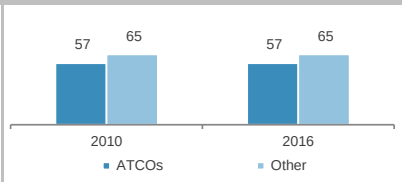


4. Employees

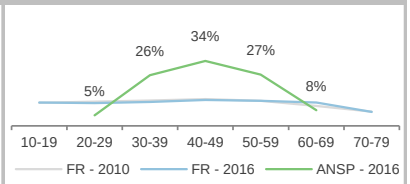
Number of employees (FTEs)



Retirement age (DSNA)



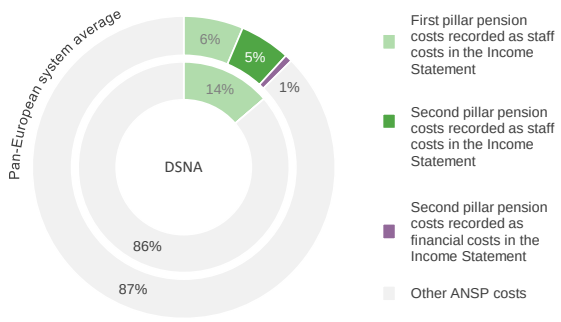
Age profile (France/DSNA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
RAFP	Points-based (state)	7 669	100%	All Staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	14%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

ATCOs retirement age is stated under a 'special retirement regime', this allows retirement between the ages of 50 and 57 (>90% retire at 57). Non-ATCOs staff can retire between 60 and 65. In the future, the retirement age will increase to between 52 and 59 years for ATCOs, and 62 and 67 years for non-ATCOs.

9. Additional notes

DSNA contributes towards two programmes of the national civil servant pension fund 'CAS Pensions': Program 741 (civil pensions); and Program 742 (state workers). The occupational scheme available to DSNA employees is managed by the French Government. Contributions to the occupational scheme are calculated from pay formed of: premiums and allowances; any other remuneration that does not contribute towards the basic state pension; and benefits in kind. Cost has been taken from ACE data or has been provided by DSNA during the consultation phase of the project.

Additional information
The employer contributions to pensions presented in Box 3 on the previous page comprise the contributions made to CAS pensions plus a special contribution for State workers. In 2011, the employer contribution amount was EUR 165.3m with a contribution rate of 62.47% towards the CAS Pension scheme. In 2016, the employer contribution amount was EUR 197.3m with a contribution rate of 74.6% towards the CAS Pension scheme. A special contribution for state workers amounted to EUR 4.5m in 2016. In 2016, DSNA contributed approximately EUR 2.7m towards the RAFP scheme.

EANS: Estonia

Overview of pension costs for 2016

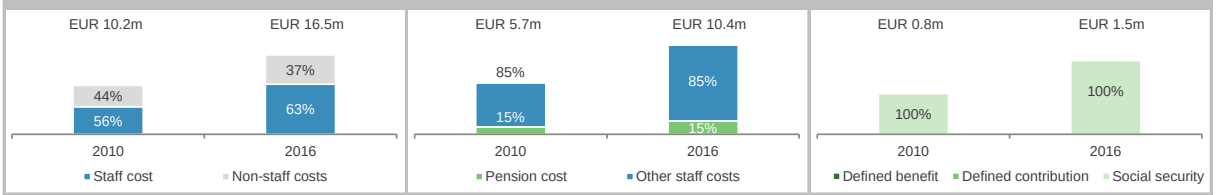
1. Contextual economic information

National currency:	EUR in 2016, EEK in 2010		Exchange rate 2010: 1 EUR = 15.6 EEK	
Inflation rate:	2010:	2.7%	2016:	0.8%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	na

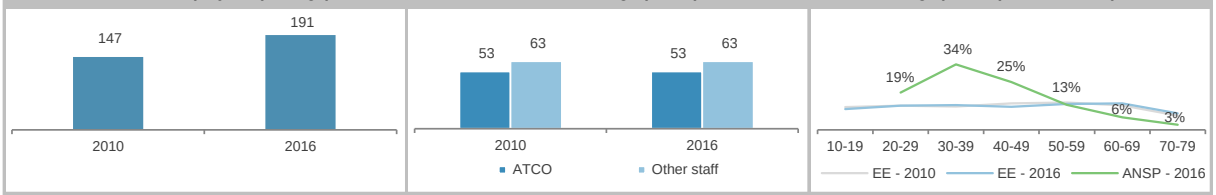
2. Overview of the first and second pension pillars in Estonia

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution (no employer contribution)	
Estonia operates a defined benefit state pension, financed through a pay-as-you-go mechanism. The pension is formed of a flat-rate minimum pension, supplemented by an earnings-related element. The pension system is financed by employer contributions of 20% of gross salary. In order to qualify, the employee must have worked in Estonia for a minimum of 15 years.	In addition to first pillar costs, the Estonian pension scheme comprises of a "mandatory funded pension" for employees born after 1983 (if you were born before 1983, you can no longer join the second pension pillar). These are defined contributions schemes, where the personal pension accounts are managed by fund management companies. The second pillar is directly dependent upon income.	The mandatory occupational pensions are financed by employee contributions of 2% of gross salary transferred to personal pension account each month. The State adds 4% to this. There is only an indirect link between the employer and the second pillar, whereby a portion of the employer contribution to the first pillar is used by the State to fund its 4% top-up.

3. Pension costs as a proportion of total ANSP costs (nominal)



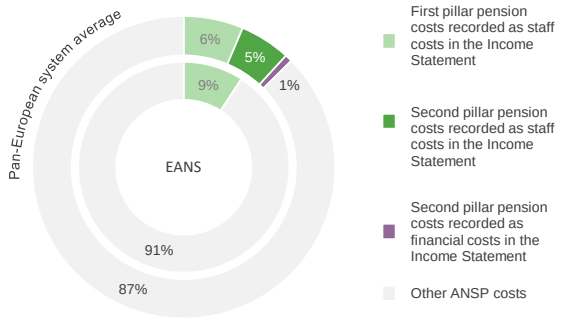
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	Not provided	Not provided	Employees born after 1983

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	9%
Active / pensioner members (DB)	na
Average employee age	41

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

9. Additional notes

2010 values have been converted from EEK to EUR at the 2010 exchange rate in Box 1. Estonia does not have any sovereign debt securities that comply with the ECB's definition of long-term interest rates. The retirement age of employees depends on their year of birth. The national retirement age is 63, and is set to rise by 3 months per year from 2017 to reach 65 in 2026. First pillar contributions include social security costs directed to the state pension only. Second pillar contributions have not been split out as the ANSP only pays a single amount to the State, which subsequently splits the contributions between the pillars.

ENAIRE: Spain

Overview of pension costs for 2016

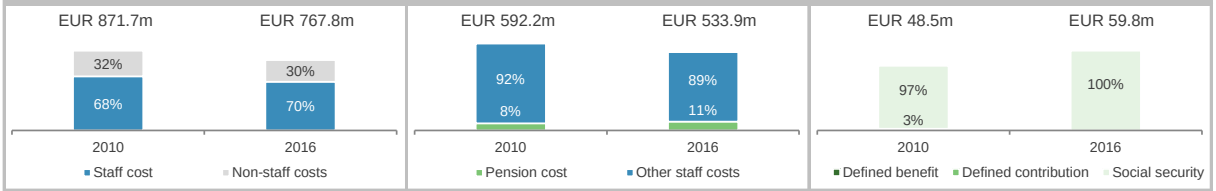
1. Contextual economic information

National currency:	EUR			
Inflation rate:	2010:	2.0%	2016:	-0.3%
Government bond yields with maturities of close to 10 years:	2010:	4.3%	2016:	1.4%

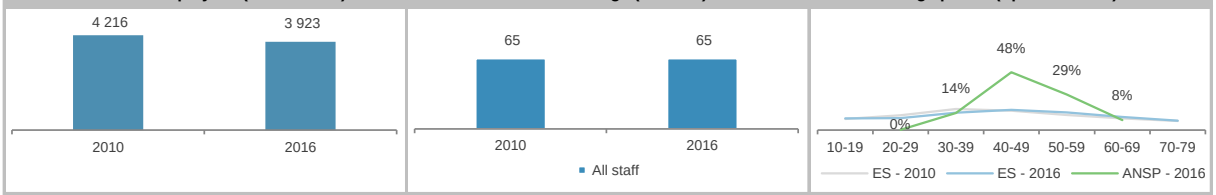
2. Overview of the first and second pension pillars in Spain

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The state pension in Spain consists of a mandatory earnings-related, defined benefit pension system. The pension is financed through a pay-as-you-go mechanism, with contributions of 23.6% from employers and 4.7% from employees. It applies to employees who retire at the age defined by law (additional information can be found on the following page).	An occupation pension scheme was established back in 2003 with contributions through end of 2011. Since 2012, no further contributions have been made as described in the 20/2011 Royal Decree.	

3. Pension costs as a proportion of total ANSP costs (nominal)



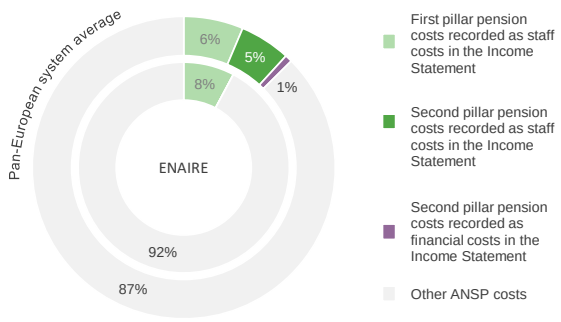
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	None	na	Employees with more than one year's service

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	48

Measures implemented to mitigate pension cost risks

ENAIRE operates a dormant defined contribution occupational pension scheme with no contributions being paid into the scheme since 2012.

8. Early retirement scheme

According to the Spain's Public Pension System rules, any employee is eligible for early retirement but the pension will be reduced based on the number of quarters remaining between the early retirement date and the legal retirement age. The early retirement can take place due to a company-initiated dismissal or a voluntary resignation (see additional information next page). Costs related to this scheme are included within staff costs and as an exceptional cost item.

9. Additional notes

In box 3, the social security contributions and contributions to the defined contribution plan have been provided by ENAIRE from their consultation response. 2010 data relates to the 'air traffic control services' segment of Aena. 2010 staff cost has been provided by ENAIRE following consultation.

Additional information
Additional information on retirement ages: The retirement age in 2017 was 65 years and 5 months for those who had made contributions for less than 36 years and 3 months, or 65 years for those who had made contributions for this length of time or longer. As of 1 January 2013, the age for claiming a retirement pension depends on the claimant's age and the number of years of contributions made. The retirement ages and contribution periods are being modified gradually to reach 67 for those who contributed less than 38 years and 6 months by 2027. In 2027, the standard retirement can be reached at 65 if more than 38 years and 6 months of contributions have been made. Additional information on early retirement (Overview, Box 8): The early retirement can take place due to a company-initiated dismissal or a voluntary resignation. In the latter case, it is necessary to prove at least 35 years of effective contributions and this will allow retirement to take place up to 2 years earlier than normal. In case of involuntary termination, at least 33 years of effective contributions must have been made; these may take place up to 4 years earlier than the standard age. Additional information on the defined contribution scheme: Non-ATCOs are covered by collective agreements negotiated by the Aena Group. The scheme is managed by 'Plan de Pensiones de Promoción Conjunta de las Entidades del Grupo Aena. Participation is contingent on a minimum of 360 days of service to one of the entities or companies owned by Aena. In 2012, the contributions were stopped as mandated by the 20/2011 Royal Decree. Though the scheme is still alive, no incremental contributions have been made since then.

ENAV: Italy

Overview of pension costs for 2016

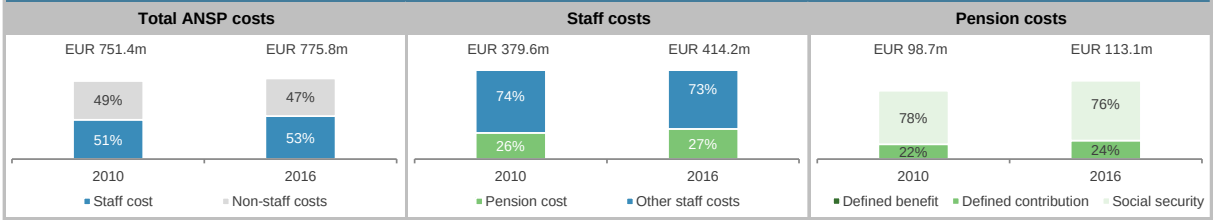
1. Contextual economic information

National currency:	EUR			
Inflation rate:	2010:	1.6%	2016:	-0.1%
Government bond yields with maturities of close to 10 years:	2010:	4.0%	2016:	1.5%

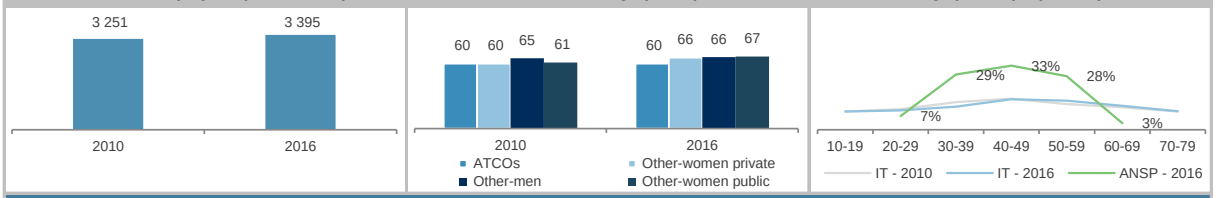
2. Overview of the first and second pension pillars in Italy

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Hybrid Defined benefit and Defined contribution, pay-as-you-go	Defined contribution	
Italy's public pension plan consists of a compulsory Hybrid Defined Benefit (DB) and Defined Contribution (DC) scheme, with prevalence of the DC scheme. The scheme is financed on a pay-as-you-go basis through contributions of about 33%, of which two-thirds is paid by the employer (about 22-24%) with the employee paying the remaining one-third of the contribution (about 9-11%).	Employers have to pay a termination indemnity of 6.9% per annum to all employees, called the 'Trattamento di Fine Rapporto' (TFR). From 1 January 2007 it is possible to destinate the TFR to private pension funds or to the INPS treasury fund on the basis of the defined contribution plans. 95% of ENAV employees joined private pension funds PREVAER and PREVINDAI. Continued in box 9.	

3. Pension costs as a proportion of total ANSP costs (nominal)



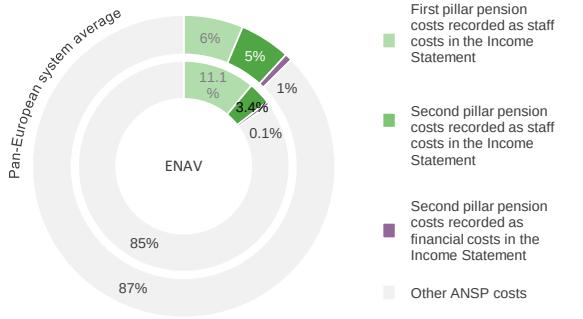
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
TFR	Defined benefit	0	0%	All employees, service up to 31 December 2006
TFR	Defined contribution	3 395	100%	All employees, service from 1 January 2007

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 39m, 2% of total ANSP assets
2010-16 change in net DB liability	-1% per annum (CAGR)
Pension % of total ANSP costs	15%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

ENAV occasionally supports initiatives involving retirement incentives. Italian law established an early retirement scheme for ATCOs at the age of 60 as they lose the enabling licence. The ERS is payed from INPS, not by the company.

9. Additional notes

Box 2 Second pillar:TFR transitioned from a defined benefit to a defined contribution scheme on 1 January 2007. In order to incentive the supplementary pension, in the case in which the employee decide to pay a voluntary contribution to private funds the Company pays a supplementary contribution together with the TFR. Box 4: The retirement age for men and women is set to gradually increase to reach 67 in 2021. Additional information on retirement age continues on the DC page Additional Information box. Box 6 includes 0.1% of financial costs (EUR 0.5m).

ENAV: Italy

Occupational pension - defined benefit

1. Key details

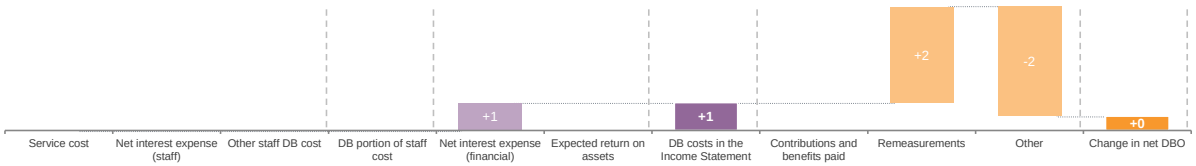
Scheme open to:	All employees, up to 31 Dec. 200	Active members:	2 041
Scheme managed by:	ENAV	Pensioner members:	7
Accounting standard used:	IFRS	Active members / pensioner members:	na

2. Benefits received

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	IAS 19, starting from 31 december 2014, adopted on voluntary basis
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Not applicable
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	iBoxx Corporate AA index (duration of 10+ years)
Specific accounting treatments used for charging purposes (if different from above):	Not applicable
Additional detail on accounting treatment:	All costs, including pension cost, are included into determined charges in the year in which they have affect on the P&L.

4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



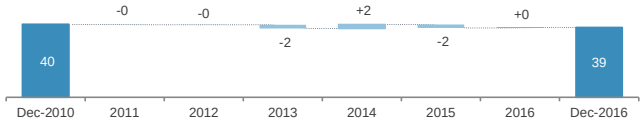
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

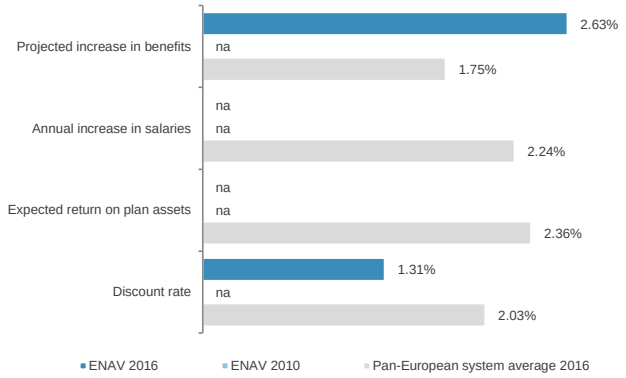


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	40	40	40	38	40	38	39
Plan assets	-	-	-	-	-	-	-
Net liability	40	40	40	38	40	38	39

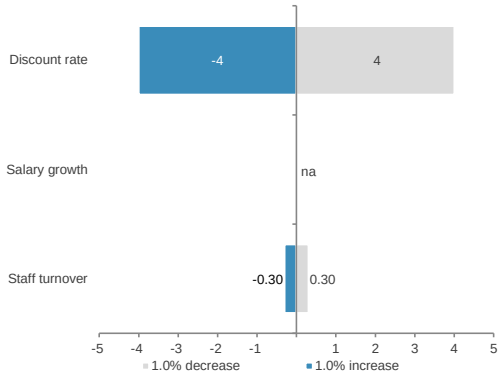
6. Additional information on plan assets

There are no plan asset serving the aggregate TFR.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

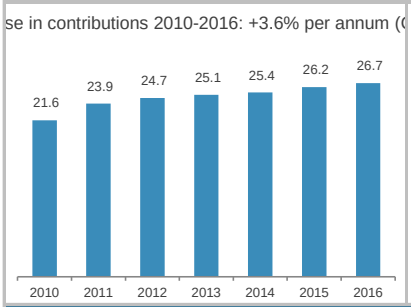
The defined benefit obligation presented in this page refers exclusively to TFR contributions accrued until 31 December 2006 that the employer will pay to the employee at termination of their working relationship. 2014 was the first year of adoption of the IFRS, and before 2014, in accordance with national accounting standards, the TFR fund did not constitute a defined benefit obligation. Hence data shown in Box 5 is not comparable before 2014 with data after 2014. In accordance with the Italian Civil Code, TFR contributions are inflated. Active members (2041) from 2018 has been taken as proxy. In 2016, 7 employees at the termination of the working relationship have received their revaluated TFR quota accrued until 2006. The scheme is no longer funded since 01 January 2007.

ENAV: Italy — Occupational pension - defined contribution

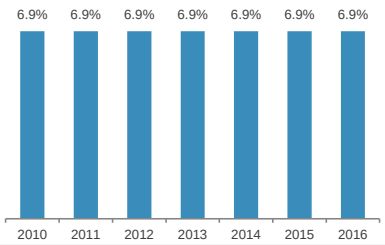
1. Key details			
Scheme open to:	All employees, service from 1 January 2007	Active members:	3 395
Scheme managed by:	PREVAER, PREVINDAI and INPS	Date of inception:	1 January 2007
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

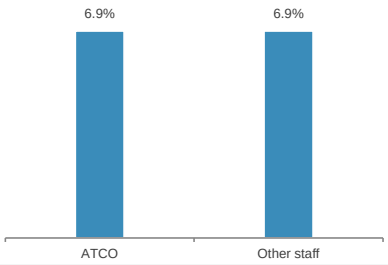
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

TFR contributions were paid on a defined contribution basis to PREVAER (independent), PREVINDAI (independent) and INPS (state) funds, starting from 1 January 2007.

For TFR the rate of contribution is fixed at 6.9%. The contribution rate applies to the fixed remuneration plus some elements of the variable remuneration such as bonus, additional indemnities work during holiday time, compensation for being “on call”, holidays falling outside working days and availability.

Following collective agreements, ENAV also pays a contribution to PREVAER, a supplementary pension fund created for non-executive staff in the air transport sector on a defined contribution basis. PREVINDAI is a supplementary DC pension funds for managers/executives subject to the CCNL (national collective labour agreement). The contribution rate for non executive and executive staff may change according to the different percentages of voluntary contribution chosen by each employee. Hence only the TFR rate of contribution which is fixed is shown.

ENAV: Italy — Additional information

Additional information

Additonal information regarding accounting standards:
As at 31 December 2010 ENAV SpA prepared its financial statements in accordance with national accounting standards (Italian GAAP). As a result, financial years 2010 and 2016 are not directly comparable considering the different accounting introduced by IAS 19 (revised) compared to the accounting required by Italian accounting standards. The Group adopted international accounting standards starting from the financial statement drawn up at 31 December 2014 (post IAS 19 revision), prior to listing as and acquisition of the status of public interest entity.

In particular, it should be specified that the TFR revaluation is not charged to P&L in accordance with international principles. Consequently, while in the 2010 financial statement the TFR value includes the revaluation, in the 2016 financial statement the TFR revaluation is not charged to the P&L but direct to net equity.

Additional information on retirement ages:
The legal retirement age for staff other than ATCOs is:
2010: 65 years for men (INPS and former INPDAP), 60 years for women in the private sector (INPS) and 61 years for women in the Public Employment (former INPDAP).
2016: 65 years and 7 months for private sector workers for men and women (INPS) and 66 years and 7 months for public sector workers men and women (former INPDAP).
For presentation the average of men in 2016 is shown between the private sectors and public sectors.

Additional information summary page box 7:
The CAGR calculation indicates the magnitude of change but it should be noted that different ways of accounting was used for the TFR fund in 2010 (pre adoption of IFRS framework).

Additional information summary page box 3:
The total pension costs included in staff costs are composed of 1st pillar contributions (76% in 2016) and occupational defined contributions (24% in 2016). There are no Defined Benefit costs recorded as part of the staff costs

Additional information DB page box 8:
We have multiplied the 0.25% sensitivity by 4 to estimate the impact of a 1% change.

FINAVIA: Finland

Overview of pension costs for 2016

1. Contextual economic information

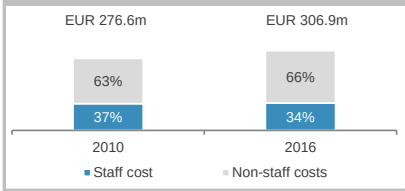
National currency:	EUR			
Inflation rate:	2010:	1.7%	2016:	0.4%
Government bond yields with maturities of close to 10 years:	2010:	3.0%	2016:	0.4%

2. Overview of the first and second pension pillars in Finland

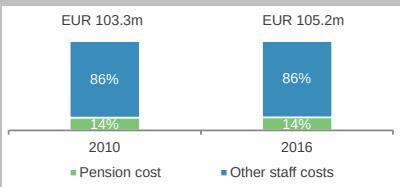
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, non-contributory	Defined contribution	
The National Pension is a non-contributory pension scheme that provides a guaranteed minimum pension of 20% of average wages in Finland. The amount of the guaranteed pension received is reduced by the amount earned from an occupational earnings-related pension.	Finland has a mandatory second pillar governed by the Employees' Pensions Act ("TyEL"). Pensions are managed by funds, with the obligations 75% financed on a pay-as-you-go basis, and 25% funded. Finavia is only liable for making contributions to the scheme and so its contributions are assessed on a defined contribution basis.	The amount of the guaranteed minimum state pension is reduced by the amount earned from an occupational earnings-related pension. Two-thirds of the private-sector workforce are covered by the mandatory occupational pension scheme governed by the TyEL.

3. Pension costs as a proportion of total ANSP costs (nominal)

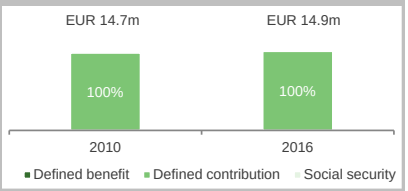
Total ANSP costs



Staff costs

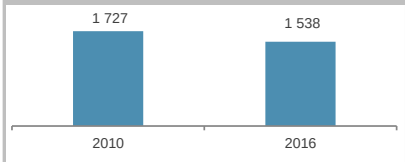


Pension costs

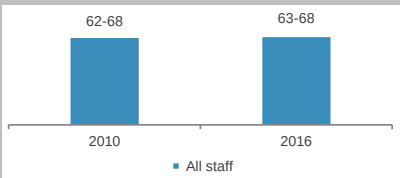


4. Employees

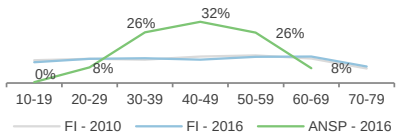
Number of employees (as at 31 Dec)



Retirement age (Finavia)



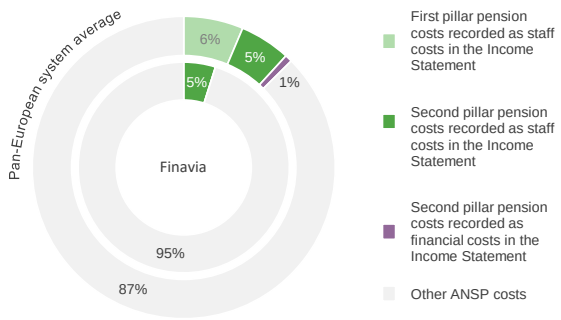
Age profile (Finland/Finavia)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	1 538	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	5%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

All employees are only eligible for the DC scheme since 2005.

8. Early retirement scheme

Finavia operates an early retirement scheme whereby staff can obtain partial retirement after reaching 61 years or 60 years for those born before 1954. The general retirement age for all staff is between 63 and 68, though there remain some ATCOs with a retirement age of 55.

9. Additional notes

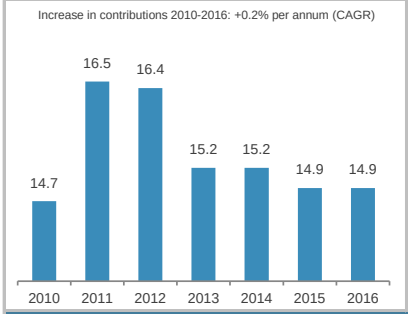
The general retirement age will be increased from 63-68 in 2017 to 65-70 by 2027. After 2027, the retirement age will be increased to grow in line with life expectancy. All information in the fact sheet represents Finavia Corporation as information on the ANS activities is not identifiable from Finavia's financial statements. The first pillar is "a non-contributory pension scheme" hence no social security contributions towards the state pension are shown.

FINAVIA: Finland — Occupational pension - defined contribution

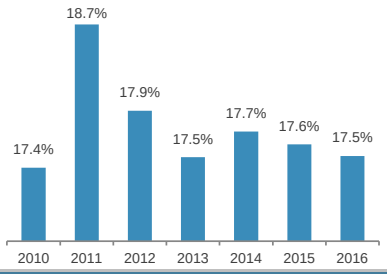
1. Key details			
Scheme open to:	All staff	Active members:	1 538
Scheme managed by:	Ilmarinen	Date of inception:	2010
Accounting standard used:	Finnish accounting standards		

2. Contributions to the pension scheme

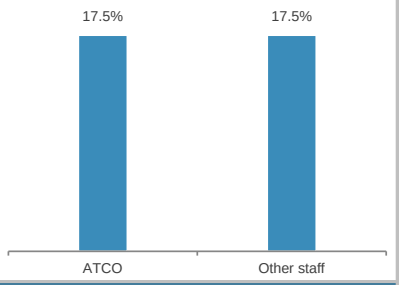
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The base which the contribution rate applies to is gross salaries including bonuses. Note contribution rates above represent the employer's share of the pension costs from Finavia's annual report.

Before the inception of the defined contribution scheme similar arrangements in the state pension scheme (from mid 90's were in place).

FINAVIA: Finland — Additional information

Additional information

None

HCAA: Greece

Overview of pension costs for 2016

1. Contextual economic information

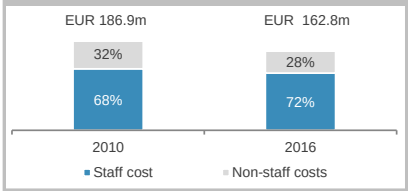
National currency:	EUR			
Inflation rate:	2010:	4.7%	2016:	0.0%
Government bond yields with maturities of close to 10 years:	2010:	9.1%	2016:	8.4%

2. Overview of the first and second pension pillars in Greece

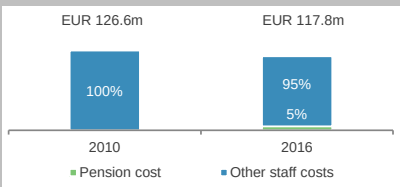
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go		
Pension for public servants in Greece is a defined benefit scheme financed on a pay-as-you-go basis through employee and employer contributions of 6.67% and 13.33% respectively. Pension benefits can be drawn by those over 67 years old with at least 4 500 days of contributions (equivalent to 15 years) while full pension benefits can be drawn by those over 62 years with a contribution record of 40 years.		

3. Pension costs as a proportion of total ANSP costs (nominal)

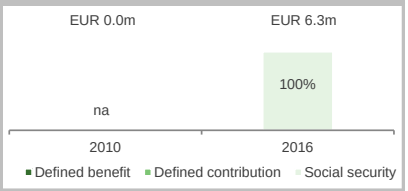
Total ANSP costs



Staff costs

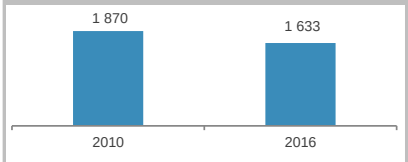


Pension costs

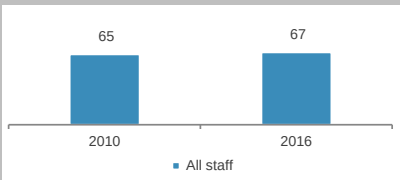


4. Employees

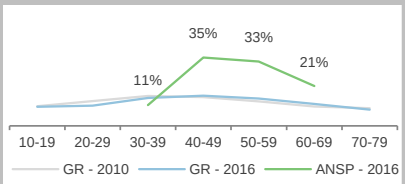
Number of employees (FTEs)



Retirement age (HCAA)



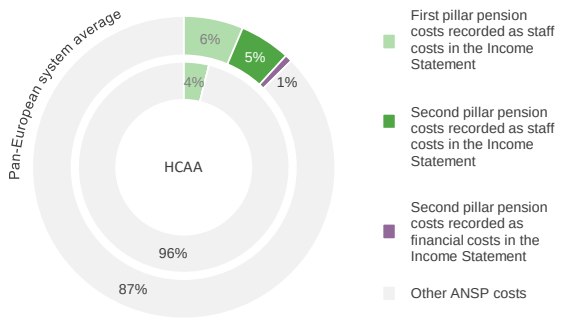
Age profile (Greece/HCAA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	4%
Active / pensioner members (DB)	na
Average employee age	51

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There is no early retirement scheme in place at HCAA. The legal retirement age for all civil servants, regardless their duties, is 67, reducing to 62 if they have 40 years of service.

9. Additional notes

Cost and headcount information in Boxes 3 and 4 have been taken from ACE data. First pillar pension cost data was not provided for 2010 as no pension costs were included in Greece/HCAA cost base. Total social security contributions were EUR 22.1m in 2010 and EUR 17.4m in 2016.
Total ANSP cost has been calculated from ACE data as: Total costs (sum of service provision costs + total institutional costs) - cost of capital + financial costs (if any).

HUNGAROCONTROL: Hungary

Overview of pension costs for 2016

1. Contextual economic information

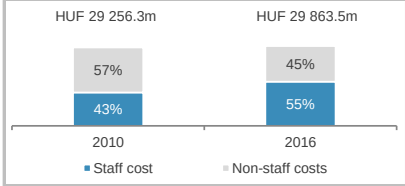
National currency:	HUF		Exchange rate 2016: 1 EUR = 311.0 HUF	
Inflation rate:	2010:	4.7%	2016:	0.4%
Government bond yields with maturities of close to 10 years:	2010:	7.3%	2016:	3.1%

2. Overview of the first and second pension pillars in Hungary

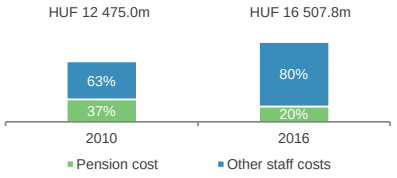
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The Hungarian pension system is a single pillar scheme consisting of an earnings-related public pension financed on a pay-as-you-go basis, combined with a minimum pension (a level paid irrespective of earnings). The defined benefit scheme uses a pay-as-you-go mechanism financed through employer contributions of 27% and employee contributions of 10% of covered earnings.	HungaroControl converted its pension scheme from a defined benefit scheme to a defined contribution on 31 December 2013. Both HungaroControl and its employees pay fixed contributions into the defined contribution scheme. HungaroControl pays different contribution rates for ATCOs and other staff.	

3. Pension costs as a proportion of total ANSP costs (nominal)

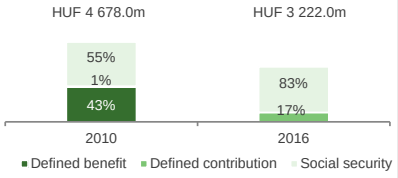
Total ANSP costs



Staff costs

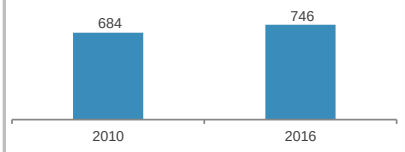


Pension costs

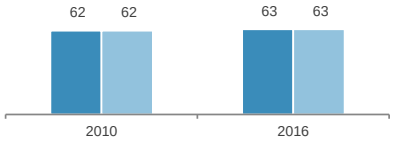


4. Employees

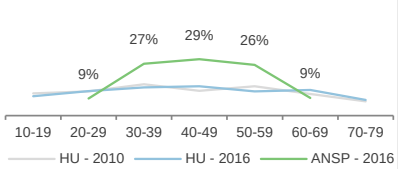
Number of employees (as at 31 Dec)



Retirement age (Hungarocontrol)



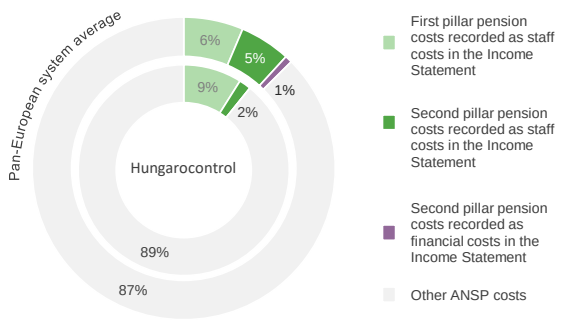
Age profile (Hungary/Hungarocontrol)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	736	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	11%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

HungaroControl converted its pension scheme from a defined benefit scheme to a defined contribution on 31 December 2013 to mitigate rising pension costs and to encourage retirement of ANS employees.

8. Early retirement scheme

ATCOs and FIS personnel are eligible for early retirement, with details dependent on their gender and years of service. The most common retirement age for a male ATCO is at age 56-57 (see additional notes below for more detail). Pension costs recorded includes pension expenses and expenses from other long term liabilities. This regulation was terminated in the state pension system, for those who had payment in the system could reduce their retirement age.

9. Additional notes

10 years of service (men) or 8 years (women) allows a reduction of retirement age by 2 years. Each additional 5 years (men) or 4 years (women) of service offers an additional year of reduction of retirement age. It is the employee's discretional right to retire before the general retirement age. The defined contribution cost recorded has been provided via consultation response. Reforms announced in 2008 will increase the retirement age for individuals born in 1952 or later to 65 in a staggered manner.

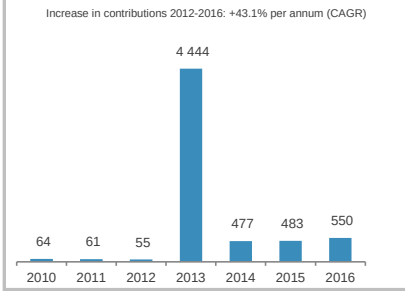
HUNGAROCONTROL: Hungary — Occupational pension - defined contribution

1. Key details

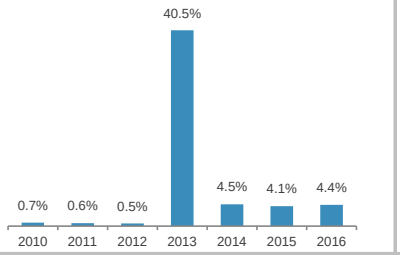
Scheme open to:	All staff	Active members:	736
Scheme managed by:	Independent trustees	Date of inception:	31 December 2013
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

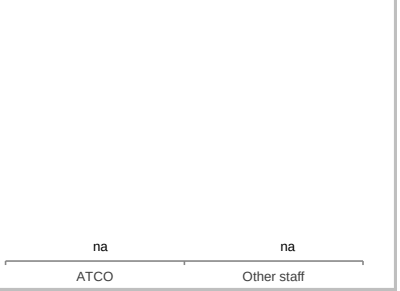
Total contributions (HUFm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The ANSP pays a flat rate of 9.3% based on the gross salary of yearly salary scheme for ATCOs. The ANSP pays fixed contributions for other staff. The contribution rate is not linked to salary, but adjusted with inflation.

Wages and salaries including bonuses are applied as a base to the contribution rates listed above.
Figures from 2010-2014 are in line with HAS rules, from 2015 IFRS is applied.
Figures contains making provisions, use of provisions, reversals of provisions related to pension.
There is a one off effect in 2010. Provisions for long-term employee benefits were created in 2010 thus the presented amount includes past service costs as well.

The spike in 2013 is related to the transfer of the old defined benefit scheme to a defined contribution one in that year.

Employer contribution is the social contribution tax of 27%.

HUNGAROCONTROL: Hungary — Additional information

Additional information

Note that the social security costs for 2010 are the pension insurance contributions and have been provided by Hungarocontrol following consultation. The employer social contribution system was changed from 2011. The employer contribution (i.e. the Social security cost) is in fact a tax in Hungary. Amounts to 27% of Wages and salaries, this functions as a tax, there is no direct allocation to the pension system, or the healthcare system.

For 2016, the EUROSTAT data for Share of "old age" in "social protection" expenses for Hungary has been taken to approximate the first pillar pension cost in box 3 of summary.

Additional information on early retirement schemes (overview, Box 8):
A new early retirement option was introduced on 1 January 2011 for women that have earned at least 40 years of eligibility and cease gainful activity, regardless of age. Eligibility period includes: period gained with gainful activity or pregnancy-confinement benefit, child care fee, child home care allowance, and child raising support or nursing fee. At least 32 years of gainful activity is needed besides these periods due to child care; or 30 years of gainful activity in case of Nursing Fee. Eligibility period is decreased by one year for each child in households with five or more children; altogether a maximum of seven years is possible.

The state early retirement scheme option was terminated in 2014, however it is intended and necessary to introduce similar occupational pension scheme that allows air traffic controllers to retire before the age of 60. The envisaged costs of such a scheme are likely to be in the same order of magnitude than the state early retirement pension scheme need on the past (13% of the salary).

IAA: Ireland

Overview of pension costs for 2016

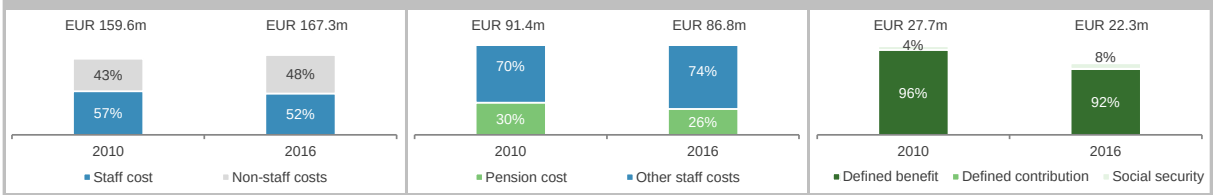
1. Contextual economic information

National currency:	EUR			
Inflation rate:	2010:	-1.6%	2016:	-0.2%
Government bond yields with maturities of close to 10 years:	2010:	5.7%	2016:	0.7%

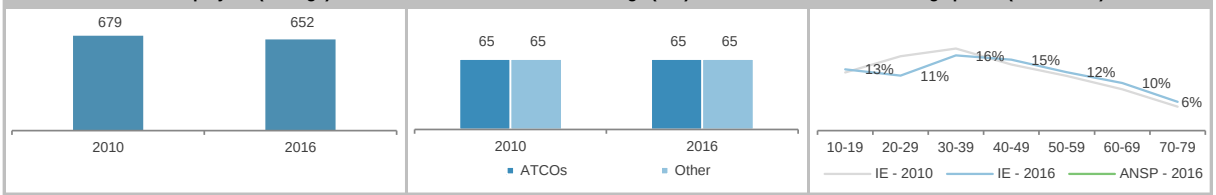
2. Overview of the first and second pension pillars in Ireland

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit, hybrid and defined contribution	
The state pension scheme consists of a contributory and non-contributory pension. The contributory state pension is based on the amount of social insurance contributions paid by the individual while the non-contributory pension is means-tested. State pensions are funded from social insurance contributions on a pay-as-you-go basis.	IAA provides four superannuation schemes. Two of these (1996 and 2008) are defined benefit (funded) and a hybrid plan has two schemes (2012) a defined benefit (funded) plan with a defined contribution element. Eligibility for the plans is dependent on the date of commencing employment.	There is interaction between the State and occupational pension schemes for employees who joined the IAA from 1995. Part of their pension will come from the employer and part from the State.

3. Pension costs as a proportion of total ANSP costs (nominal)



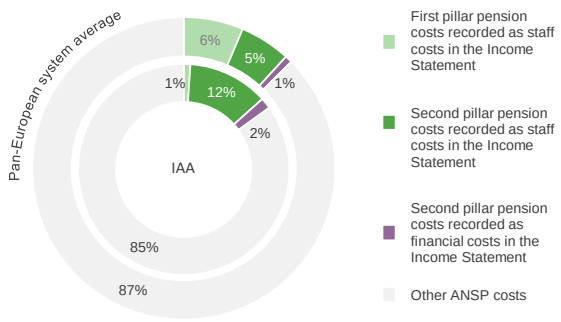
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
1996/2008 DB	Defined benefit (funded)	507	73%	Staff that joined before 1 April 2008 (1996) and 31 Dec. 2011 (2008)
2012 Hybrid - DB	Defined benefit (funded)	118	17%	Staff that joined from 1 January 2012
2012 Hybrid - DC	Defined contribution	71	10%	Staff that joined from 1 January 2012

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 159m, 45% of total ANSP assets
2010-16 change in net DB liability	+7% per annum (CAGR)
Pension % of total ANSP costs	15%
Active / pensioner members (DB)	na
Average employee age	na

Measures implemented to mitigate pension cost risks

A new hybrid pension scheme with both defined benefit and defined contribution elements was introduced for new employees from 1 January 2012. An agreement was reached between IAA management and staff on measures to address the pension fund deficit. The measures include an increased contribution to the fund by employees, a restriction on pensionable pay and additional contributions by the employer.

8. Early retirement scheme

Members of the 1996 defined benefit scheme can retire at 60. There is a supplementary ex-gratia liability which provides for ex-gratia pension payments up to age 65 to bridge the gap for certain employees who are eligible to retire between the ages of 60 and 65 but are not eligible to receive the state pension until they reach retirement age.

9. Additional notes

The additional cash cost, which represents contributions to the pension fund in excess of pension service costs, of EUR 9.7m reported in other comprehensive income, is included in the staff cost and in the pension costs reported in this fact sheet. First pillar pension costs in Box 3 have been estimated using the 'share of old age in social protection expenses' data from EUROSTAT. Employee contribution rates to the 2008 scheme are different than those to the 1996 scheme.

IAA: Ireland

Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	See Overview page, Box 5	Active members:	507
Scheme managed by:	Independent trustees	Pensioner members (Deferred members):	414 (76)
Accounting standard used:	FRS 102	Active members / pensioner members:	1.22

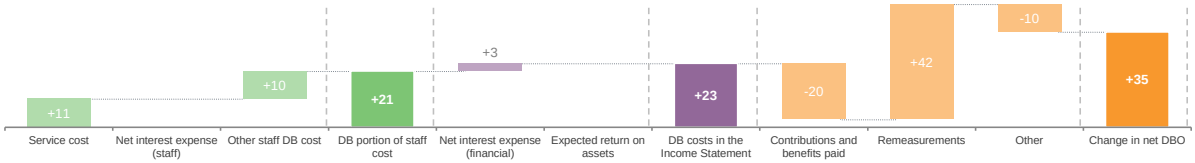
2. Benefits received

50% of final salary assuming a maximum service of 40 years.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	Actuarial calculations and EUROCONTROL principles
Differences to IAS principles (if applicable):	Accounting treatment of additional cash cost (see below)
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	-
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	-
Specific accounting treatments used for charging purposes (if different from above):	Contributions above actuarially determined costs recognised in OCI
Additional detail on accounting treatment:	IAA expenses contributions in excess of the actuarially determined pension cost so it can be recovered through its charges, and reverses the expense in OCI. This is not in line with IAS 19 (or FRS 102).

4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



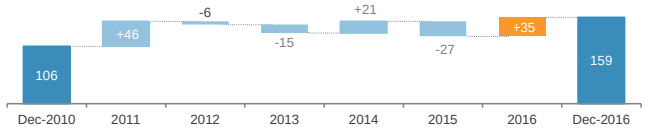
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

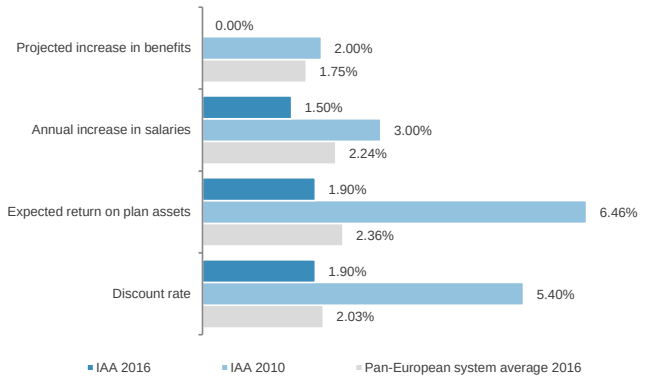


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	395	458	506	522	603	594	672
Plan assets	289	307	361	392	451	470	513
Net liability	106	151	146	130	151	124	159

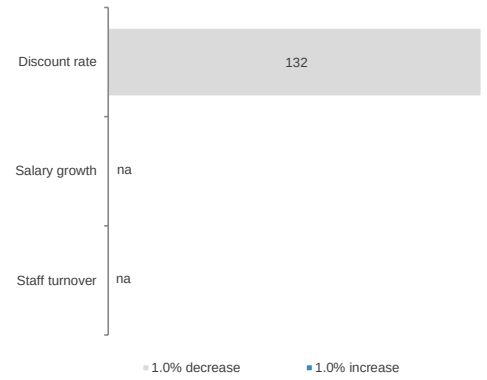
6. Additional information on plan assets

Distributed between equity securities (EUR 206m), bond securities (EUR 218m) and other assets (EUR 89m).

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

The defined benefit scheme is split in three parts depending on employees' joining date. The traditional DB schemes have been closed to new members since 1 January 2012. Staff joining from 1 January 2012 are members of the hybrid pension scheme, which has a defined benefit element. Members of the hybrid scheme cahn join up to a salary cap of 7%. Above this, they can join the DC matching scheme. The additional cash cost of EUR 9.7m is included in other staff cost in Box 4, and netted out again in other (penultimate column). The remeasurement of EUR 42m consists of a remeasurement for the return on plan assets less interest income of EUR 27.4m netted against the EUR 69.2m remeasurement of the gross obligation. The net liability in 2010 excludes a related deferred tax asset of EUR 13m.

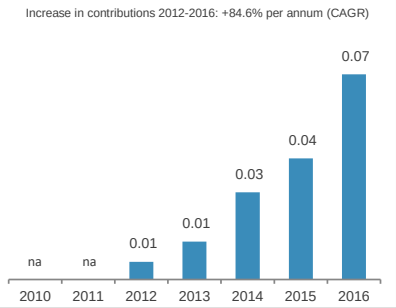
IAA: Ireland — Occupational pension - defined contribution

1. Key details

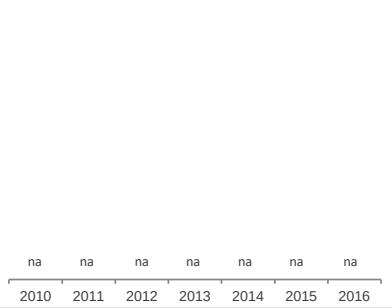
Scheme open to:	Staff that joined from 1 January 2012	Active members:	71
Scheme managed by:	Independent trustees	Date of inception:	1 January 2012
Accounting standard used:	FRS 102		

2. Contributions to the pension scheme

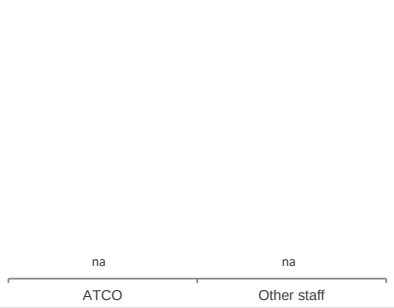
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

A new hybrid pension scheme with both defined benefit and defined contribution elements was introduced for new employees from 1 January 2012. Members of the hybrid can earn a defined benefit pension up to a defined salary cap. If their salary exceeds that salary cap, then they can join the defined contribution scheme where the employer will match their DC contribution rate up to a max of 7%. Contributions payable by the IAA to the defined contribution scheme amounted to EUR 70 409 for 2016 and EUR 41 507 for 2015.

IAA: Ireland — Additional information

Additional information

None

LFV: Sweden

Overview of pension costs for 2016

1. Contextual economic information

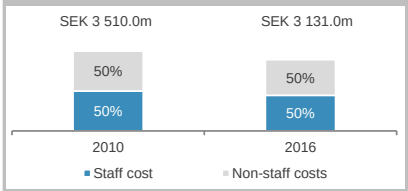
National currency:	SEK		Exchange rate 2016: 1 EUR = 9.5 SEK	
Inflation rate:	2010:	1.9%	2016:	1.1%
Government bond yields with maturities of close to 10 years:	2010:	2.9%	2016:	0.5%

2. Overview of the first and second pension pillars in Sweden

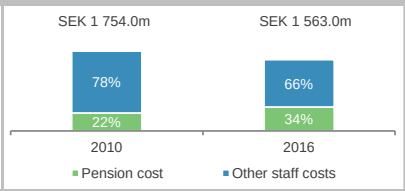
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go and funded	**Defined benefit and defined contribution**	
The Swedish state pension is a defined benefit scheme split between pay-as-you-go and funded (via individual accounts) mechanisms. The scheme is financed with a contribution rate of 18.5%. 16% of this is directed to the pay-as-you-go element (income pension) and the remaining 2.5% is directed to individual accounts (premium pension).	Civil servants are covered by a defined benefit scheme according to collective agreements. The scheme is funded through LFV's cash balance (see next page for more details). A new defined contribution scheme was introduced in 2016 for all state employees, with employees born in or after 1988 transferred from a defined benefit scheme to the defined contribution one.	

3. Pension costs as a proportion of total ANSP costs (nominal)

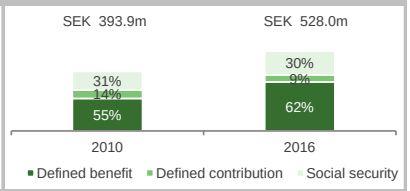
Total ANSP costs



Staff costs

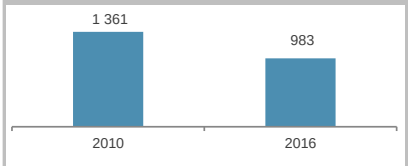


Pension costs

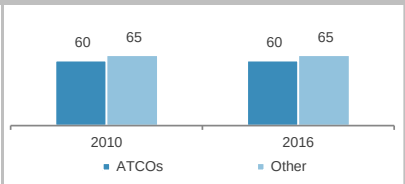


4. Employees

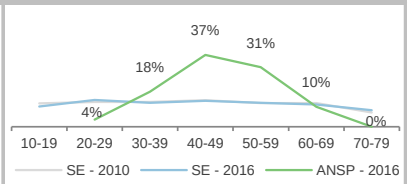
Number of employees (as at 31 Dec)



Retirement age (LFV)



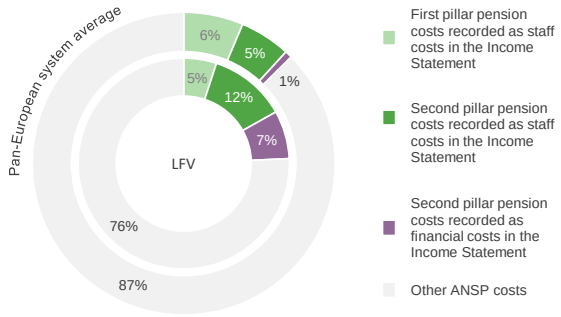
Age profile (Sweden/LFV)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1a	Defined benefit (funded*)	1 477	96%	Staff born before 1988
Scheme 1b	Defined contribution	1 477	96%	Staff born before 1988
Scheme 2	Defined contribution	60	4%	Staff born in or after 1988

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	SEK 1 122m, 15% of total ANSP assets
2010-16 change in net DB liability	-9% per annum (CAGR)
Pension % of total ANSP costs	24%
Active / pensioner members (DB)	na
Average employee age	47

Measures implemented to mitigate pension cost risks

A new defined contribution scheme was introduced in 2016 for all state employees, with employees born in or after 1988 transferred from a defined benefit scheme to the defined contribution one.

8. Early retirement scheme

ATCOs born before 1988 can choose to receive their defined benefits from the age of 60, with LFV funding the benefits between 60 and the legal retirement age of 65. The majority of ATCOs exercise the option of retiring at 60. The State pays first pillar benefits from the age of 65. There is no early retirement initiative for other employees, including ATCOs born after 1988.

9. Additional notes

* The defined benefit scheme is not strictly a funded scheme, but is recorded as such as LFV holds a large cash balance with the primary purpose of paying pension benefits - see Box 6 on the following page for more details. Additional information on first pillar contributions can be found at the end of the fact sheet. The pension scheme that employees born before 1988 are enrolled into has a defined benefit and defined contribution element. Employees born in or after 1988 receive a defined contribution pension only. Total ANSP costs and staff costs values relate to the "state owned enterprise".

LFV: Sweden

Occupational pension - defined benefit (funded*)

1. Key details

Scheme open to:	Staff born before 1988	Active members:	1 477
Scheme managed by:	SPV (see Box 9)	Pensioner members:	370
Accounting standard used:	Swedish GAAP	Active members / pensioner members:	3.99

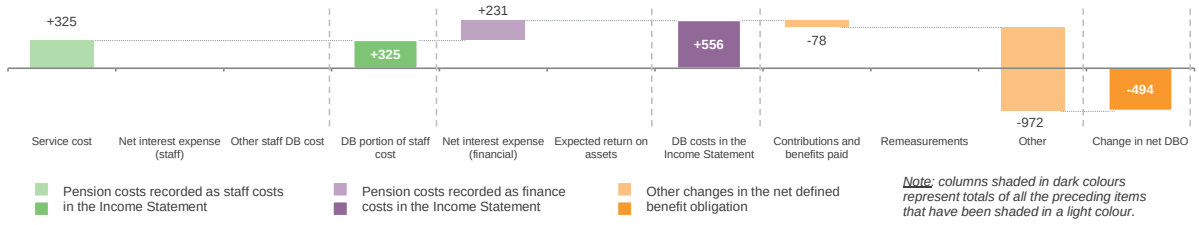
2. Benefits received

ATCOs: average of final five years' salary. Benefits received are also based on the number of employment years. Part of the benefits for employees born before 1988 are also based on the defined contribution scheme - see next page for details. Of the 1 477 active members, 398 have vested benefits.

3. Accounting treatment

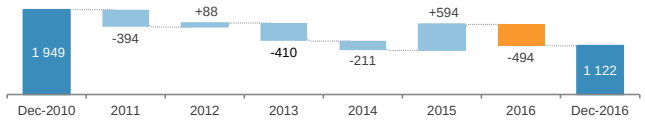
Accounting principles used in the presentation of pension expenses:	Swedish GAAP
Differences to IAS principles (if applicable):	See additional information on the next page
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Not applicable
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	Not applicable
Specific accounting treatments used for charging purposes (if different from above):	LFV will seek cost sharing exemptions for changes in the discount rate
Additional detail on accounting treatment:	The pension liability includes defined benefit retirement pensions, survivor's pensions, disability pensions and temporary retirement pensions for ATCOs aged 60–65.

4. Drivers of the change in the net defined benefit obligation in 2016 (SEKm, nominal)



Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the total defined benefit obligation, 2010-2016 (SEKm, nominal)

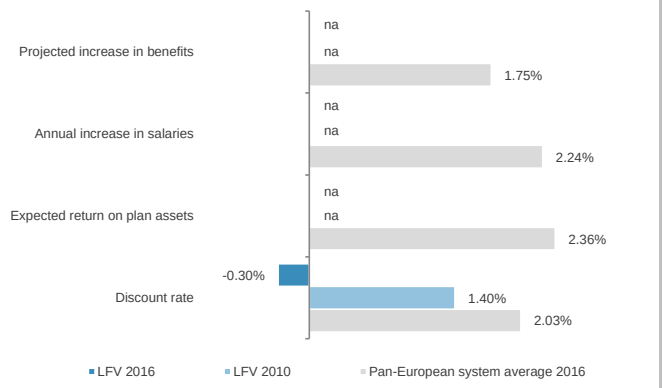


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	4 670	3 205	4 027	4 411	4 334	5 192	5 803
Plan assets	2 721	1 650	2 384	3 178	3 312	3 576	4 681
Total liability	1 949	1 555	1 643	1 233	1 022	1 616	1 122

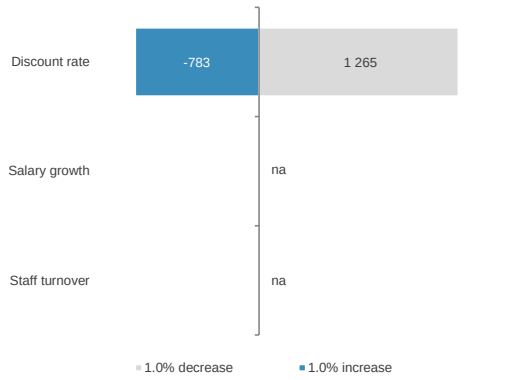
6. Additional information on plan assets

The scheme is not funded in the traditional sense, as contributions are not invested in separately ring-fenced assets that are dedicated to paying future benefits. LFV does, however, have a large cash balance with strict investment rules - the cash can only be invested in Swedish bank accounts or AA rated corporate bonds. As the primary purpose of this cash balance is to pay for future pension obligations, the scheme is closer to a funded scheme than a pay-as-you-go one in nature. The full value of the cash and bank balances from LFV's annual accounts has therefore been used as a proxy for plan assets.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (SEKm)



9. Additional notes

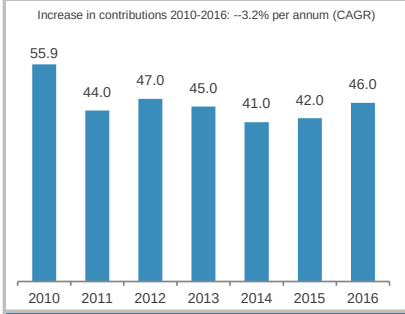
The defined benefit scheme is defined as a funded scheme as it is understood that even though SPV manages the pension scheme, LFV maintains ultimate liability to fund any shortfall in meeting retirement obligations. SPV is the National Government Employee Pensions Board. Box 4 definitions: Other staff costs refer to special employer's contributions paid on the defined benefit contribution; net financial expense refers to interest expense of SEK -26m, indexation adjustment of SEK -18m, and changes due to the altered calculation basis (remeasurements due to changes in the discount rate) of SEK +276m; other refers to special employer's contribution on remeasurements of SEK 67m and change in cash of SEK -1 105m as well as SEK 78m special employer's contribution and SEK-12m other adjustments. (see Box 6).

LFV: Sweden — Occupational pension - defined contribution

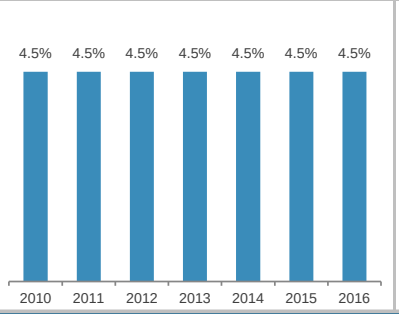
1. Key details			
Scheme open to:	All staff (see Overview page, Boxes 5 and 9)	Active members:	1 537
Scheme managed by:	The National Government Employee Pension Board (SPV)	Date of inception:	na
Accounting standard used:	Swedish GAAP		

2. Contributions to the pension scheme

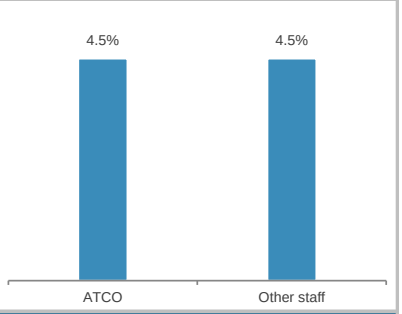
Total contributions (SEKm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

A new defined contribution scheme was introduced in 2016 for all state employees, with employees born in or after 1988 transferred from a defined benefit scheme to the defined contribution one.

Employees born before 1988 also have a part of the total retirements benefits based on a defined contribution scheme (called Individual retirement pension and additional retirement pension "Kåpan"). The benefits are almost unchanged in PA16 compared to PA03 for these employees.

The contribution rate applies to gross salaries including pay supplements. The contribution amounts and rates exclude special employer's contribution. In 2016, the contribution rate was 4.5% for employees born before 1988 or 6% and 31.5% on monthly salaries above SEK'000 37 for employees born in 1988 or later.

LFV: Sweden — Additional information

Additional information

Additional information on the state pension (Overview, Box 2):
Individuals over 65 that have lived in Sweden for at least 40 years, but who earn a low or no income can obtain the means-tested pension.
First pillar contributions consist of 'special employer's contributions', which is a payroll tax of 24.26% levied on contributions arising from the occupational defined benefit and defined contribution schemes, as well as the increase in the pension liability as a result of actuarial gains/losses.

Additional information on the occupational pension (Overview, Box 2):
All employees covered by PA03 were transferred to PA16 as at January 1, 2016. Employees covered by PA91 were not affected by the new PA16, they remain with PA91. Employees born prior to 1943 (1948 for ATCOs) are covered by the PA-91 pension scheme. Non-ATCOs and ATCOs born after the respective dates are covered by the PA 03 scheme. PA 03 also applies to employees with an annual income that is at least 7.5 times as large as the base income, which was SEK 435 750 in 2015.

Additional information on accounting treatment (Defined benefit - funded, Box 3):
The differences between the valuation principles under Swedish GAAP and IFRS can be summarised in the following three key points:
1. Assumptions used for the calculation of the DBO
Under IFRS, assumptions for valuing the DBO are set by the company. Assumptions for LFV, however, are set by the pensions administrator SPV. Under Swedish GAAP, the only actuarial assumptions that affect the valuation of the DBO are the discount rate and mortality, whereas IFRS considers additional metrics such as salary increases and staff turnover. Swedish GAAP also includes indexation of the DBO as part of the actuarial assumptions, which acts in a similar manner to the salary and pension benefit increass in IFRS.
2. Valuation of the future pension accrual
Under Swedish GAAP, the book value of the pension reserve is a sum of actual pension costs in the past. IFRS however, adds the future pension accrual to the valuation.
3. Treatment of actuarial gains/losses
Under Swedish GAAP, actuarial gains/losses are expensed in the Income Statement (they are recorded in the financial expenses incurred by LFV). IFRS bypasses the Income Statement with the gains/losses recorded directly in Other Comprehensive Income. LFV is considering the adoption of IPSAS39, which would result in the gains/losses being recorded in Other Comprehensive Income and not in the Income Statement; no decision on this has yet been made.

Additional information on actuarial assumptions (Defined benefit - funded, Box 7):
The calculation bases of the actuarial assumptions in Box 7 (used by SPV for the calculation of the pension reserve of LFV/state enterprises) are consistent with Swedish Financial Supervisory Authority's (FI) bases. The forecasted interest rate is decided yearly by The Swedish Pensions Agency on basis of the development of market interest rates.
There is an investigation ongoing within the State regarding the possibility to change the way the pensions are handled for the three state-owned enterprises in Sweden. The proposed change would transfer the pension liability from LFV to a fund administered by The Swedish Pension Agency. There is no decision taken regarding any changes, though based on the current level of the interest rate, any transfer of the pension liability to SPV is expected to take place at the earliest in 2021.

LGS: Latvia

Overview of pension costs for 2016

1. Contextual economic information

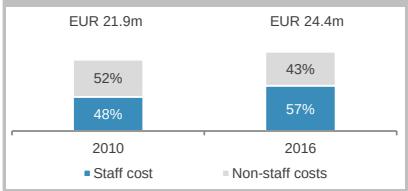
National currency:	EUR			
Inflation rate:	2010:	-1.2%	2016:	0.1%
Government bond yields with maturities of close to 10 years:	2010:	10.3%	2016:	0.5%

2. Overview of the first and second pension pillars in Latvia

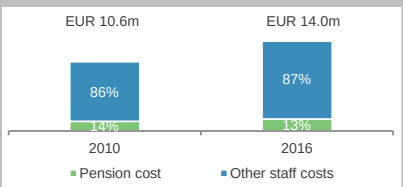
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go		
The state pension operates on a notional defined contribution basis. The social security system is financed by contributions from employers (24% of gross salaries) and employees (9% of gross salaries). Pensions account for 20% out of the 33% total social security contribution rate. A new scheme was introduced in 2001 which redirected 10% of the 20% contribution to individual accounts.		

3. Pension costs as a proportion of total ANSP costs (nominal)

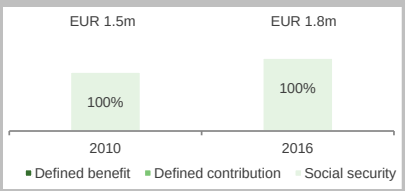
Total ANSP costs



Staff costs

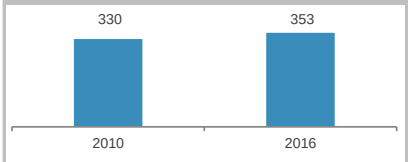


Pension costs

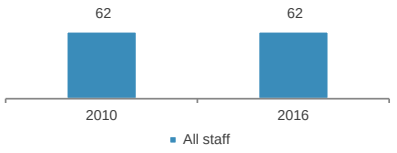


4. Employees

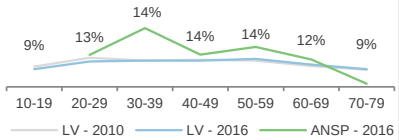
Number of employees (average)



Retirement age (LGS)



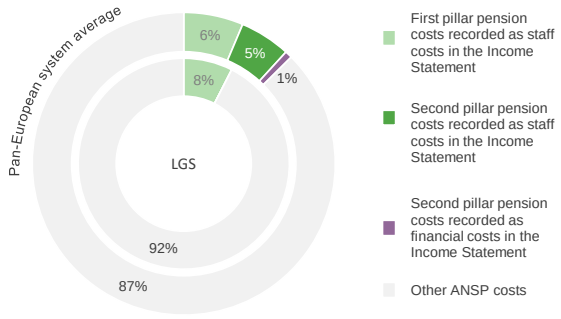
Age profile (Latvia/LGS)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

9. Additional notes

First Pillar: Eligibility for the pension benefits depends on contribution to the system for at least 10 years before the legal retirement age. The return on individuals' contributions accumulate based on a rate set by the government. Upon retirement, the accumulated benefits and contributions are converted to an annuity. The scheme is mandatory for all workers over the age of 15, and voluntary for non-workers.The pension costs presented in Box 3 includes social security contributions limited to first pillar contributions only. The retirement age is being revised upwards and on Jan 1, 2025 it will be 65 years. Currently there is a transition period, when every calendar year it is increased by 3 months.

LPS: Slovakia

Overview of pension costs for 2016

1. Contextual economic information

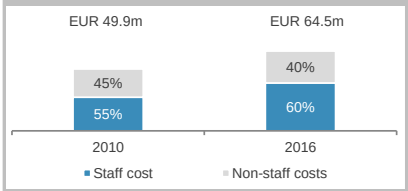
National currency:	EUR			
Inflation rate:	2010:	0.7%	2016:	-0.5%
Government bond yields with maturities of close to 10 years:	2010:	3.9%	2016:	0.5%

2. Overview of the first and second pension pillars in Slovakia

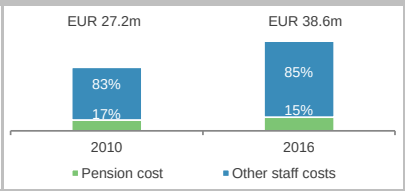
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
The public pension system in Slovakia is a defined benefit scheme financed through pay-as-you-go contributions of 28.75% split between employers (21.75%) and employees (7%). Reforms introduced in 2005 increased the retirement age for both men (from 2007) and women (from 2015) to 62 and created a link between length of service and benefits received.	LPS offers a defined benefit scheme (financed on a pay-as-you-go basis) for all employees and an obligatory defined contribution scheme for ATCOs and aircraft marshalllers (voluntary for other staff). The scheme was formed under the Slovak labour code and collective agreements. Contributions to the second pension pillar are currently 4.5% and will increase by 0.25% p.a. to reach 6% in 2024.	A new second pillar was introduced in 2004, with 9% of gross wages redirected from payroll taxes to individual accounts. The remaining 19.75% of the 28.75% contribution continues to fund the public pension (first pillar), as well as transition costs as a result of the reform, and disability insurance.

3. Pension costs as a proportion of total ANSP costs (nominal)

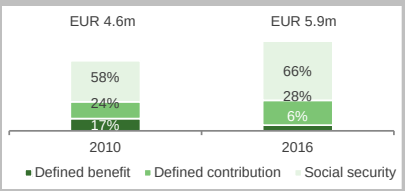
Total ANSP costs



Staff costs

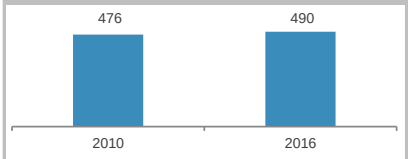


Pension costs

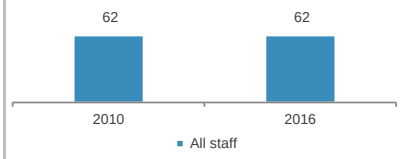


4. Employees

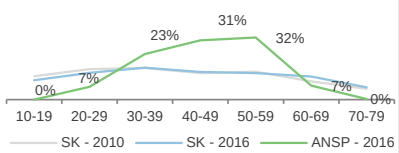
Number of employees (as at 31 Dec)



Retirement age (LPS)



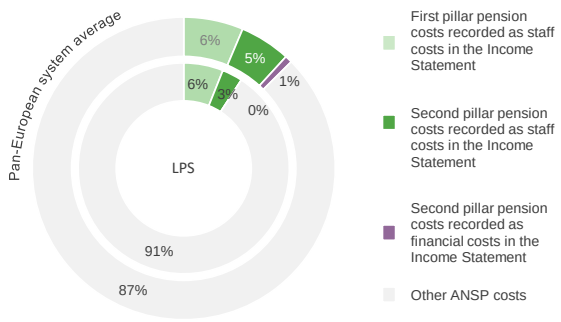
Age profile (Slovakia/LPS)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	475	97%	All staff
Scheme 2	Defined contribution	475	97%	Obligatory for ATCOs and aircraft marshallers, optional for others

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 5m, 6% of total ANSP assets
2010-16 change in net DB liability	+15% per annum (CAGR)
Pension % of total ANSP costs	9%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

ATCOs are eligible for early retirement 2 years prior to the retirement age, with the additional benefit of 24 months of base salary paid upon early retirement. This option is rarely taken by employees though since they prefer to stay receive additional benefits if they waive the early retirement (additional bonuses of 2 monthly wages per year).

9. Additional notes

The retirement age is increasing with life expectancy and was 62 years and 139 days as at 1 January 2018. It is expected to increase by approximately 60 days per annum. First pillar contributions consist of pension (14% of social security), disability (3%) and Reserve fund (4.75%) social security contributions.

LPS: Slovakia

Occupational pension - defined benefit (pay-as-you-go)

1. Key details

Scheme open to:	All staff	Active members:	475
Scheme managed by:	LPS	Pensioner members:	None
Accounting standard used:	IFRS	Active members / pensioner members:	na

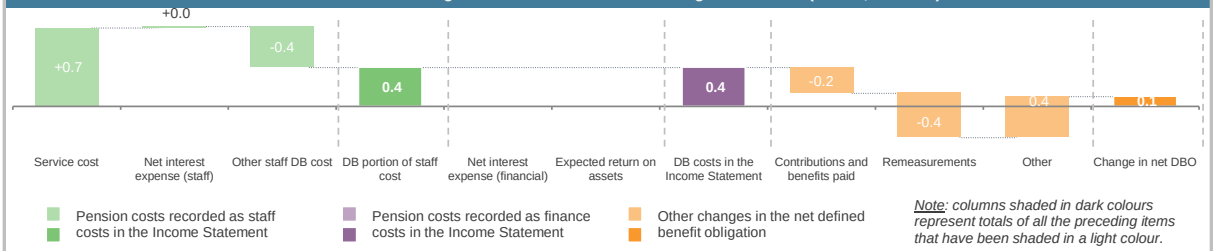
2. Benefits received

Lump sum payment received on retirement. Employees with up to 5 years of service receive a benefit equivalent to the average salary earned in 1 month. This increases to 4 times the monthly salary for employees with more than 5 years of service and 24 times the monthly salary for ATCOs (approximately 25% of employees).

3. Accounting treatment

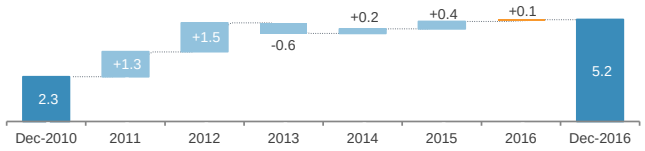
Accounting principles used in the presentation of pension expenses:	IFRS
Differences to IAS principles (if applicable):	Principles, but not presentation, consistent with IAS 19
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	No impact
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	No impact: LPS uses risk free rates
Specific accounting treatments used for charging purposes (if different from above):	Not applicable
Additional detail on accounting treatment:	Not applicable

4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

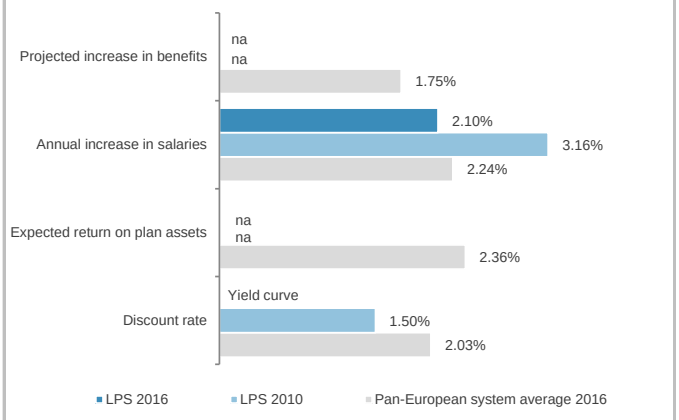


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	2.3	3.6	5.1	4.5	4.8	5.1	5.2
Plan assets	-	-	-	-	-	-	-
Net liability	2.3	3.6	5.1	4.5	4.8	5.1	5.2

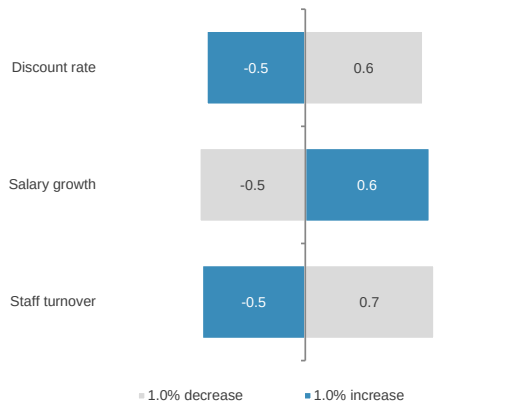
6. Additional information on plan assets

The full value of the defined benefit obligation is recorded as a liability resulting from pension obligations, the pension obligations are financed on a pay-as-you-go basis and no assets are held to cover pension liability.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

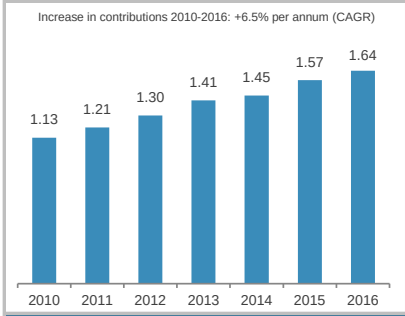
LPS uses the full yield curve to present value the future retirement obligations, with discount rates between 0.7% and 1.37%. The yield curve is based on risk free rates as there is no liquid market for AA-rated corporate bonds in Slovakia. The projected increase in benefits is 1 to 24 montly salaries. The payment of retirement benefits and actuarial gains and losses are included in the staff portion of DB costs and are included in staff costs as presented in Box 3 of the Overview page and Box 4 of this page.

LPS: Slovakia — Occupational pension - defined contribution

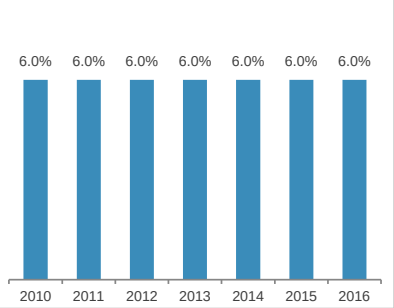
1. Key details			
Scheme open to:	Obligatory for ATCOs and aircraft marshallers, optional for others	Active members:	475
Scheme managed by:	Private funds (see below)	Date of inception:	2001
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

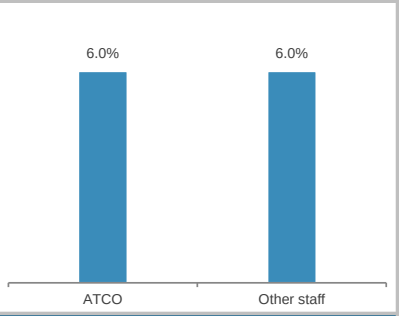
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

Employees can choose from four pension fund managers: NN, AXA, Tatrabanka (Reifeisen group) and STABILITA. Contribution rates apply to gross salaries.

LPS: Slovakia — Additional information

Additional information

Endowment insurance: LPS pays out of Social fund contributions for endowment insurance. This may be also considered as one of ways to fund pensions, because employees may surrender insurance only upon certain conditions, mainly 62 years of age. Contribution of LPS for long endowment insurance, for 2016 amounted to 0.47m EUR, and for 2010 amounted 0.38m EUR.

LVNL: Netherlands

Overview of pension costs for 2016

1. Contextual economic information

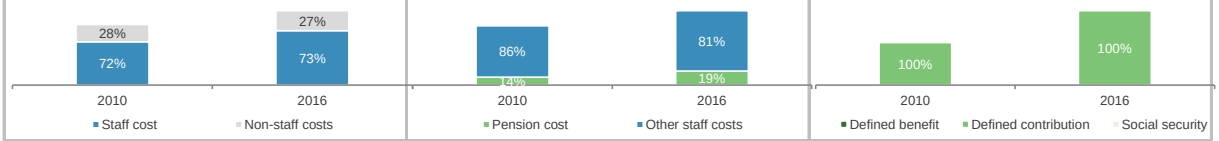
National currency:	EUR			
Inflation rate:	2010:	0.9%	2016:	0.1%
Government bond yields with maturities of close to 10 years:	2010:	3.0%	2016:	0.3%

2. Overview of the first and second pension pillars in Netherlands

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
Algemene Ouderdomswet (AOW) pension scheme is a compulsory defined benefit pension insurance plan financed on a pay-as-you-go basis. Funding comes from income taxes (taxed at a rate of 17.9%) . The scheme is funded by contributions that are statutarily limited to 18.25% of earnings. All residents born after 1st January 1955 are entitled to a State pension if they reached the age of 67 years and 3 months.	LVNL is obliged by law to participate in Pensioenfonds ABP. LVNL was demerged from the Ministry of Transport on 1 January 1993. Since then, LVNL remains a governmental body but with its own staff regulations. Employees receive a defined benefit, but ABP maintains liability for any shortfalls and LVNL is only liable to make contributions as specified by ABP.	

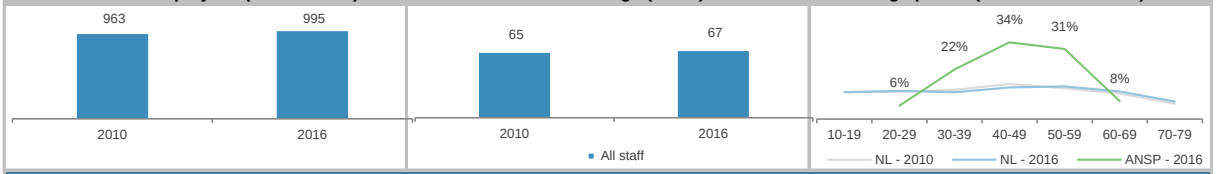
3. Pension costs as a proportion of total ANSP costs (nominal)

Total ANSP costs		Staff costs		Pension costs	
EUR 163.0m	EUR 200.5m	EUR 117.0m	EUR 146.7m	EUR 15.9m	EUR 27.7m



4. Employees

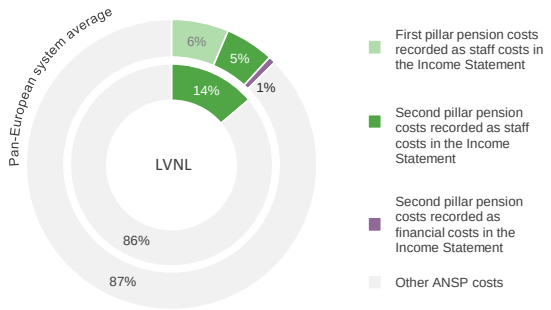
Number of employees (as at 31 Dec)		Retirement age (LVNL)		Age profile (Netherlands /LVNL)
963	995	65	67	



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
ABP	Defined contribution	933	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	14%
Active / pensioner members (DB)	na
Average employee age	46

Measures implemented to mitigate pension cost risks

LVNL is only liable to make contributions as specified by ABP. ABP assumes the responsibility for meeting pension obligations as they fall due.

8. Early retirement scheme

LVNL operates a functional age non-activity scheme (FLNA) for early retirees. For ATCOs who joined prior to or in 2007, the permitted age is 55. For ETSATCOs who joined after 2007, the age is 55. For assistants and FIC operators, the age is 58 years. For all other staff, the permitted age is 67 years and 3 months. More detail on the accounting treatment of this scheme is included in the additional information section on the following page.

9. Additional notes

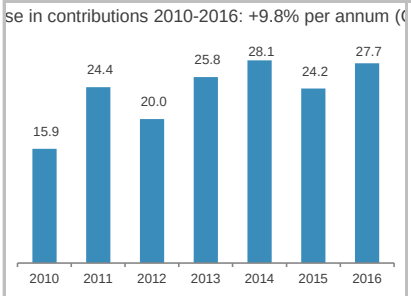
Contributions to the AOW pension scheme that are required in excess of the 18.25% cap will come from the public purse. Entitlements to the AOW accrue at a rate of 2% per year for each year between 15 and 65 that residents are in the country. All residents born before 1st January 1955 have a transitional system from 65-67. The state pension is equal to 70% of the statutory minimum wage for single people and 50% each for couples. The national retirement age in the Netherlands is expected to increase to 67 years and 3 months by 2022. Individuals must be a resident of the Netherlands or have been working in the Netherlands since the age of 15 years and 6 months to qualify for pension benefits. 2nd pillar pension costs in Box 3 include costs of EUR 15.8m relating to the FLNA in 2016.

LVNL: Netherlands — Occupational pension - defined contribution

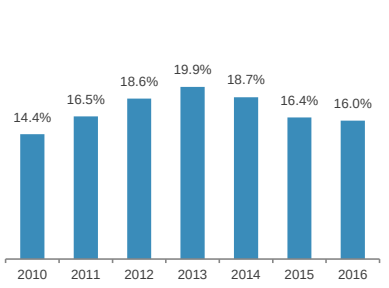
1. Key details			
Scheme open to:	All staff	Active members:	933
Scheme managed by:	Stichting Pensioenfonds ABP	Date of inception:	na
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

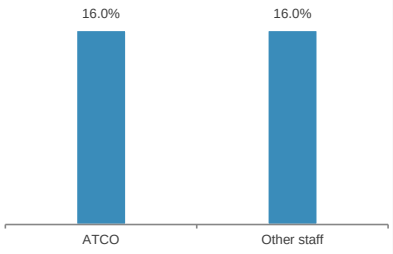
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

Contributions apply to salary plus TOD. Contribution rate is the same for ATCOs and non ATCOs. ABP has a mixed system combining defined contribution and defined benefit systems.

LVNL: Netherlands — Additional information

Additional information

Additional information on the early retirement scheme (Overview, Box 8):
LVNL discloses two departures from IAS 19. First, the actuarial gains and losses on the liability covering the FLNA for ATCOs at Rotterdam, Eelde and Beek is expensed through the Income Statement. Second, LVNL has not formed a provision for the FLNA right of ATCOs at Schiphol, as well as the unfunded part of the FLNA for the ATCOs at Rotterdam, Eelde and Beek.

MATS: Malta

Overview of pension costs for 2016

1. Contextual economic information

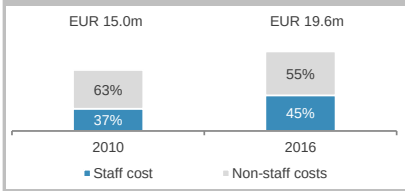
National currency:	EUR			
Inflation rate:	2010:	2.0%	2016:	0.9%
Government bond yields with maturities of close to 10 years:	2010:	4.2%	2016:	0.9%

2. Overview of the first and second pension pillars in Malta

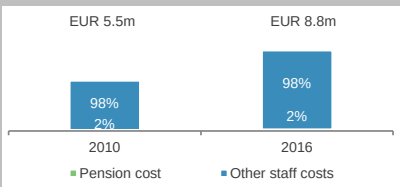
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit, pay-as-you-go	
The Maltese state pension consists of a mandatory defined benefit, earnings-related contributory pension, and a means-tested non-contributory pension. The contributory pension is financed through pay-as-you-go employer and employee contributions of 10% of wages each (i.e. 20% total). The State matches 50% of this total (i.e. adds an extra 10% to result in total contributions of 30%).	MATS does not offer an occupational scheme to employees. There is an unfunded defined benefit scheme for employees that joined the public service before 1979 and were subsequently transferred to the company.	

3. Pension costs as a proportion of total ANSP costs (nominal)

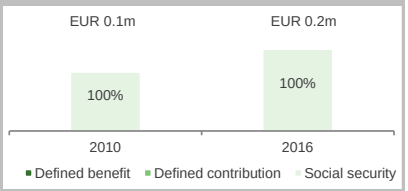
Total ANSP costs



Staff costs

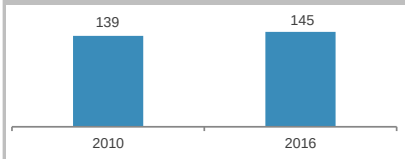


Pension costs

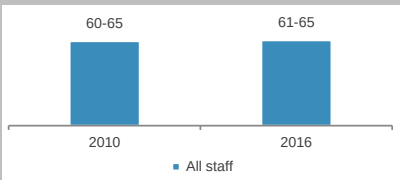


4. Employees

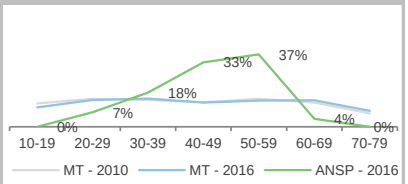
Number of employees (average)



Retirement age (MATS)



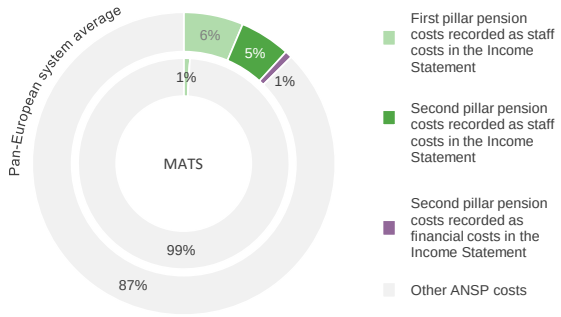
Age profile (Malta/MATS)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (unfunded)	0	0%	See Box 2

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR ,1m, 2% of total assets
2010-16 change in net DB liability	+9% per annum (CAGR)
Pension % of total ANSP costs	1%
Active / pensioner members (DB)	na
Average employee age	46

Measures implemented to mitigate pension cost risks

MATS does not offer an occupational scheme to employees and only incurs a liability from the pension obligations provided to employees that joined the public service before 1979 and were transferred to the company.

8. Early retirement scheme

9. Additional notes

Individuals must have been employed for 10 years prior to retirement, paid the required contributions and have been credited with at least 15 out of 52 national insurance contributions each year over the contribution period to draw down benefits. The benefit received is calculated using the best 3 years out of the 10 years preceding retirement. First pillar pension costs in Box 3 are gross wages and include amounts that were directed towards the financing of the state pension system only. The unfunded defined benefit scheme is for employees that joined the public service before 1979. EUROSTAT data (2010 and 2016) - share of "old age" in "social protection" expenses for Malta has been taken to approximate the first pillar pension cost in Box 3.

M-NAV: Former Yugoslav Republic of Macedonia

Overview of pension costs for 2016

1. Contextual economic information

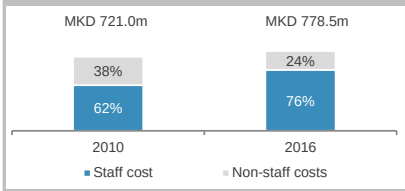
National currency:	MKD		Exchange rate 2016: 1 EUR = 61.3 MKD	
Inflation rate:	2010:	1.5%	2016:	-0.2%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	na

2. Overview of the first and second pension pillars in Former Yugoslav Republic of Macedonia

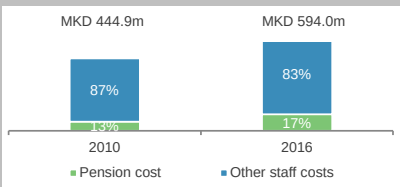
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
Employees entering service before 2003 are members of a single pillar, defined benefit (pay-as-you-go) state pension. Contributions covering employees that entered service after that date are split between the aforementioned pillar, and individual accounts (defined contribution). 6% of the 18% contribution rate is directed to the individual accounts.	The company has pension plans in accordance with the domestic legislation for social insurance, under which pays contributions for pension insurance for their employees. Contributions, based on salaries, are paid in the first and second pillar, which are responsible for the payment of pensions.	Employees that entered the pension system prior to 1 January 2003 are members of the state pension system (i.e. first pillar) , whereas those that entered the system on or after this date are also subject to the mandatory private pension initiative (i.e. second pillar).

3. Pension costs as a proportion of total ANSP costs (nominal)

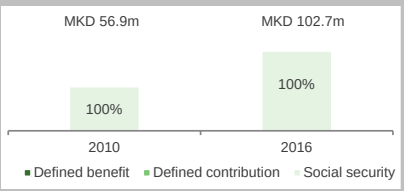
Total ANSP costs



Staff costs

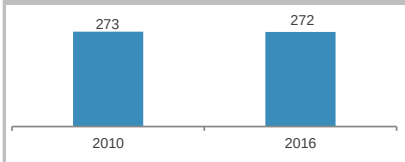


Pension costs

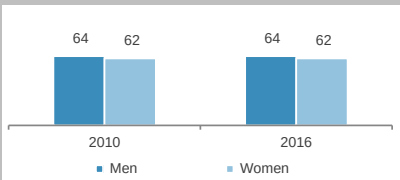


4. Employees

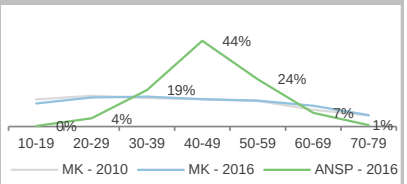
Number of employees (FTEs)



Retirement age (M-NAV)



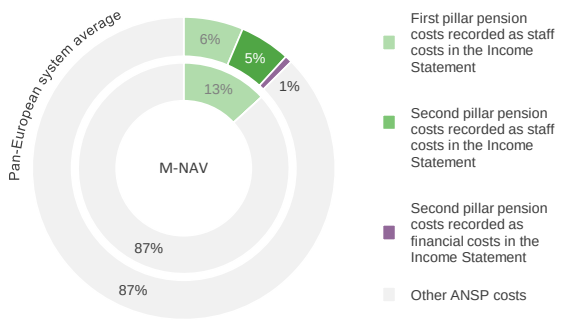
Age profile (F. Y. R. Macedonia/M-NAV)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	13%
Active / pensioner members (DB)	na
Average employee age	46.14

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

M-NAV did not operate a specific early retirement scheme in 2016, however, ATCOs were able to earn one year of early retirement for every four years spent undertaking operational work.

9. Additional notes

The Former Yugoslav Republic of Macedonia issued a 7-year eurobond with a yield of 5.625% in July 2016.

MOLDATSA: Moldova

Overview of pension costs for 2016

1. Contextual economic information

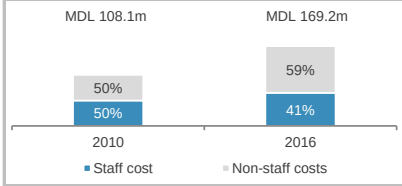
National currency:	MDL		Exchange rate 2016: 1 EUR = 21.9 MDL	
Inflation rate:	2010:	7.4%	2016:	6.4%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	na

2. Overview of the first and second pension pillars in Moldova

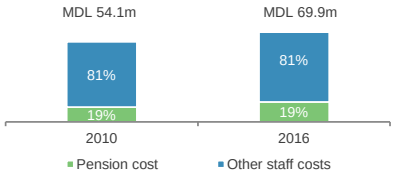
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go		
The Moldovan state pension is a defined benefit scheme financed through pay-as-you-go employee contributions of 6% of earnings (subject to maximum monthly earnings of MDL 22,500) and employer contributions of 23% (industrial sector) or 22% (agricultural sector) of the total payroll. These payments also cover sickness, maternity, unemployment and family benefits.		

3. Pension costs as a proportion of total ANSP costs (nominal)

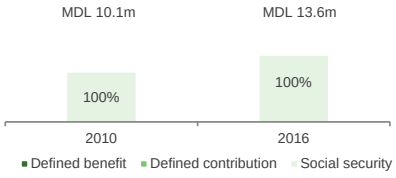
Total ANSP costs



Staff costs

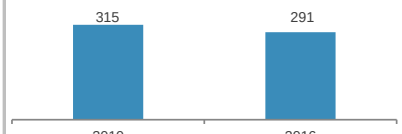


Pension costs

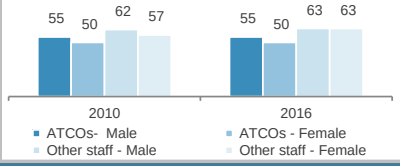


4. Employees

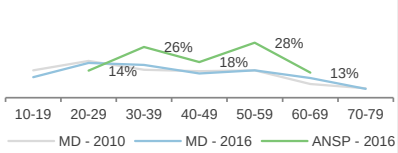
Number of employees (FTEs)



Retirement age (MoldATSA)



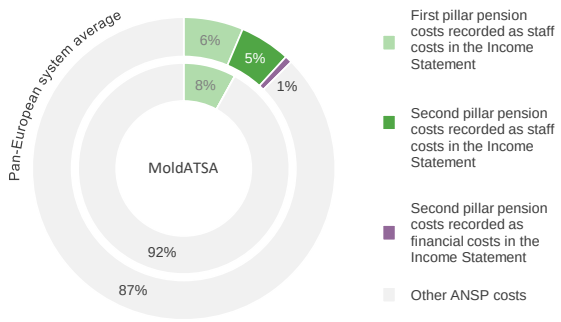
Age profile (Moldova/MoldATSA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There is no early retirement scheme in place for MoldATSA employees. Legal retirement age for ATCOs in OPS is 55/50 years for men/women respectively with the total length of service must be at least 25 years for men and 20 years for women. For ATCOs in Ops the mandatory requirement of continuous job service is 12.5 years for men and 10 years for women.

9. Additional notes

Cost (2010) and headcount (2010 and 2016) information in Boxes 3 and 4 have been taken from ACE. To calculate pension cost for Box 3, we have applied a percentage (84.6%- taken from the Ministry of Labor, Social Protection and Family of the Republic of Moldova Annual Social Report 2014) to the social security contributions in 2010 and 2016 to estimate the employer contribution to the state pension. MoldATSA required to contribute 33% of the payroll for ATCOs (23% for other staff) in accordance with the Moldavian Law on Social Insurance Budget.

MUAC: EUROCONTROL

Overview of pension costs for 2016

1. Contextual economic information

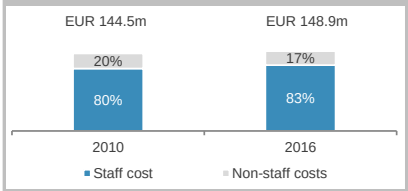
National currency:	EUR			
Inflation rate:	2010:	0.9%	2016:	0.1%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	na

2. Overview of the first and second pension pillars

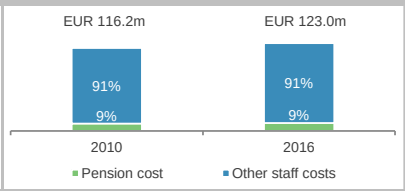
First pillar: State pension	Interaction between pillars
Defined contribution	
MUAC is funded by 4 Member States: Belgium, Germany, Luxembourg and the Netherlands. MUAC employees are eligible for membership in the EUROCONTROL defined benefit pension scheme. The EUROCONTROL pension scheme is the first and unique pillar for the employees. As part of the EUROCONTROL pension scheme, contributions from the employees and the employer are paid to the EUROCONTROL pension fund. In its annual accounts, MUAC reports these contributions in staff costs (treatment equivalent to a defined contribution) and uses this base for charging purposes.	

3. Pension costs as a proportion of total ANSP costs (nominal)

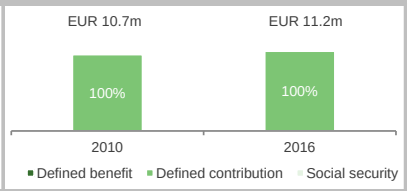
Total ANSP costs



Staff costs

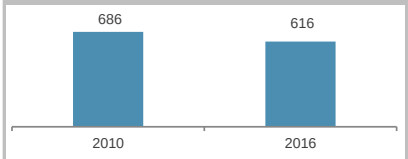


Pension costs

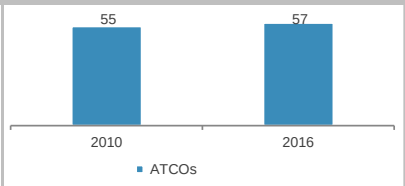


4. Employees

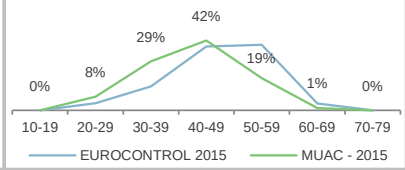
Number of employees (as at 31 Dec)



Retirement age (MUAC)



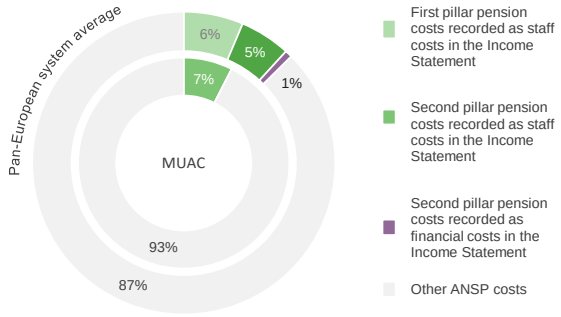
Age profile (EUROCONTROL/MUAC)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (funded)	616	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	7%
Active / pensioner members (DB)	na
Average employee age	43

Measures implemented to mitigate pension cost risks

See additional notes in Box 9 below for details of the Administrative Reform of the EUROCONTROL Employment Regulations, which increased the retirement age for employees.

8. Early retirement scheme

An early retirement scheme is available for air traffic controllers in place at the date of 29 April 1990.

9. Additional notes

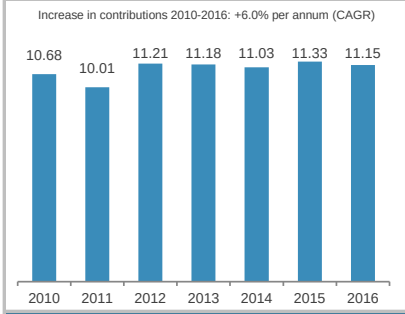
On 1 July 2016, the Administrative Reform of the EUROCONTROL Employment Regulations entered into force, leading to increase of the retirement age of ATCO staff recruited as of 1 July 2016 to 57 years. A third category of staff, flight data specialists in place on 1 July 2000, may leave at the age of 58. The reform has also lead to a normal retirement age of 66 for staff recruited as of that date. For staff in service, the Reform stipulated a retirement age between 63 and 66 years, depending on the age of the staff member upon joining the force. The average age figure in Box 7 reflects 2015 data.

MUAC: EUROCONTROL — Occupational pension - defined contribution

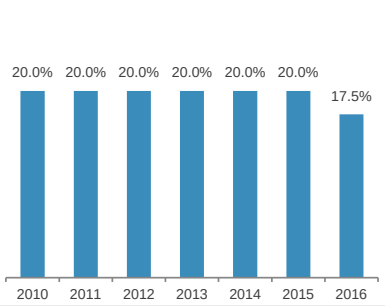
1. Key details			
Scheme open to:	All staff	Active members:	616
Scheme managed by:	EUROCONTROL	Date of inception:	2005
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

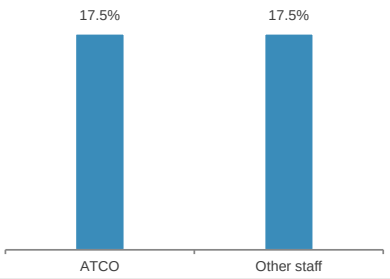
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The contribution amounts above includes employer contribution to pension, employer contribution to ATC allowance pension and contribution to PBO. The OAT (Operation Air Traffic) part of contribution to PBO (Projected Benefit Obligations) has been excluded.

MUAC:EUROCONTROL — Additional information

Additional information

Staff recruited before 1st July 2005, the pension rights amount to 2% per year of service, and are capped at 70%. This is multiplied by the basic salary received by the employee during their final year of service.
Staff recruited after 1st July 2005 are entitled to a rate of 1.9% per year of service.
Staff recruited after 1st July 2016 are entitled to a rate of 1.8% per year of service

The EUROCONTROL pension fund is broken down into 3 sub-accounts :
• Projected Benefits Obligations (PBO): The PBO sub-account relates to pension rights acquired for services before 2005 and is funded entirely by Member State contributions.
• Future Services: this sub-account is funded by both EUROCONTROL (two-thirds) and employee (one-third) contributions. Contribution rates in 2016 for EUROCONTROL and employees were 20% and 10% until 30 June 2016, and 17% and 8.5% from 1 July 2016 respectively.
• Maastricht ATC Allowance: A number of ATCOs in OPS are entitled to specific pension benefits through this sub-account. Benefits are funded through contributions from employees and the four Member States (8.5% and 17% respectively).

Additional information on the retirement age (Overview, Box 9):
The legal retirement age for non-ATCO employees of MUAC was set following the 2016 Administrative reform. A variable pensionable age was defined based on the age of employee upon recruitment. The legal retirement ages for non ATCOs are:
• 60 years for staff who entered service prior to 1 July 2005 and were aged over 50 or have completed a minimum of 20 years of service.
• 63 years for staff recruited before 1 July 2005 and were aged 45 or more at that date.
• 60 – 65 years for staff who entered service prior to July 2016 and were aged 35 or more depending on their age at 1 July 2016.

Additional information on the retirement age (Summary, Box 4):
The age profile for MUAC has been prepared using data from year 2015.

NATS: United Kingdom

Overview of pension costs for year ending 31 March 2017

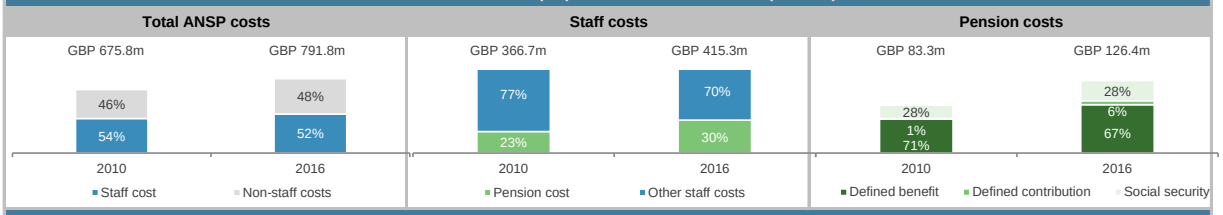
1. Contextual economic information

National currency:	GBP		Exchange rate 2016: 1 EUR = 0.8 GBP	
Inflation rate:	2010:	3.3%	2016:	0.7%
Government bond yields with maturities of close to 10 years:	2010:	3.4%	2016:	1.2%

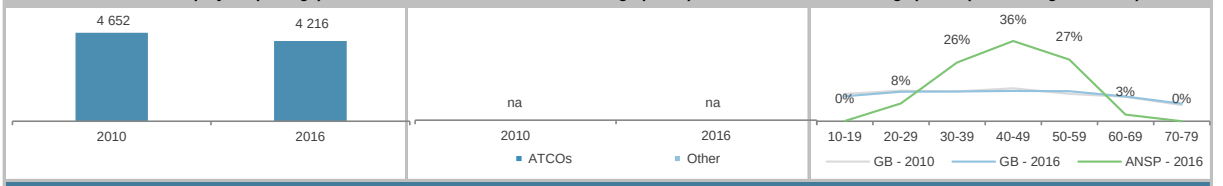
2. Overview of the first and second pension pillars in United Kingdom

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
First pillar: the state pension in the UK is formed of two components: a flat-rate payment with full benefits requiring 30 years of contributions; a pension credit, which is a supplementary income-related benefit.	Employees who began working at NATS prior to 31 March 2009 were entitled to enrol in a defined benefit scheme. The defined benefit scheme was closed to new applicants in March 2009 with new hires being enrolled into a defined contribution scheme after this date. A pension salary sacrifice scheme was introduced on 1 April 2009.	

3. Pension costs as a proportion of total ANSP costs (nominal)



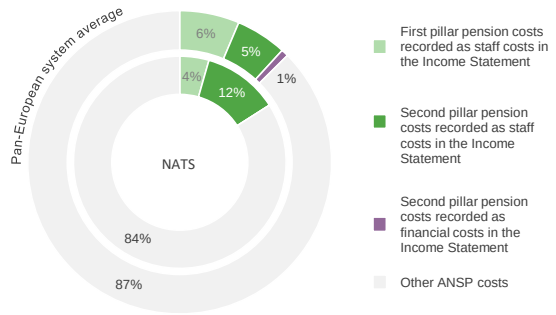
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (funded)	2 768	66%	Staff that joined before 31 March 2009
Scheme 2	Defined contribution	1 043	25%	Staff that joined on or after 31 March 2009

6. Pension costs as a proportion of total ANSP costs (YE 3/17)



7. Key pension indicators (YE 3/17)

Item	Indicator
Net DB liability - % of assets	GBP 351m, 21% of total ANSP assets
2010-16 change in net DB liability	+GBP 399m
Pension % of total ANSP costs	16%
Active / pensioner members (DB)	1.07
Average employee age	44

Measures implemented to mitigate pension cost risks

The defined benefit scheme was closed to new entrants with effect from 1 April 2009, a defined contribution scheme was established for new entrants from 1 April 2009. Limiting increases in pensionable salaries to a maximum of the consumer prices index (CPI) plus 0.25% and the indexation of future service at CPI, rather than RPI was subsequently agreed in 2013 following consultation. NATS introduced a salary sacrifice scheme for the NATS section of the defined benefit pension scheme and the defined contribution scheme on 1 April 2009. (Continued on Defined contribution - additional information box)

8. Early retirement scheme

An early retirement scheme (ERS) exists at NATS, no details of the retirement ages are provided. The costs of the ATCO early retirement scheme are reflected in the current service cost. There is no legally enforceable retirement age in the UK. An ATCO can continue in employment provided he or she holds the necessary validation, sector rating and medical certificate.

9. Additional notes

NATS' 2017 and 2011 annual reports were used to identify information for 2016 and 2010 respectively as a result of NATS reporting for the full year ending on 31 March. YE 3/11 and YE 3/17 have been used as abbreviations for year ending 31 March 2011 and 2017 respectively. In the staff cost section of Box 3, the total amounts indicated (GBP 366.7m in YE 3/11 and GBP 415.2m in YE 3/17) are net of capitalised staff costs. However, the pension costs shown in the staff cost and pension cost sections of Box 3 and the pension costs recorded as staff cost shown in Box 6 are gross amounts, not netted by the capitalised amounts and exclude salary sacrificed but include total National Insurance contributions.

NATS: United Kingdom

Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	See box 5 in the overview page	Active members:	2 768
Scheme managed by:	Independent trustees	Pensioner members:	3846 (See box 9)
Accounting standard used:	IFRS	Active members / pensioner members:	1.07

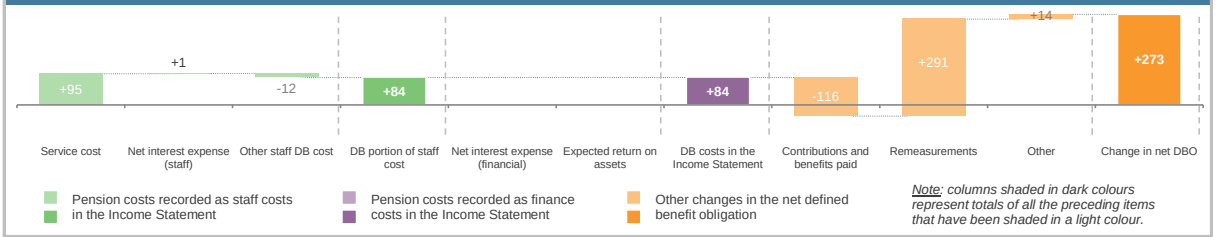
2. Benefits received

Benefits received are based on employees' final pensionable salary. Members receive 1/58 x Pensionable Service x Final pensionable pay as pension benefits.

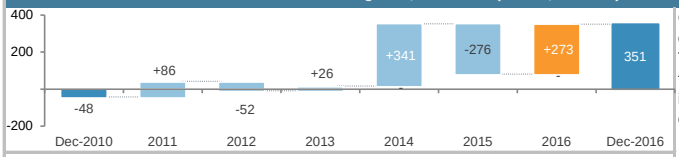
3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	IFRS (IAS 19)
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	-
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	-
Specific accounting treatments used for charging purposes (if different from above):	A cash contribution scheldule was implemented following valuations.
Additional detail on accounting treatment:	See additional information on next page

4. Drivers of the change in the net defined benefit obligation in 2016 (GBPm, nominal)



5. Evolution of the net defined benefit obligation, 2010-2016 (GBPm, nominal)

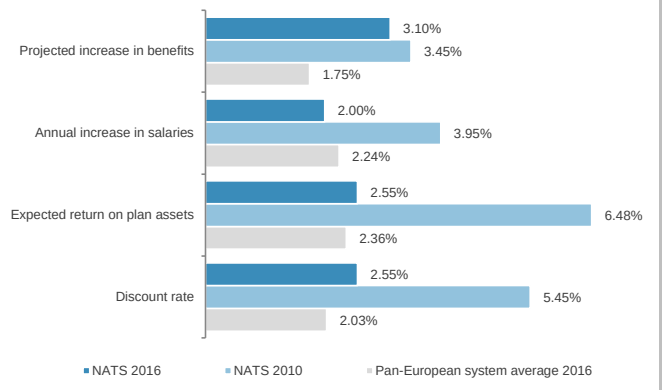


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	3 172	3 415	3 859	4 179	5 050	4 760	5 786
Plan assets	3 220	3 377	3 873	4 166	4 697	4 683	5 436
Net liability/ (asset)	- 48	38	- 14	12	353	77	351

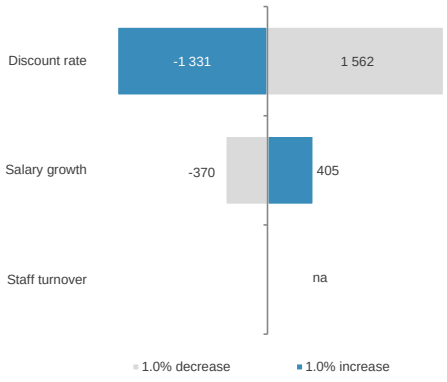
6. Additional information on plan assets

Contributions to the defined benefit scheme are predominantly invested in corporate and index-linked gilts over 5 years (44%), global equities (42%). The rest of the assets are invested in property, hedge funds, private equity funds, derivatives and cash and cash equivalents. The scheme assets do not include any investments in the equity or debt instruments of group companies or any property or other assets used by the group.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (GBPm)



9. Additional notes

Pensioner members in Box 1 includes 1 260 deferred members. Other staff costs in Box 4 represents administrative costs net of salary sacrifice. The sensitivity of the defined benefit obligation to changes in the actuarial assumptions presented in Box 8 have been estimated using the percentage sensitivities presented in NATS' 2017 annual report. In line with IAS 19 guidance, the assumption for the expected return on assets in 2016 is assumed to be the same as the discount rate used to calculate the defined benefit obligation (Box 7). The assumption for the projected increase in benefits has been provided by NATS in their consultation response to the study. In the case of NATS there was a change in pensions accrued before and after 2013 (where after 2013 the indexation of future service at CPI, rather than RPI is applied).

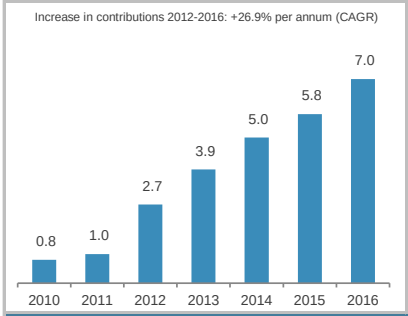
NATS: United Kingdom — Occupational pension - defined contribution

1. Key details

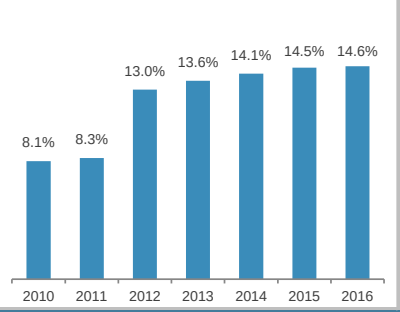
Scheme open to:	Staff that joined on or after 31 March 2009	Active members:	1 043
Scheme managed by:	Independent trustees	Date of inception:	1 April 2009
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

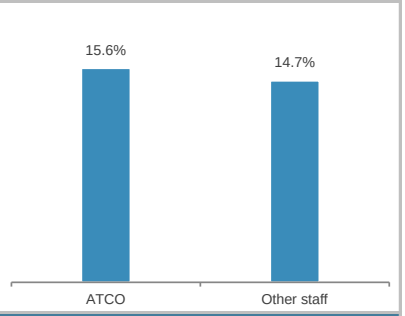
Total contributions (GBPm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The group provides a defined contribution scheme to all qualifying employees who are not members of the defined benefit scheme. The assets of the scheme are held separately from those of the group in funds under the control of a board of Trustees.

The group operates a salary sacrifice arrangement whereby employees sacrifice an element of their salary in favour of contributions to the scheme in a ratio of 2:1, up to a maximum employer contribution of 18%. Contributions shown in the 'Overview' page and in Box 2 above (e.g. GBP 7.0m for the year ending 31 March 2017) exclude salary sacrifice (e.g. GBP 3.5m for the same year).

The contribution rate by staff category in Box 3 has been taken from the pensionable pay excluding salary sacrifice.

NATS: United Kingdom — Additional information

Additional information

Additional details on social security amounts (Overview, Box 3):
To obtain the amount directed to the state pension, a percentage of 84% and 92% in 2010 and 2016 has been applied to total social security payments. The percentages have been taken from the Government Actuary's Quinquennial Review of the National Insurance Fund as at April 2015. Table B6 of the report indicates that the funding of state pensions as a proportion of benefit expenditure has increased from c86% to c94% over the period 2010/11 to 2015/16 or from 84% to 92% of total expenditure.

Additional detail on key indicators (Overview, Box 7):
As the scheme was in surplus as at 31 March 2011, it is not possible to calculate a CAGR on the growth in the liability. The absolute change in GBPm has consequently been presented in this section.

Additional detail on measures to mitigate pension risk (Overview, Box 7):
NATS introduced a salary sacrifice scheme, whereby part of an employee's gross salary is now treated as SMART (4%/6%) and employees sacrifice a portion of their gross pay in favour of pension contributions. This saves both employee and employer national insurance contributions on the portion that is sacrificed. These SMART pension contributions are then treated as employer pension contributions.

Additional detail on early retirement scheme (Overview Box 8):
The pensions freedoms legislation allows pension scheme members to start to take pension benefits earlier (from age 55), but with no enhancement. All employees will be eligible to start drawing pension from age 55, but ATCO's have a specific agreement which allows enhanced rates for those retiring early subject to confirmation of operational service.

Additional detail on accounting treatments (Defined benefit - funded, Box 3):
The 2015 valuation of NATS' pension liabilities reported a funding deficit of GBP 458.7m, representing a GBP 76.1 increase from the 2012 valuation. A new 11 year recovery plan was implemented to recover this additional deficit. Consequently, NATS will be increasing the level of deficit repair contributions it makes from GBP 28.6m in relation the deficit identified in the 2012 valuation to GBP 39.9m from 2017.
Note that although the valuation and assessment of the schemes is conducted to a 31 December year end, all financial information is presented in the annual report to a 31 March year end. The numbers in this fact sheet are presented to a March year end.

Additional detail on contributions to the defined benefit plan (Defined contribution, Box 2):
Pension contributions were set at 29.4% of pensionable pay until 31 December 2016 and 31.8% thereafter until 31 December 2026 following the most recent assessment of the NATS pension scheme funding in 2015, targetting a repayment of the deficit by 2026.

NAV PORTUGAL: Portugal

Overview of pension costs for 2016

1. Contextual economic information

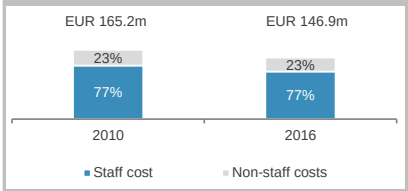
National currency:	EUR			
Inflation rate:	2010:	1.4%	2016:	0.6%
Government bond yields with maturities of close to 10 years:	2010:	5.4%	2016:	3.2%

2. Overview of the first and second pension pillars in Portugal

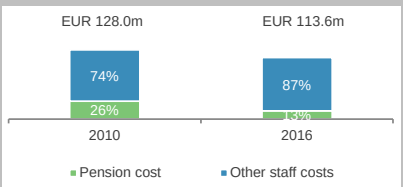
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit and defined contribution	
The state pension consists of a defined benefit plan financed through pay-as-you-go contributions from employees (11% of income) and employers (23.75%). 20.21% of this 34.75% contribution is used to finance pensions, with the rest used to finance disability and survivor benefits and the national health system.	NAV Portugal operates two defined benefit (funded) schemes, a defined contribution scheme and an early retirement scheme ("Pensões Segurança Social CTA"), which is also accounted for as a defined benefit liability.	

3. Pension costs as a proportion of total ANSP costs (nominal)

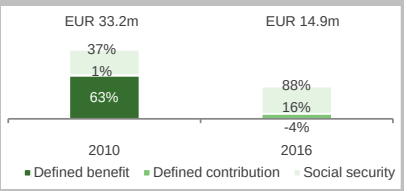
Total ANSP costs



Staff costs

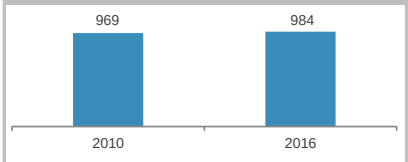


Pension costs

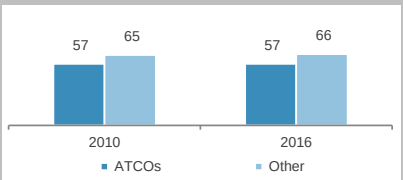


4. Employees

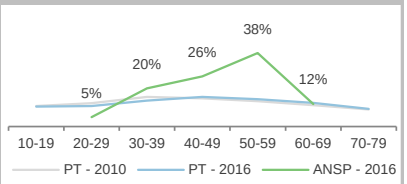
Number of employees (average)



Retirement age (NAV Portugal)



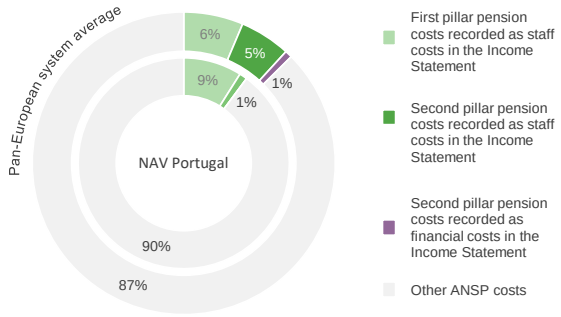
Age profile (Portugal/NAV Portugal)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
NAV/SINCTA	Defined benefit (funded)	252	25%	ATCOs employed before 30 September 2007 and other staff
NAV Comp.	Defined benefit (funded)	0	0%	No active members -see Box 9 below
Scheme 3	Defined contribution	743	75%	ATCOs employed after 30 September 2007 and other staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	EUR 101m, 34% of total ANSP assets
2010-16 change in net DB liability	+0.4% per annum (CAGR)
Pension % of total ANSP costs	10%
Active / pensioner members (DB)	72.4%
Average employee age	48

Measures implemented to mitigate pension cost risks

The defined benefit schemes were closed to ATCOs and non-ATCOs in 2007 and 2012 respectively. A defined contribution scheme was made available to all employees not enrolled in the defined benefit scheme in March 2012.

8. Early retirement scheme

ATCOs with individual labour contracts can claim 60% of their social security pension between the ages of 57 and 66. The costs are accounted for as a provision for future costs and this is drawn down as the early retirement packages are granted. They are reported in NAV Portugal's corporate accounts as staff costs.

9. Additional notes

State pension retirement benefits are based on earnings and amount to approximately 69% of the final net salary. The defined benefit cost in Box 3 consists of EUR 6.4m related to the two defined benefit schemes, and a negative cost of EUR -7.0m as a result of provision releases relating from the early retirement scheme (see next page for more detail. Eligibility for the NAV Complementos scheme (Box 5): Non-ATCOs who were retired or met the retirement requirements before March 2012.

NAV PORTUGAL: Portugal — Occupational pension - defined benefit (funded)

1. Key details

Scheme open to:	See Overview page, Box 5	Active members:	252
Scheme managed by:	Third party fund	Pensioner members:	348
Accounting standard used:	Portuguese GAAP	Active members / pensioner members:	0.72

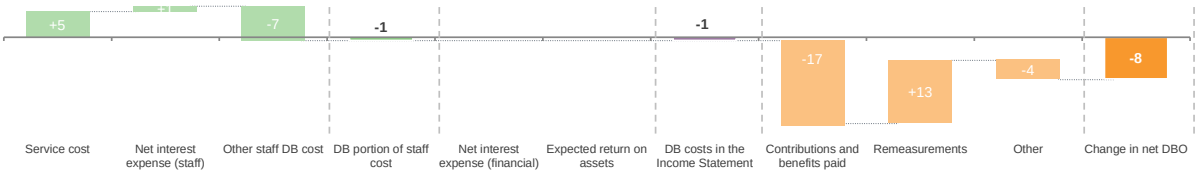
2. Benefits received

On average, ATCOs receive 28.34% of final salary and other staff receive 1.58% of final salary.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	Consistent with IAS 19 principles
Differences to IAS principles (if applicable):	See additional information on the following page
Accounting treatment for changes in actuarial assumptions:	Immediate recognition
Impact of revisions to IAS 19 (removal of corridor approach):	Not applicable
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	Not applicable
Specific accounting treatments used for charging purposes (if different from above):	Actuarial gains and losses continue to be considered as "Staff costs"
Additional detail on accounting treatment:	

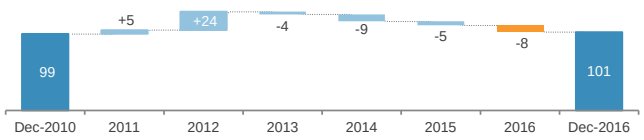
4. Drivers of the change in the net defined benefit obligation in 2016 (EURm, nominal)



Pension costs recorded as staff costs in the Income Statement; Pension costs recorded as finance costs in the Income Statement; Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

5. Evolution of the net defined benefit obligation, 2010-2016 (EURm, nominal)

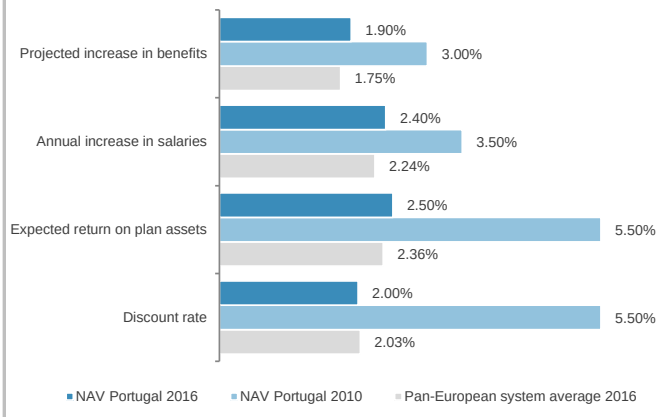


	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	265	247	301	318	333	340	348
Plan assets	167	144	174	194	218	230	247
Net liability	99	104	127	124	115	109	101

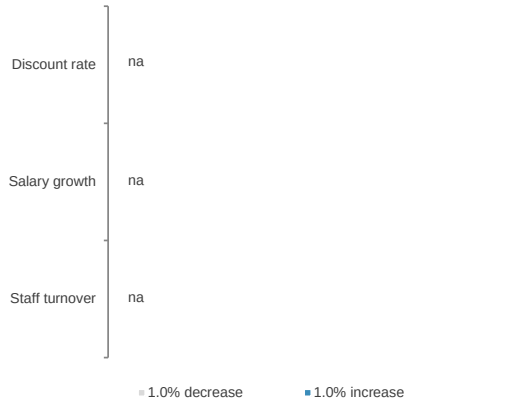
6. Additional information on plan assets

The majority of plan assets are invested in bonds (55% of the NAV/SINCTA Complementos scheme and 69% of the NAV Complementos scheme) and shares (28% of the NAV/SINCTA Complementos scheme and 23% of the NAV Complementos scheme), with the rest of the plan assets invested in short-term deposits and investment funds.

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (EURm)



9. Additional notes

NAV Portugal operates two defined benefit schemes: NAV/SINCTA Complementos and NAV Complementos. The actuarial assumptions in Box 7 are provided for NAV/SINCTA Complementos. The obligation for NAV Complementos in 2016 was calculated using a discount rate of 1.5%, an annual increase in salaries of 2.2% and a projected increase in benefits of 1.7%. All other assumptions were the same as those for NAV/SINCTA Complementos. Details on the comparison between the accounting treatment applied in NAV Portugal's annual reports and IAS 19 can be found in the additional information section on the following page. Pensioner members include 241 ATCOs and 107 other staff.

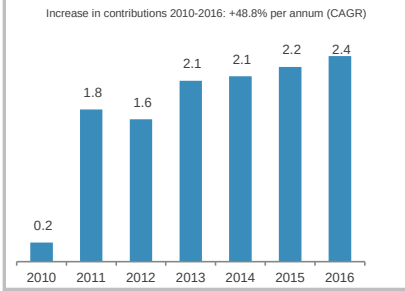
NAV PORTUGAL: Portugal — Occupational pension - defined contribution

1. Key details

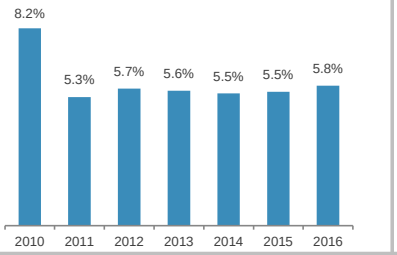
Scheme open to:	ATCOs employed after 30 September 2007 and other staff	Active members:	743
Scheme managed by:	Futuro - Sociedade Gestora de Fundos de Pensões, S.A.	Date of inception:	30 September 2007
Accounting standard used:	Portuguese GAAP		

2. Contributions to the pension scheme

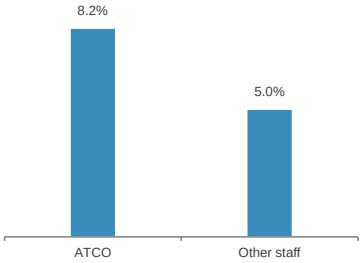
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

A defined contribution scheme was established for other staff in March 2012 through the conversion of an existing defined benefit plan.
The number of active members in 2016 includes 108 ATCOs and 635 other staff.
The contribution rate applies to gross salaries excluding overtime, meal allowance and non-regular remuneration.

NAV PORTUGAL: Portugal — Additional information

Additional information

Additional detail on total pension costs (Overview, Box 3):
First pillar costs have been estimated using EUROSTAT data on the State budget share of social protection expenditures directed toward pensions for 2010 and 2016. ERS costs of EUR 6.7m in 2010 and EUR -7.0m in 2016 are included in the DB costs in Box 3 of the overview page.

Additional detail accounting treatments (Defined benefit - funded, Box 3):
The following differences between local GAAP and IFRS were provided by NAV Portugal following consultation:
The accounting treatment of pension costs and related disclosures in NAV Portugal annual accounts follows the local GAAP procedures (NCRF 28).
i) Under this policy, the company uses the discount rate most appropriate to the duration of the liabilities, following the recommendations of the specialised analysts, namely HEUBECK AG and MERCER.
ii) The expected return on assets is equal to the discount rate of the previous year, for both DB plans.
There is no requirement, under local GAAP, to report the sensitivity of the pension obligations to changes in the key assumptions.
The age profile used corresponds to members covered by each fund.
Actuarial gains and losses are included as part of staff costs for charging purposes, although the new accounting standards (NCRF 28 - applied from 1 January 2016), determine that, for statutory accounts, actuarial gains and losses should be recognised in equity and no longer included in the Income Statement.

Additional information on the Pensões Segurança Social CTA (Overview, funded, Box 3)
The negative cost recorded under 'Pensões Segurança Social CTA' in 2016 is explained by these two main drivers:
i) The change in the ATCO employment contract of the age limit for non-operational duties from 65 to 66 years old, to match the legal retirement age;
ii) The appointment of a number of ATCOs for advisory positions, which eliminated the corresponding responsibilities in this Agreement after the age of 57 (limit for operational duties) until the normal retirement age.

Additional information on retirement ages:
ATCOs in OPS can retire at 57 and ATCOs on other duties can retire at 66. The retirement age increases to 60 with 20 years of work for ATCOs that have been employed as civil servants. Non-ATCOs may retire at 60 or 66.

NAVIAIR: Denmark

Overview of pension costs for 2016

1. Contextual economic information

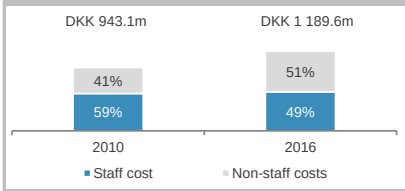
National currency:	DKK		Exchange rate 2016: 1 EUR = 7.4 DKK	
Inflation rate:	2010:	2.2%	2016:	0.0%
Government bond yields with maturities of close to 10 years:	2010:	2.9%	2016:	0.3%

2. Overview of the first and second pension pillars in Denmark

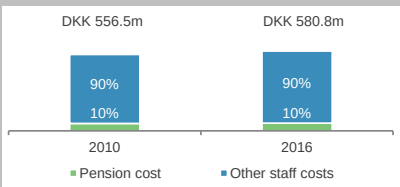
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit and guaranteed deferred annuity	**Defined contribution**	
The first pillar in Denmark consists of two schemes: a means-tested, non-contributory public pension, and the ATP, a mandatory scheme for all employees. The public pension is a defined benefit scheme, which is financed by general tax revenues. The ATP is a guaranteed deferred annuity that covers all employees aged between 16 and 67 which work for more than 9 hours per week.	ATCO's employed before 2 May 2007 and ATCO assistants, technicians and administrators employed before November 2010 are members of a defined benefit pension, which is funded on a pay-as-you-go basis, and is a responsibility of the Danish State. ATCOs and other staff employed after those dates are under a defined contribution scheme managed by NAVIAIR.	The Danish State manages the defined benefit scheme as well as the state pension.

3. Pension costs as a proportion of total ANSP costs (nominal)

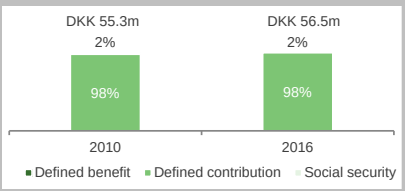
Total ANSP costs



Staff costs

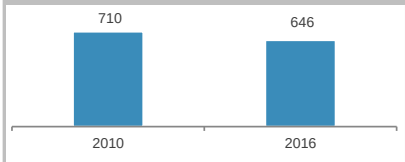


Pension costs

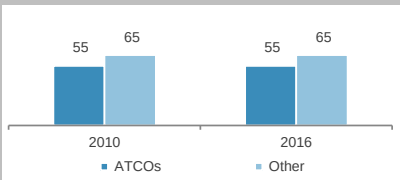


4. Employees

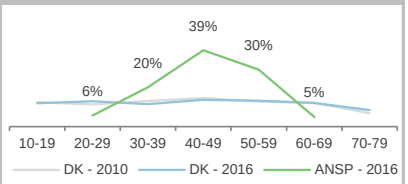
Number of employees (average)



Retirement age (NAVIAIR)



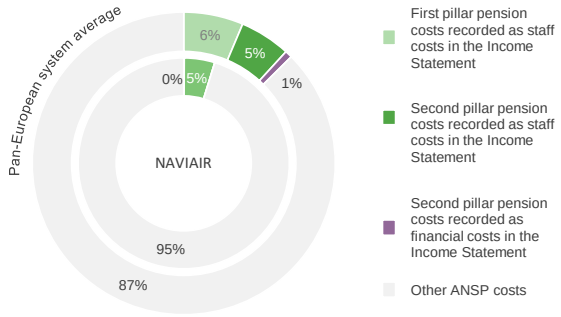
Age profile (Denmark/NAVIAIR)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	413	64%	ATCOs before 2 May 2007, ATCO asistants etc. before October 2010
Scheme 2	Defined contribution	233	36%	ATCOs after 2 May 2007, ATCO assistants etc. after October 2010

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	5%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

NAVIAIR is not responsible for management of the defined benefit scheme - all liabilities related to the defined benefit scheme are assumed by the State.

8. Early retirement scheme

ATCOs can retire at the age of 55 if they are covered by the defined benefit scheme. All staff also have an option of "senior agreement" or "reduced time" schemes offered by the Government. Under these arrangements, employees can take one day off per month with full pay after reaching 62. This option is largely used by all staff aged over 62.

9. Additional notes

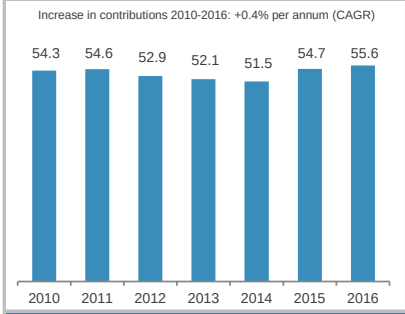
Additional information on the first pillar can be found on the following page. The legal retirement age is expected to increase from 2019 to reach 67 by 2022 and 68 by 2030, and will be indexed to life expectancy increases from 2025. NAVIAIR is only liable for making contributions to the occupational DB scheme and so its contributions are assessed on a defined contribution basis. The employer contribution paid by NAVIAIR to the pension schemes is two-thirds of the total cost of the scheme, with the remaining third being funded from employee contributions.

NAVIAIR: Denmark — Occupational pension - defined contribution

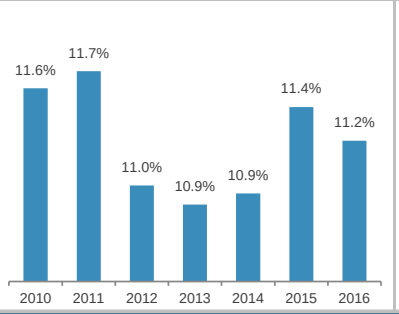
1. Key details			
Scheme open to:	ATCOs after 2 May 2007, ATCO assistants etc. after October 2010	Active members:	233
Scheme managed by:	NAVIAIR	Date of inception:	2 May 2007
Accounting standard used:	Danish accounting standards		

2. Contributions to the pension scheme

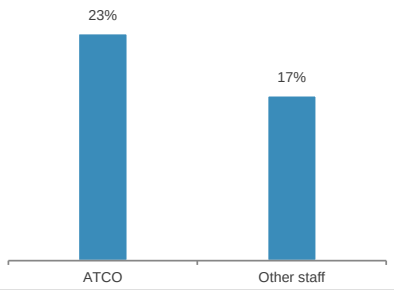
Total contributions (DKKm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

NAVIAIR pays the following contribution rates for each function:
- ATCOs: 23% of basic salary and 18% of salary allowance;
- ATCO assistants: 18% of basic salary and 18% of salary allowance;
- Technicians and office workers (non-academics): 15% of basic salary and 15% pension of salary allowance; and
- Academics: 17.1% of basic salary and 17.1% of salary allowance.

The Danish State has taken over responsibility of the pension obligations of employees covered by collective agreement on special terms. NAVIAIR is therefore only responsible for the defined contribution pension plans. NAVIAIR has a liability of up to DKK 1.1 billion under the Danish Act on Civil Servant Pension's Section 32 on availability pay for civil servants and employees employed under collective agreement on special terms. The obligation consists of three months' salary during the termination period plus three years' pay, including pension. The liability on availability pay was DKK 1.3bn in 2010.

The total contribution relates to the employer contribution (2/3) of the pension contribution only. The cost recorded in box is the total for the second pillar including DB and DC cost as it has not been possible to separate the costs.

NAVIAIR: Denmark — Additional information

Additional information

Additional information on the first pension pillar in Denmark (Overview, Box 2):
The non-contributory defined benefit public pension is financed by general tax revenues and consists of three elements:

• annual basic amount, which is reduced if the individual receives wage income;
• pensioners supplement, which is reduced by wage and capital income, together with any income from a spouse; and
• supplementary pension benefit, which is means-tested.

Danish and non-Danish citizens qualify for pension payments through 3 or 10 years of residence between the ages of 15 and 65 respectively. Non-Danish citizens also need to have spent the last 5 years pre-retirement resident in Denmark. The full basic pension is payable on 40 years of residence in the country.

The ATP scheme is funded through social security contributions of DKK 284 per month per full-time employee. The employer needs to contribute two-thirds of this cost (DKK 189.35) and the employee needs to cover the remaining one-third of the cost (DKK 94.65) . Pension benefits are received upon reaching 65 years of age and there is no minimum qualifying period. The amount received is subject to the number of hours worked, and on how long the contributions were made for. The ATP payments cannot exceed 41% of the value of public pension. Excess returns generated by the scheme can be paid out to members in the form of bonuses.

Additional information on occupational schemes (Overview, Box 2):
For those employees who are covered by a defined benefit scheme, part of the salary is also covered by the defined contribution scheme, as the basic salary is covered by the defined benefit scheme, while the wage allowance is pensionally regulated through the defined contribution scheme. For ATCOs, the distribution is approx. 50% / 50% between the two types of pensions, while for the other employees, approximately 65 - 67% of the salary is covered by the defined benefit scheme.

Additional information on accounting standards (Defined benefit - funded, Box 3):
There are no signficant differences between Danish accounting standards and IFRS regarding IAS principles related to pensions accounting.

ORO NAVIGACIJA : Lithuania

Overview of pension costs for 2016

1. Contextual economic information

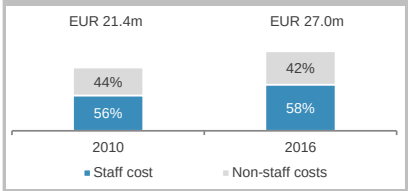
National currency:	EUR in 2016		Exchange rate 2010: 1 EUR = 3.4528 LTL	
Inflation rate:	2010:	1.2%	2016:	0.7%
Government bond yields with maturities of close to 10 years:	2010:	5.6%	2016:	0.9%

2. Overview of the first and second pension pillars in Lithuania

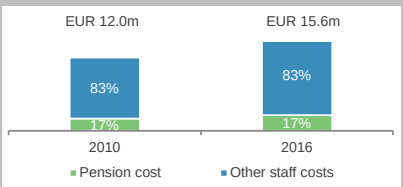
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go		
The state pension is formed of two tiers. The first tier provides a basic flat-rate pension dependant on years of service. The second, additional tier is dependent on years of service, salary and average income. They are funded through social security contributions of 30.7% of gross wages. 23.7% of those are allocated to pensions with 21.2% contributed by employers and 2.5% by employees.		

3. Pension costs as a proportion of total ANSP costs (nominal)

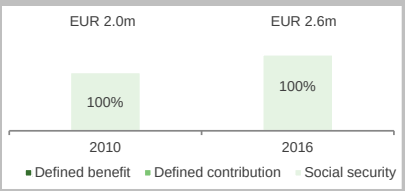
Total ANSP costs



Staff costs

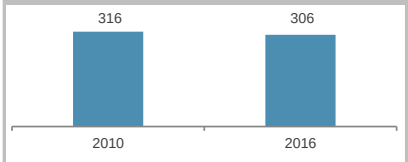


Pension costs

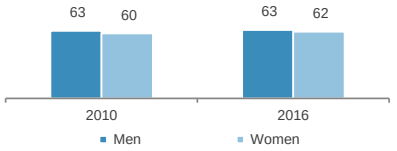


4. Employees

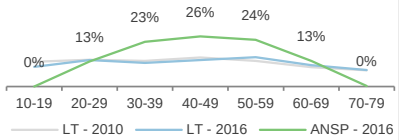
Number of employees (as at 31 Dec)



Retirement age (Oro Navigacija)



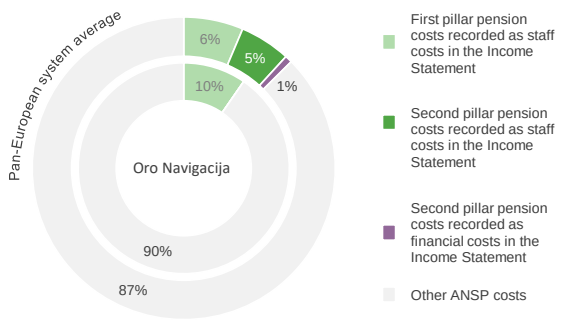
Age profile (Lithuania/Oro Navigacija)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	10%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

An early retirement scheme is in place for ATCOs at Oro Navigacija - they have an option of voluntary retirement from the age of 59. The costs associated with the scheme are reported in the corporate accounts as staff costs.

9. Additional notes

The legal retirement age for all employees of Oro Navigacija is set to reach 65 years for both genders by 2026. The financial accounts data for 2010 have been converted from LTL to EUR using an exchange rate of 1 EUR = 3.4528 LTL in order to provide a more consistent ground for comparison between the data from the two years reviewed in this report. Pension costs have been taken from the consultation response received from Oro Navigacija.

PANSA: Poland

Overview of pension costs for 2016

1. Contextual economic information

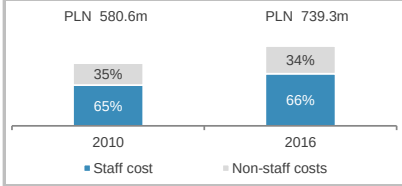
National currency:	PLN		Exchange rate 2016: 1 EUR = 4.4 PLN	
Inflation rate:	2010:	2.6%	2016:	-0.2%
Government bond yields with maturities of close to 10 years:	2010:	5.8%	2016:	3.0%

2. Overview of the first and second pension pillars in Poland

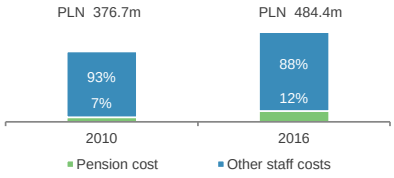
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined contribution	Defined contribution	
The Polish first pillar was reformed in 1999 to move from a defined benefit system to notional defined contribution (NDC) accounts.The contribution rate is 19.52% of taxable income, split equally between employers and employees. Of this, 16.6% (12.2% before 2011) funds the NDC, while the remaining 2.92% (7.3% before 2011) is directed to individual accounts run by independent pension funds.	Voluntary scheme introduced following employee consultation. Contributions are collected and managed by AVIVA. PANSA is obliged to pay 7% (from 2010 to 2016) of pensionable salary to the scheme. In 2010, the occupational pension contribution was reduced to 1% (See box 7).	

3. Pension costs as a proportion of total ANSP costs (nominal)

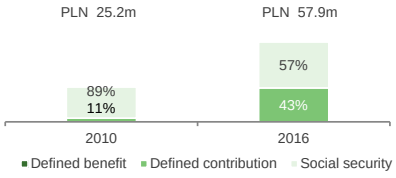
Total ANSP costs



Staff costs

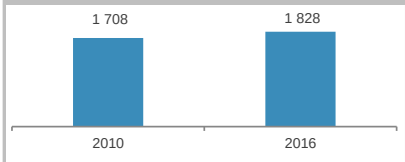


Pension costs

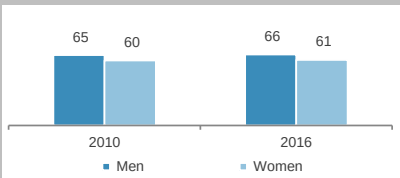


4. Employees

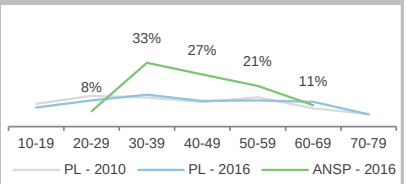
Number of employees (FTEs)



Retirement age (PANSA)



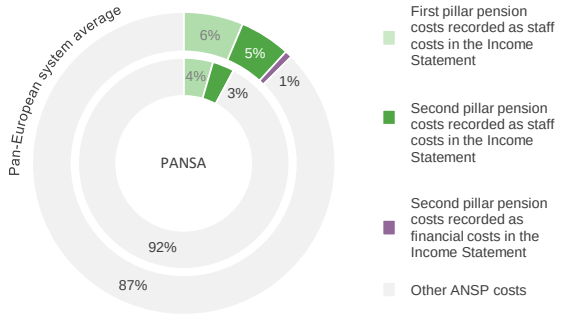
Age profile (Poland/PANSA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	1 575	85%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	43

Measures implemented to mitigate pension cost risks

In general the occupational pension rate amounted to 7% of the employee's remuneration but there is possibility of suspension or reduction of the contribution for not longer than 24 months in the period covering 48 consecutive calendar months (this is case in 2010 year).

8. Early retirement scheme

The retirement ages and eligibility for men and women are in line with the Polish national retirement ages. ATCO, as any other employee, is entitled to take so-called bridging retirement scheme whenever certain conditions are met- see Additional information at end of DC page for conditions. There is no special scheme for ATCOs, but work on pre-retirement support programme for them is under development.

9. Additional notes

Staff cost data has been taken from ACE. First pillar pension costs in Box 3 includes pension contribution, disability pension contribution and bridging pension. In the staff cost section of Box 3, the total amounts indicated (PLN 376.7m in 2010 and PLN 484.4m in 2016) are net of capitalised staff costs. However, the pension costs shown in the staff cost and pension cost sections of Box 3 and the pension costs recorded as staff cost shown in Box 6 are gross amounts, not netted by the capitalised amounts. In 2016, the retirement age gradually increased - one month for every quarter in the date of birth.

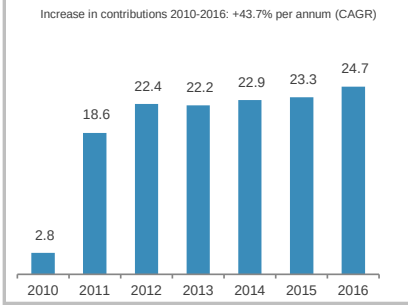
PANSA: Poland — Occupational pension - defined contribution

1. Key details

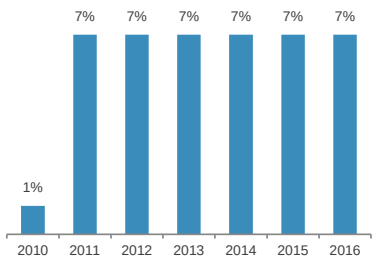
Scheme open to:	All staff	Active members:	1 575
Scheme managed by:	AVIVA Life Insurance Company	Date of inception:	26 May 2008
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

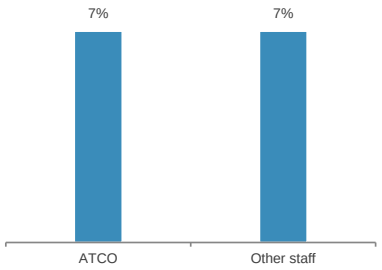
Total contributions (PLN m, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

Box 1: In period 2010-2016 the occupational pension rate amounted to 7% of the employee's remuneration. In 2010 the occupational pension contribution was reduced to 1% (12 months). There is possibility of temporary suspension or reduction (limitations) of the contribution for not longer than 24 months in the period covering 48 consecutive calendar months.
Box 2: The rate applies to the whole taxable income until it reaches the level of 30 average monthly remuneration in the national economy for a given calendar year.

Over the 2010-2016 period the occupational pension rate amounted to 7% of the employee's remuneration. However, in 2010, the occupational pension contribution was exceptionally reduced to 1%, using the possibility of suspension or reduction of the contribution for not longer than 24 months in the period covering 48 consecutive calendar months.

PANSA: Poland — Additional information

Additional information

Additional information on the first pension pillar in Poland (overview, Box 2):
The Polish State will supplement public pension payments in cases where this falls below the guaranteed minimum pension if an individual has contributed for a minimum required amount of time. The Government imposes a minimum level of returns on the private funds, who must cover any deficit in comparison to this minimum threshold through dedicated resources or proprietary resources. Men must make contributions for a minimum of 25 years and women must make contributions for a minimum of 20 years to receive the minimum state pension.

Additional information on the retirement age in Poland (overview, Box 4):
In 2013 the government has decided that the national retirement age will be gradually increased from 65 (men) and 60 (women) by 3 months per year to reach 67 for both men (in 2020) and women (in 2040). However, this initiative was reversed in a new reform that took effect on 1 October 2017, which reduced the national retirement age back to 65 (men) and 60 (women).

Additional information on the social security scheme (overview, Box 2):
On 15 December 2017 the Polish Parliament adopted an amendment to the Social Security Scheme Regulation. If the President signs the amended Regulation, the taxable limit applicable for calculation of pension contribution will be cancelled. It will have a significant impact on PANSA pension costs. The state pension costs may increase to the level of ca. 90m PLN per annum.

Additional information on the early retirement scheme (overview Box 8):
ATCO, as any other employee, is entitled to take so-called bridging retirement scheme whenever the following conditions are met:
- they performed work of special nature or worked in special conditions for at least 15 years, including at least 1 day before 1st January 1999 and at least 1 day after 31st December 2008;
- they reached the retirement age, which for the bridging retirement is 55 years for women and 60 years for men;
- they have at least 20 years – for women and 25 years – for men, of contribution and non-contribution period in benefit scheme;
- their employment contract was terminated.

Employer contributions to early retirement (bridging pension) was PLN 0.7m in 2010 and PLN 1.0m in 2016.

ROMATSA: Romania

Overview of pension costs for 2016

1. Contextual economic information

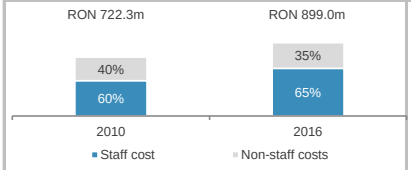
National currency:	RON		Exchange rate 2016: 1 EUR = 4.5 RON	
Inflation rate:	2010:	6.1%	2016:	-1.1%
Government bond yields with maturities of close to 10 years:	2010:	7.3%	2016:	3.3%

2. Overview of the first and second pension pillars in Romania

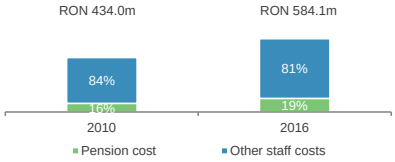
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit and defined contribution	Defined benefit and defined contribution	
The first pillar in Romania is split into two schemes. The traditional defined benefit state pension scheme is funded via pay-as-you-go contributions of 26.3% split between employers (15.8%) and employees (10.5%). Privately managed mandatory individual accounts offering defined contribution pensions were introduced in 2004 and divert 5.4% of the employee contributions to individual accounts.	ROMATSA's ACE submission suggests it only contributes to a defined contribution scheme. The annual report, however, suggests that ROMATSA offers a defined benefit scheme to employees. The benefits received by pensioner members are dependent on the length of service as well as the position held within the company.	

3. Pension costs as a proportion of total ANSP costs (nominal)

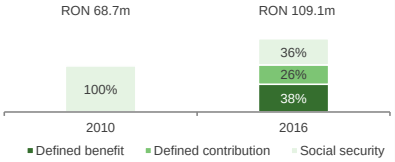
Total ANSP costs



Staff costs

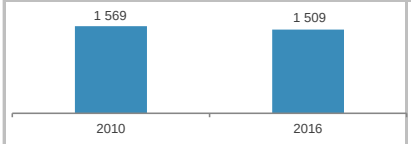


Pension costs

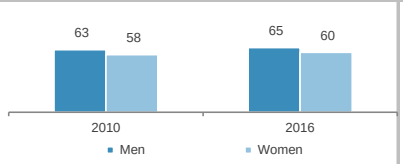


4. Employees

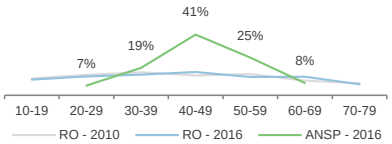
Number of employees (average)



Retirement age (ROMATSA)



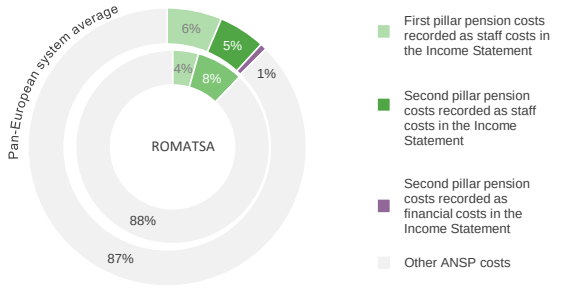
Age profile (Romania/ROMATSA)



5. Occupational pension schemes (2016)

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	1 539	100%	10 years experience, with the last 3 years at ROMATSA
Scheme 2	Defined contribution	1 352	90%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indic

8. Sensitivity of DB obligation to changes in assumptions, 2016 (RONm)

Item	Indicator
Net DB liability - % of assets	RON 272m, 21% of total ANSP assets
2010-16 change in net DB liability	+22% per annum (CAGR)
Pension % of total ANSP costs	12%
Active / pensioner members (DB)	41.59
Average employee age	46

Measures implemented to mitigate pension cost risks

All pension pillars are state or private administrated funds, secured according with the legislation applicable.

8. Early retirement scheme

ROMATSA offers an early retirement scheme available for all staff members which allows the employees to retire 5 years earlier than the legal retirement age, subject to certain conditions pertaining to a number of years an employee has been contributing to the pension scheme. This is not driven by the decision of the company, but is provided by national legislation.

9. Additional notes

Participation in the first pillar individual accounts is mandatory for all individuals who were under 35 and voluntary for those who were between 36 and 45 when the scheme was introduced in 2004. Pension cost data is not presented separately in the annual reports and so has been taken from ACE data submissions. Changes to the taxation base led to employer contributions to the first pillar-state pension increasing by 94% from 1 February 2017. As of 1 January 2018, employer contributions to the first and second pillars were transferred to the State and employees respectively.

ROMATSA: Romania

Occupational pension - defined benefit (Pay-as-you-go)

1. Key details

Scheme open to:	10 years experience, with the last 3 yea	Active members:	1 539
Scheme managed by:	ROMATSA	Pensioner members:	37
Accounting standard used:	Local GAAP	Active members / pensioner members:	41.59

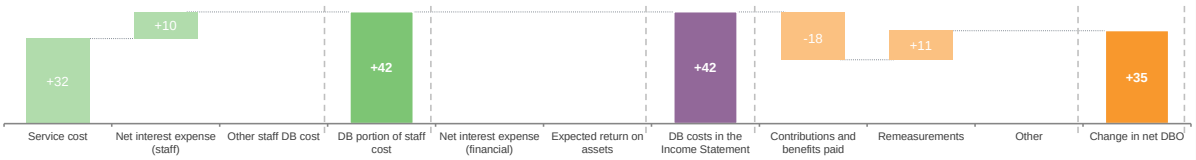
2. Benefits received

Benefits received depend on the years of service and the position held by the employee. In 2010, the benefits rate was up to 12 times basic salary dependent on seniority; this increased to 60 times basic salary for ATCOs retiring as of 2010. The occupational pension is paid as a lump-sum payment.

3. Accounting treatment

Accounting principles used in the presentation of pension expenses:	Projected Unit Credit Method (IAS 19)
Differences to IAS principles (if applicable):	-
Accounting treatment for changes in actuarial assumptions:	Presented in other comprehensive income
Impact of revisions to IAS 19 (removal of corridor approach):	-
Impact of revisions to IAS 19 (AA corporate bonds to calculate the discount rate):	-
Specific accounting treatments used for charging purposes (if different from above):	-
Additional detail on accounting treatment:	There are no differences between local GAAP – MOF 1802/2014 and IFRS/IAS (IAS 19) regarding the accounting treatments for the calculations of the defined benefit scheme.

4. Drivers of the change in the net defined benefit obligation in 2016 (RONm, nominal)



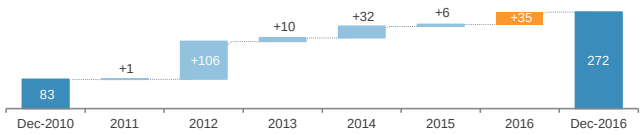
Pension costs recorded as staff costs in the Income Statement

Pension costs recorded as finance costs in the Income Statement

Other changes in the net defined benefit obligation

Note: columns shaded in dark colours represent totals of all the preceding items that have been shaded in a light colour.

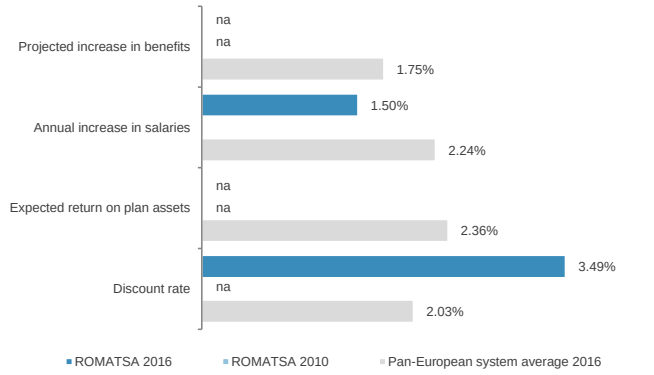
5. Evolution of the net defined benefit obligation, 2010-2016 (RONm, nominal)



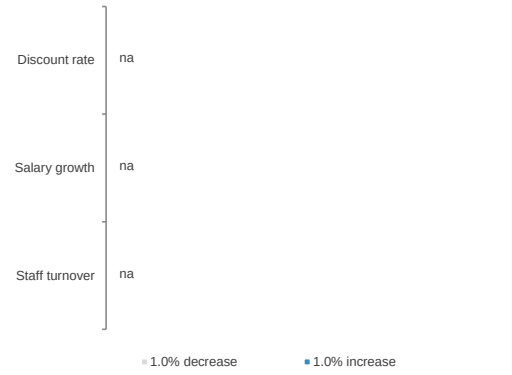
	2010	2011	2012	2013	2014	2015	2016
Benefit obligation	83	83	189	199	231	237	272
Plan assets	-	-	-	-	-	-	-
Net liability	83	83	189	199	231	237	272

6. Additional information on plan assets

7. Actuarial assumptions



8. Sensitivity of DB obligation to changes in assumptions, 2016 (RONm)



9. Additional notes

The defined benefit scheme is in line with Collective Labor Contract and came into force on December 31, 2015. Additional information on actuarial assumptions (Box 7): ROMATSA discounts the future pension obligation using the full yield curve; estimated future salary increases: 1% per annum until 2020 and 1.5% per annum thereafter; and demographic assumptions used: mortality, staff turnover, disability and early retirement (based on statistical data for 2012-2016).

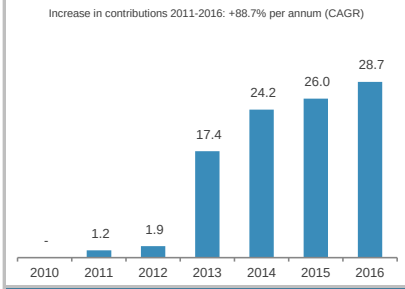
ROMATSA: Romania — Occupational pension - defined contribution

1. Key details

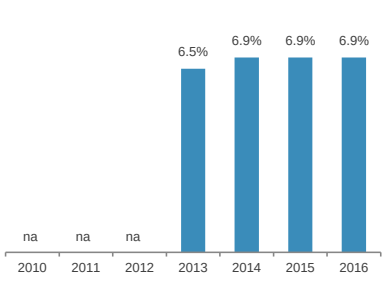
Scheme open to:	10 years experience, with the last 3 years at ROMATSA	Active members:	1 352
Scheme managed by:	Not provided	Date of inception:	2011
Accounting standard used:	Local GAAP		

2. Contributions to the pension scheme

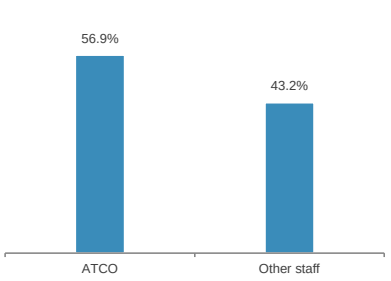
Total contributions (RONm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The contribution rate applies to gross income excluding some benefits.
In 2011 and 2012, the contribution rate was set at a lump sum of EUR 400 per employee.

ROMATSA: Romania — Additional information

Additional information

None

SAKAERONAVIGATSIA: Georgia

Overview of pension costs for 2016

1. Contextual economic information

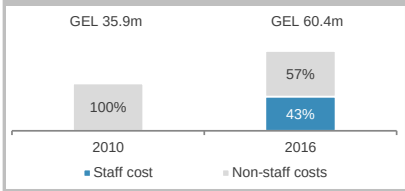
National currency:	GEL		Exchange rate 2016: 1 EUR = 2.7 GEL	
Inflation rate:	2010:	7.1%	2016:	2.1%
Government bond yields with maturities of close to 10 years:	2010:	na	2016:	12.5%

2. Overview of the first and second pension pillars in Georgia

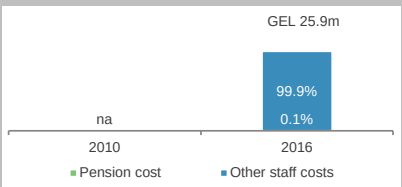
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The state pension system in Georgia is a universal non-contributory system with benefits paid out at a flat rate to all retirees. The pension scheme is financed by the central government budget. This structure was adopted to help reduce the poverty rate in Georgia. The flat rate benefit was 160 GEL in 2015. The current pension benefit received is 18% of the average wage.	A defined contribution scheme was established on 30 December 2015. The scheme started operations in March 2017 with 2 years of service required for membership. By the end of 2017, the scheme had 520 members (65% of 798 employees). 278 employees (35%) were not participants of the scheme and 65 employees (8%) did not have sufficient work experience to join the scheme.	

3. Pension costs as a proportion of total ANSP costs (nominal)

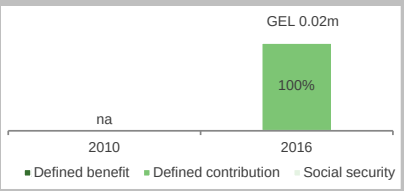
Total ANSP costs



Staff costs

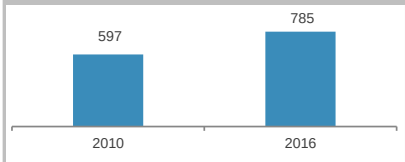


Pension costs

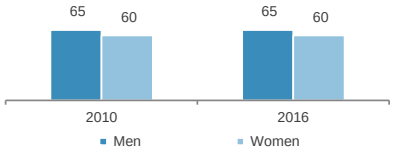


4. Employees

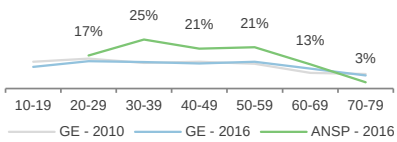
Number of employees (average)



Retirement age (Sakaeronavigatsia)



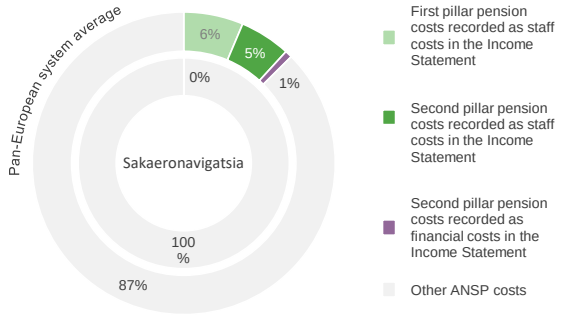
Age profile (Georgia/Sakaeronavigatsia)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
SAKA-DCPF	Defined contribution	520	66%	All staff with 2 yrs working experience at Sakaeronavigatsia

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	0.03%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

9. Additional notes

The pension system in Georgia will undergo major reforms by the end of 2017 with a pension law establishing the introduction of indexation of the current public pension system and the establishment of a second pillar. 'Social security' and 'Pension cost in staff cost' values have been taken from ACE 2016. The pension-related costs of GEL 20 000 in 2016 relate to court-granted disability pension payments to ex-employees of Sakaeronavigatsia. GEL 2.2m contributions were made in 2017, equivalent to a contribution rate of 18% of base salary for all scheme members.

SKYGUIDE: Switzerland

Overview of pension costs for 2016

1. Contextual economic information

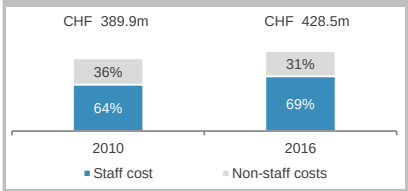
National currency:	CHF		Exchange rate 2016: 1 EUR = 1.1 CHF	
Inflation rate:	2010:	0.6%	2016:	-0.5%
Government bond yields with maturities of close to 10 years:	2010:	1.6%	2016:	-0.4%

2. Overview of the first and second pension pillars in Switzerland

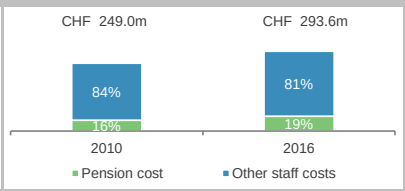
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined contribution	
The state pension (AHV) is a mandatory defined benefit scheme funded on a pay-as-you-go basis through contributions and VAT revenues. Qualification requires at least one year of contributions. The benefit received depends on income and the number of years of contributions.	Skyguide manages its occupational defined contribution scheme through a separate legal entity called Skycare. Members receive defined benefits, though the full liability of the scheme is assumed by Skycare. Skyguide is only liable for making contributions to the scheme and so its contributions are assessed on a defined contribution basis.	

3. Pension costs as a proportion of total ANSP costs (nominal)

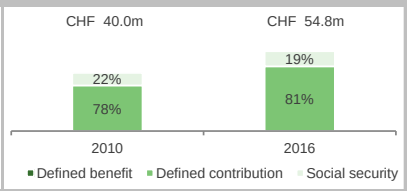
Total ANSP costs



Staff costs

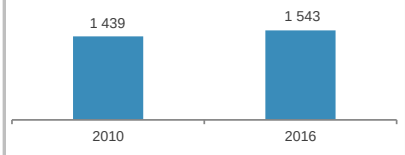


Pension costs

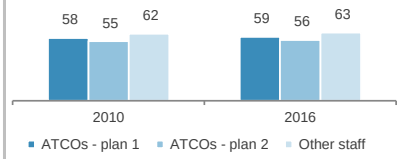


4. Employees

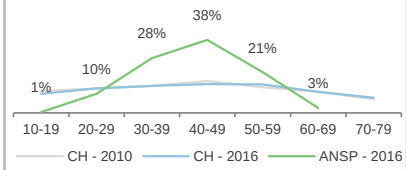
Number of employees (average)



Retirement age (Skyguide)



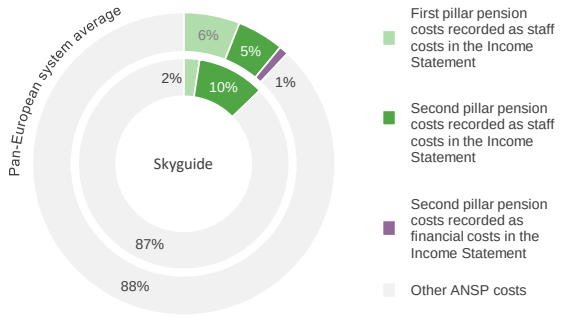
Age profile (Switzerland/Skyguide)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	1 543	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	13%
Active / pensioner members (DB)	na
Average employee age	43

Measures implemented to mitigate pension cost risks

Skyguide is only liable to make contributions to Skycare - Skycare assumes full liability for meeting the benefit payments. Skycare made some structural adjustments to the occupational pension for non-ATCOs in 2016, adjustments in pension plans for ATCOs are still under discussion and not yet complete (more details on the next page). The Skycare fund was estimated to have a pension obligations of CHF 1276m and a surplus of CHF 34.9m in 2016 (pension obligations of CHF 1 229m and a surplus of 23.5m in 2015).

8. Early retirement scheme

Skyguide is offering an early retirement scheme, at the earliest 5 years before the normal age specified in each pension plan. This is valid for all Skyguide personnel, not only the ATCOs, and this is a decision of the ANSP.

9. Additional notes

Women can draw state pension benefits from the age of 64 and men can draw them from 65. The pension can start to be drawn early or late, with compensating adjustments made to the pension amount. Total staff costs in Box 3 are presented net of capitalised staff costs. The two different retirement age for ATCOs are driven by the conditions of two different retirement plans.

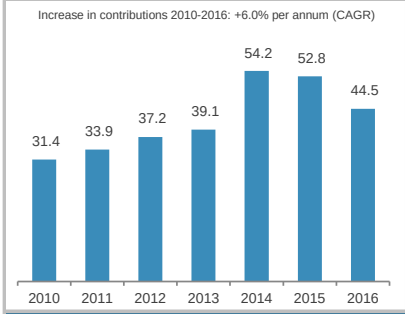
SKYGUIDE: Switzerland — Occupational pension - defined contribution

1. Key details

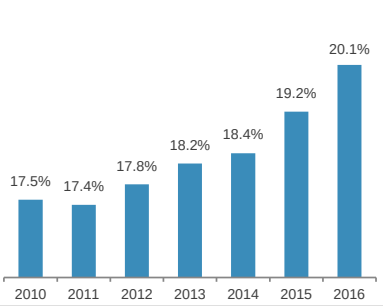
Scheme open to:	All staff	Active members:	1 543
Scheme managed by:	Skycare	Date of inception:	1 January 2003
Accounting standard used:	Swiss GAAP		

2. Contributions to the pension scheme

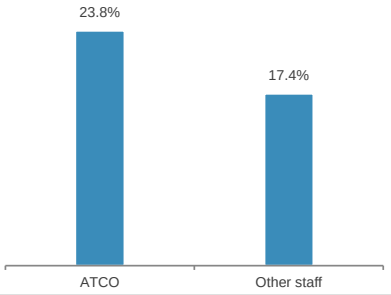
Total contributions (CHFm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The contribution rate is calculated with "ordinary" contributions, i.e. excluding additional (exceptional) employer compensation, and applies to annual base salary.

SKYGUIDE: Switzerland — Additional information

Additional information

Additional information on the occupational pension scheme (Overview, Box 2):
The occupational scheme is targeted at meeting the statutory requirements for employers to offer an occupational pension to employees that earn over CHF 19 350 annually as stated by the Occupational Benefits Act (LPP). According to the LPP, employers must contribute as much or more than employees, with contribution rates set at between 7% and 18% for earnings between CHF 22 575 and CHF 77 400 depending on the individual's age.

SLOVENIA CONTROL: Slovenia

Overview of pension costs for 2016

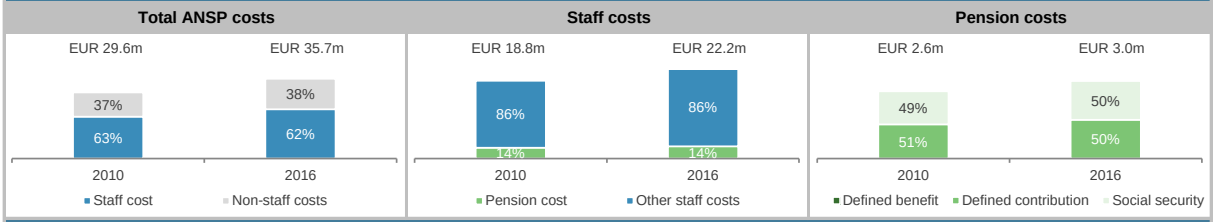
1. Contextual economic information

National currency:	EUR			
Inflation rate:	2010:	2.1%	2016:	-0.2%
Government bond yields with maturities of close to 10 years:	2010:	3.8%	2016:	1.1%

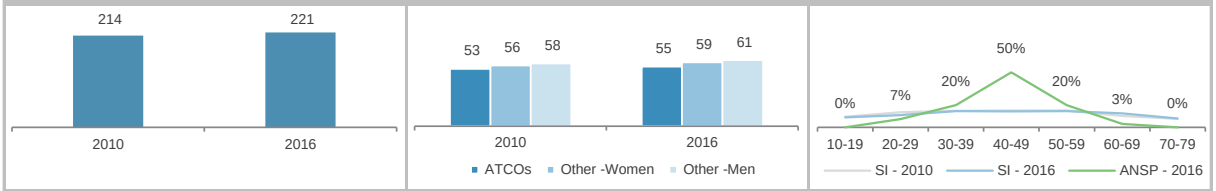
2. Overview of the first and second pension pillars in Slovenia

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined Contribution	
Slovenia uses a pay-as-you-go state pension system, funded by employee contributions of 15.5% and employer contributions of 8.85%. From 2012, reforms led to the pension accrual rate being reduced to +1.25% per annum; the pension base increasing to an average of the 24 consecutive earning years. Rules for the scheme cover: retirement at 60 if at least 40 years contributions. Retirement at 65 if a minimum of 15 years contribution. Applied to men and women.	Alongside contributions to the state pension, Slovenia Control operates an early retirement defined contribution pension scheme for Air Traffic Control Officers (ATCOs) and a "voluntary" defined contribution scheme for all staff (including ATCOs).	

3. Pension costs as a proportion of total ANSP costs (nominal)



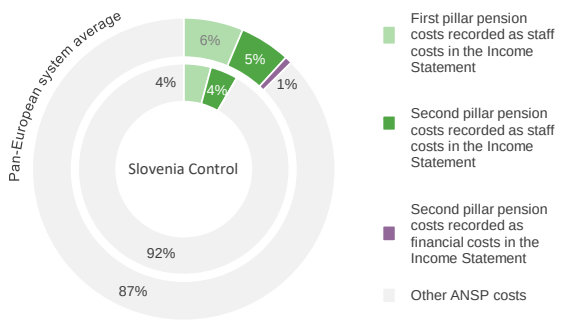
4. Employees



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	103	47%	ATCOs
Scheme 2	Defined contribution	221	100%	All staff (including ATCOs)

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	8%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

The early retirement defined contribution scheme is only open to ATCOs, and all staff are eligible for the voluntary scheme.

8. Early retirement scheme

ATCOs can retire earliest at the age of 55 through an ERS under condition of working as an ATCO for 32 years or more. If ATCOs decide not to retire after meeting the minimum conditions, they may continue to work in either operational or non-operational positions. The costs relating to the ERS are accounted for through making provisions for future costs and drawing down as the early retirement package is granted. These costs are reported in the Slovenia Control accounts as staff costs.

9. Additional notes

Retirement is at the discretion of the employee, two general rules are applied for retirement conditions for women and men: 1. retirement age 60 with 40 years of paid pension contributions; 2. retirement age 65 with a minimum 15 years of paid pension contributions. The retirement age can be lowered under certain conditions, but not by more than for 4 years. The pension costs in box 3 (Pension costs as a proportion of total ANSP costs) only include the different pension contributions paid by the employer. See next page additional information.

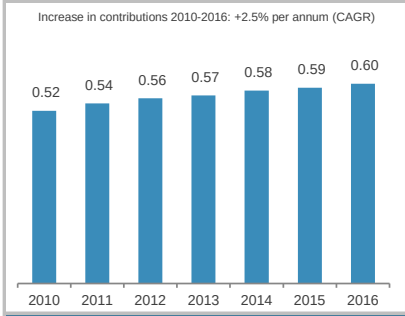
SLOVENIA CONTROL: Slovenia — Occupational pension - defined contribution

1. Key details (Voluntary scheme for all employees)

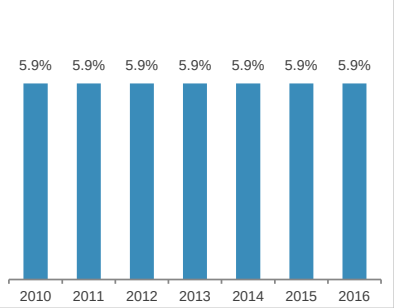
Scheme open to:	All staff (including ATCOs)	Active members:	221
Scheme managed by:	Private pension fund	Date of inception:	2008
Accounting standard used:	IFRS		

2. Contributions to the pension scheme (Voluntary scheme for all employees)

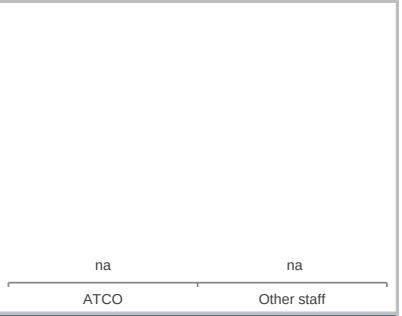
Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)

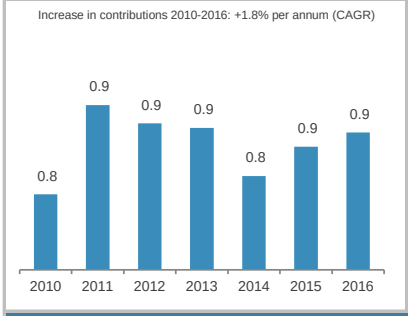


3. Key details (ATCOs early retirement scheme)

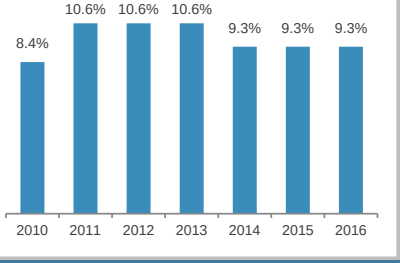
Scheme open to:	ATCOs	Active members:	103
Scheme managed by:	State owned fund	Date of inception:	01.01.2001
Accounting standard used:	IFRS		

4. Contributions to the pension scheme (ATCOs early retirement scheme)

Total contributions (EURm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)

5. Additional notes

The contribution rate in box 2 is 5.884% of the monthly gross salary or EUR 234.92 if the 5.884% is higher than this this value (which is the case for the majority of employees in Slovenia Control).
Contribution rate by staff category can not be presented as the percentage is not fixed.
Contribution rate in 2010 for box 4 is 8.4% of gross salary until 31.5.2010 and 10.55% of the gross salary the rest of the year.

SLOVENIA CONTROL: Slovenia — Additional information

Additional information

Additional information relating to Box 9 additional information on summary page.
The defined contribution costs relate to the costs associated with the ''voluntary '' non-state defined contribution scheme for all employees as well as the costs associated with the ATCOs early retirement scheme. The social security costs include the employer contributions to the state pension only.

The mandatory pension costs paid by employees (15.5% of the gross salary) is not included in box 3, these costs are included in general wages and salary costs and are an additional EUR 2.2m in 2010 and EUR 2.6m in 2016."

SMATSA: Serbia

Overview of pension costs for 2016

1. Contextual economic information

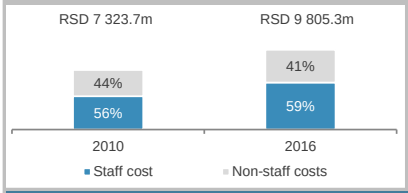
National currency:	RSD		Exchange rate 2016: 1 EUR = 123.0 RSD	
Inflation rate:	2010:	6.2%	2016:	1.3%
Government bond yields with maturities of close to 5 years:	2010:	3.9%	2016:	6.5%

2. Overview of the first and second pension pillars in Serbia

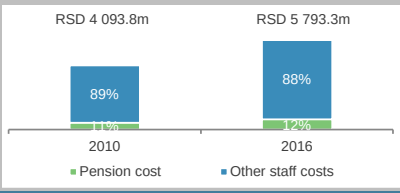
First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined Contribution	
SMATSA covers the two independently governed States of Serbia and Montenegro. Serbia operates a defined benefit state pension funded through a pay-as-you-go mechanism. The state pension in Serbia is funded through social security payments from employees and employers. Employees are required to contribute 14% of earnings and employers are required to contribute 12% of gross wages.	SMATSA operates a defined contribution occupational pension scheme. The ANSP is not responsible for the management of the pension fund and there is no influence on the balance sheet.	

3. Pension costs as a proportion of total ANSP costs (nominal)

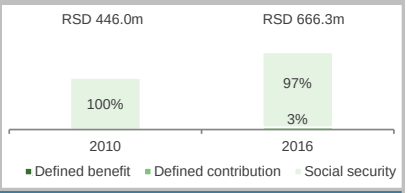
Total ANSP costs



Staff costs

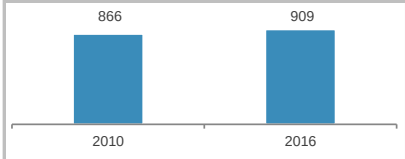


Pension costs

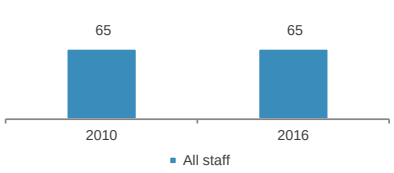


4. Employees

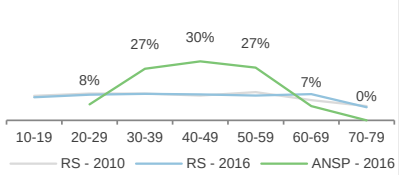
Number of employees (average)



Retirement age (SMATSA)



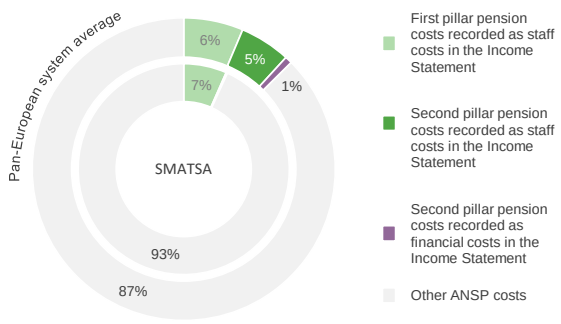
Age profile (Serbia /SMATSA)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined contribution	909	100%	All staff

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	7%
Active / pensioner members (DB)	na
Average employee age	44

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

The majority of ATCOs retire before the age of 65. Male employees are eligible for early retirement if they have worked for 40 years and are aged at least 55 and 8 months, while female employees must have worked for 37 years and be aged at least 55. ACTOs have reduced requirements for working years, where each 12-month period worked is counted as 16 months.

9. Additional notes

Information for Box 1 has been recorded for Serbia only. Government bond yield data for maturities of over 5 years is only available from March 2017. The average yield for a government bond with a 7 year maturity in 2017 was 5.9%. The values for social security costs in Box 3 (2010 and 2016) and number of staff in Box 4 have been taken from ACE data. Social security costs include the first pillar pension contributions solely confirmed in the consultation response. Employees based in Montenegro benefit from the State pension from Montenegro, there were 100 employees in 2016 receiving benefits from Montenegro.

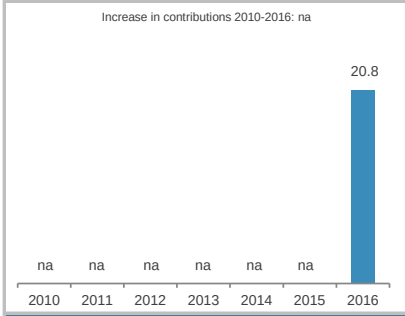
SMATSA: Serbia — Occupational pension - defined contribution

1. Key details

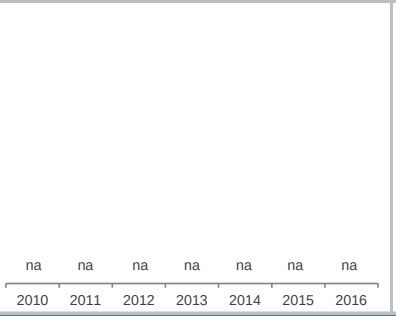
Scheme open to:	All staff	Active members:	909
Scheme managed by:	Dunav/Generali voluntary pension fund management	Date of inception:	2016
Accounting standard used:	IFRS		

2. Contributions to the pension scheme

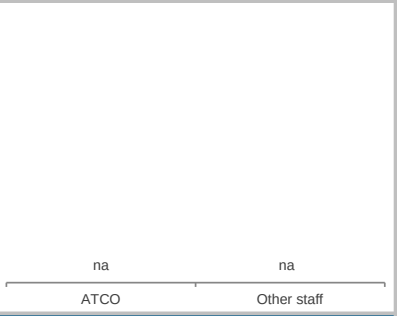
Total contributions (RSDm, nominal)



Overall contribution rate (%)



Contribution rate by staff category in 2016 (%)



3. Additional notes

The defined contribution scheme was introduced in 2016 and only 2 months (November and December) of employer contributions are recorded in box 2.
A fixed monthly contribution, amounting to 100 EUR (in RSD equivalent) per employee, is applied every month.

SMATSA: Serbia — Additional information

Additional information

SMATSA liabilities include provisions for retirement benefits, amounting to RSD 496m in 2016 (Page 40 Annual Report 2016), which are used to finance severeance payments.

UKSATSE: Ukraine

Overview of pension costs for 2016

1. Contextual economic information

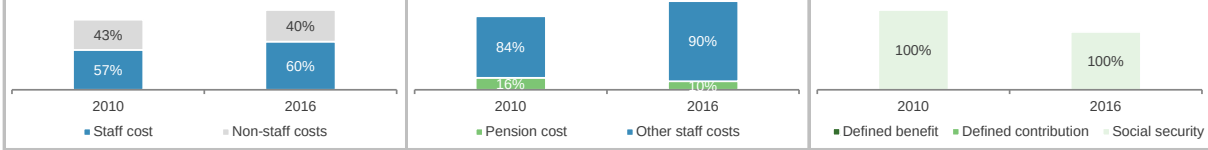
National currency:	UAH		Exchange rate 2016: 1 EUR = 28.3 UAH	
Inflation rate:	2010:	9.4%	2016:	13.9%
Government bond yields with maturities of close to 3 years:	2011:	19.6%	2016:	11.7%

2. Overview of the first and second pension pillars in Ukraine

First pillar: State pension	Second pillar: Occupational pension	Interaction between pillars
Defined benefit, pay-as-you-go	Defined benefit (PAYG) and defined contribution	
The state pension in Ukraine is a defined benefit scheme financed through mandatory pay-as-you-go contributions from employers (36.8%) and employees (3.6%). The benefit received depends on the level of salary and the number of years of contributions subject to a minimum of 35 (men) and 30 (women) years of contributions.	UkSATSE has an obligation to pay a lump sum to employees that retire "after a period of long service", according to collective agreements. This obligation falls under the scope of a defined benefit plan but is not accounted for as such. UkSATSE states it contributes to a defined contribution plan in the disclosures made as part of the ACE exercise.	

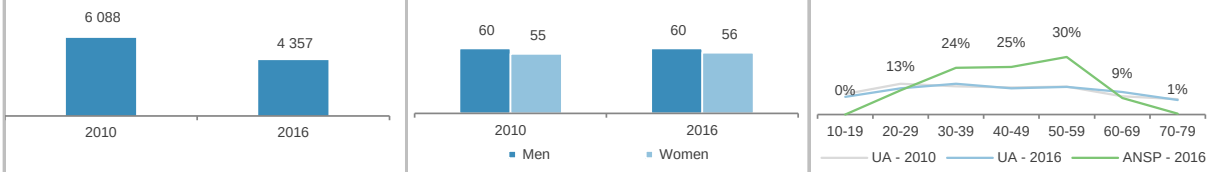
3. Pension costs as a proportion of total ANSP costs (nominal)

Total ANSP costs		Staff costs		Pension costs	
UAH 1 821.7m	UAH 2 076.9m	UAH 1 038.6m	UAH 1 253.7m	UAH 170.6m	UAH 123.7m



4. Employees

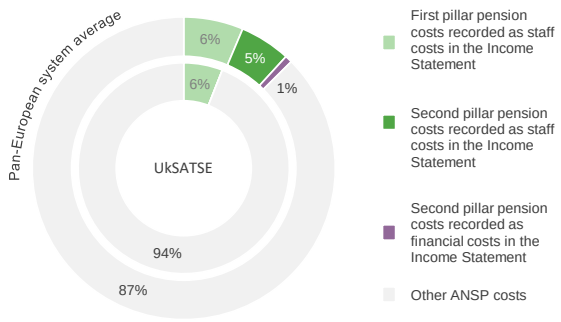
Number of employees (FTEs)	Retirement age (UkSATSE)	Age profile (Ukraine /UkSATSE)



5. Occupational pension schemes

Scheme	Type of scheme	Active members	Active members / total employees	Eligibility/details
Scheme 1	Defined benefit (PAYG)	Not provided	Not provided	Subject to collective agreements
Scheme 2	Defined contribution	6	0.1%	Individual contracts

6. Pension costs as a proportion of total ANSP costs (2016)



7. Key pension indicators (2016)

Item	Indicator
Net DB liability - % of assets	na
2010-16 change in net DB liability	na
Pension % of total ANSP costs	6%
Active / pensioner members (DB)	na
Average employee age	45

Measures implemented to mitigate pension cost risks

8. Early retirement scheme

There are three retirement schemes available to ATCOs and support staff: ATCOs receive payment from the fund if they leave work in OPS after 20 (men) or 15 (women) years of working in OPS, ATCOs receive payment from the fund and can continue working as an ATCO when they reach 50 (men) or 45 (women) or staff can continue working in all positions when they reach 60 (men) or 56 (women), and also start receiving payment from the fund.

9. Additional notes

The pension insurance portion of the social security tax was increased from 78.56% to 82.52% in order to "shore up the pension fund". The auditor of UkSATSE's financial statements added a qualification as part of their report documenting the fact that UkSATSE had not accounted for the obligation resulting from the collective agreement as noted in Box 2 in line with IAS 19. First pillar pension costs have been estimated by applying the pension portion of social security costs as presented in a World Bank report for 2016 for the State to 2010 and 2016 social security contributions.

Additional information
Additional information on pension costs and employees (Overview, Boxes 3 and 4): Staff numbers for 2010 and have been taken from ACE 2010 and UkSATSE's consultation responses respectively. 'Staff cost' and 'pension cost in staff cost' values for 2010 have been also been taken from ACE 2010 data. Additional information on defined benefit (pay-as-you-go) scheme: UkSATSE has an obligation to pay a lump sum to employees that retire according to collective agreements. The obligations are financed on a pay-as-you-go basis. The costs of such payments included in the cost of payment period. The auditor of UkSATSE's financial statements added a qualification as part of the independent auditors' report documenting the fact that UkSATSE had not assessed or recognised a provision for the obligation resulting from the collective agreement as noted in section 28.3, and as such the reporting for the defined benefit portion of the pension offered to employees was not in line with IAS 19. Additional information on the defined contribution scheme: The defined contribution scheme is financed through employee contributions only. Employee contributions to this scheme totalled 217 UAH'000 in 2010 and 16 UAH'000 in 2016. UkSATSE does not incur any costs related to the defined contribution scheme.

ANNEXES

ANNEX 1: SUMMARY OF INFORMATION USED IN THE REPORT

Document/Source name
Summary of State and other pensions at State level: Country Profiles http://www.pensionfundsonline.co.uk/content/country-profiles/ Pension Funds Online, Wilmington plc, accessed September 2017
Pensions at a Glance 2015: OECD and G20 Indicators, OECD
Pension Summary, http://euracs.eu/summaries/ European Actuarial and Consulting Services (EURACS), accessed August 2017
Social benefits: http://ec.europa.eu/social/main.jsp?catId=1104&intPageId=4462&langId=en European Commission, accessed September 2017
Social Security Programs Throughout the World: Europe, 2016 https://www.ssa.gov/policy/ docs/progdesc/ssptw/2016-2017/europe/ Social Security Administration – Office of Retirement and Disability Policy, accessed October 2017
Age profiles: World Development Indicators, https://data.worldbank.org/products/wdi The World Bank Group, accessed September 2017
Country specific websites: for additional information
Commission study data collected by Steer Davies Gleave for 10 ANSPs/States
General government expenditure by function; Inflation data, PPP data: EUROSTAT
Inflation data: IMF
Trading economics https://tradingeconomics.com, accessed May 2018
NSA costs exempt report, 2015
Route charges submissions by States, 2017
Annual report, Financial statements, Notes to the financial statements: 2010, 2011, 2012, 2013, 2014, 2015, 2016
Data from EUROCONTROL Specification for Economic Information Disclosure (SEID) Parts I and II: 2010, 2016

Table A1.1: Summary of information sources

Data sources used	ANSPs
Annual report not available for 2010 or 2016 - SEID used as the primary data source for both years	ARMATS, DCAC Cyprus, DSNA, HCAA, M-NAV, MoldATSA
Annual report not available for 2010 - SEID used as the primary data source for 2010 but annual report used as the primary data source for 2016	Albcontrol
Annual report not available for 2010 or 2016 – information requested from the ANSP for 2010 and SEID used as the primary data source for 2016	Sakaeronavigatsia
Annual report supplemented by additional cost data from SEID	PANSA, SMATSA
Fact Sheet records data for the whole company as information for ANS activities is not presented separately in the company's annual report	Finavia

Table A1.2: Summary of data sources used in cases which annual report was not available or did not contain sufficient information

Treatment of first pillar costs	ANSPs
Pension portion of social security from the 'Ministry of Labor, Social Protection and Family of the Republic of Moldova Annual Social Report 2014' used to approximate the amount of pension contributions directed towards the first pillar	MoldATSA
Pension portion of social security not identifiable - first pillar pension cost data taken from ACE	DCAC Cyprus
Pension portion of social security from Department of Social Protection (DSP) Annual Reports 2013 and 2016	IAA
Pension portion of social security from World bank, Ukraine Public Finance Review, June 2017 (2016 value used for both 2016 and 2010)	UkSATSE
Consultation responses received	BULATSA, DFS, DSNA, ROMATSA, Sakaeronavigatsia, LPS

Table A1.3: Treatment of first pillar costs

Data not provided	ANSPs
Average employee age in 2016	M-NAV, IAA
Employee age profile in 2016	IAA
Drivers of the change in the net defined benefit obligation	LFV, Austro Control
Qualification criteria for occupational pension schemes	ANS CR
Defined Benefit pension cost in 2016	UkSATSE

Table A1.4: Data that ANSPs have been unable to provide

Average	Head count at end of the year	Full time equivalents
Austro Control	ANS CR	Albcontrol
EANS	Belgocontrol	ARMATS
IAA	Croatia Control	Avinor
LGS	DFS	BULATSA
MATS	ENAIRE	DCAC
NATS	ENAV	DHMI
NAV Portugal	Finavia	DSNA
NAVIAIR	HungaroControl	HCAA
ROMATSA	LFV	M-NAV
Sakaeronavigatsia	LPS	MoldATSA
Skyguide	LVNL	PANSA
Slovenia Control	MUAC	UkSATSE
SMATSA	Oro Navigacija	

Table A1.5: Methodology used to report staff count by each ANSP

ANNEX 2: ADDITIONAL DETAILS ON EARLY RETIREMENT SCHEMES

ANSP	Early retirement schemes available to ATCOs	Early retirement schemes available to all employees	ERS available from the State/ANSP
ARMATS	No formal ERS in place. ATCOs in operational duties have a legal retirement age of 50 if the mandatory requirement of continuous job seniority of 15 years in ATC service is met. The retired ATCOs may continue to work on other duties.	No ERS in place	ANSP
Austro Control	Available for ATCOs at the age of 55.	No ERS in place	ANSP
Avinor	Some ATCOs have negotiated individual agreements whereby they earn 72% of the full salary between the ages of 60 and 62 (the legal early retirement age) with no obligation to work.	No ERS in place	ANSP
Belgocontrol	No formal ERS in place, ATCOs have the option to choose to leave operational duties 5 years before retirement whilst receiving a significant part of their salary while not being on active duty.	No ERS in place	ANSP
Croatia Control	All ATCOs have rights for accelerated retirement which is dependent on the actual years of service completed in operational duties.	No ERS in place	ANSP
DFS	DFS uses a retirement age of 63 for ATCOs. ATCOs also have access to a transitional pension scheme (ÜVersTV), which pays out between the ages of 55 and 63.	DFS uses a retirement age of 67 for other staff. For non-ATCOs the early retirement scheme depends on individual contracts.	ANSP
DHMI	Female employees who have completed a working life of 20 years may retire at the age of 58, male employees who have completed a working life of 25 years may retire at the age of 60. However, those who wish so, may continue working until they reach the age of 65 at which they are then obliged to retire.		State
DSNA	The retirement age for ATCOs is stated under a 'special retirement regime', this allows them to retire between the ages of 50 and 57 (over 90% retire at 57).	Other staff can retire between 60 and 65.	ANSP

ANSP	Early retirement schemes available to ATCOs	Early retirement schemes available to all employees	ERS available from the State/ANSP
ENAIRE	In accordance with the Spain's Public Pension System rules, all employees are eligible for early retirement. The pension will be reduced based on the number of quarters remaining between the early retirement date and the legal retirement age. The early retirement can take place due to a company-initiated dismissal or a voluntary resignation.		State
ENAV	For ATCOs Italian law establish an early retirement's scheme at the age of 60 as they lose the enabling Licence. The Early Retirement Schemes is payed from INPS, not by the Company.	No ERS in place	ANSP
Finavia	Some ATCOs have a retirement age of 55.	Employees can obtain partial retirement at age 61 years (all staff) or 60 years (individuals born before 1954. The general retirement age for all staff is between 63 and 68.	ANSP
HCAA	All civil servants, regardless of duties, have a legal retirement age of 67 years which reduces to 62 if they have 40 years of service.		State
HungaroControl	ATCOs and FIS personnel are eligible for early retirement, with details dependent on their gender and years of service. The most common retirement age for a male ATCO is at age 56-57.	No ERS in place	ANSP
IAA	Members of the 1996 defined benefit scheme can retire at 60. There is a supplementary ex-gratia liability which provides for ex-gratia pension payments up to age 65 to bridge the gap for certain employees who are eligible to retire between the ages of 60 and 65 but are not eligible to receive the state pension until they reach retirement age.		ANSP
LPS	ATCOs are eligible for early retirement 2 years prior to the retirement age, with the additional benefit of 24 months of base salary paid upon early retirement. This option is rarely taken by employees though since they prefer to stay receive additional benefits if they waive the early retirement (additional bonuses of 2 monthly wages per year).	No ERS in place	ANSP
LVNL	A functional age non-activity scheme (FLNA) for early retirees. For ATCOs who joined prior to or in 2007, the permitted age is 55. For ETSATCOs who joined after 2007, the age is 55. For assistants and FIC operators, the age is 58 years. For all other staff, the permitted age is 67 years and 3 months.		ANSP

ANSP	Early retirement schemes available to ATCOs	Early retirement schemes available to all employees	ERS available from the State/ANSP
M-NAV	No formal ERS in 2016, however, ATCOs could earn one year of early retirement for every four years spent undertaking operational work.	No ERS in place	ANSP
MUAC	An early retirement scheme is available for air traffic controllers in place at the date of 29 April 1990.	No ERS in place	ANSP
NATS	ERS in place but no details of the retirement ages are provided.		ANSP
NAV Portugal	ATCOs with individual labour contracts can claim 60% of their social security pension between the ages of 57 and 66.	No ERS in place	ANSP
NAVIAIR	ATCOs can retire at the age of 55 provided they are covered by defined benefit scheme.	All staff have an option of "senior agreement" or "reduced time" schemes offered by the government, employees can get 1 day off every month with full pay after the 62th year. This option is largely used by all over 62 years.	ANSP
PANSA	The retirement ages and eligibility for men and women are in line with the Polish national retirement ages. All employees can take the “bridging retirement scheme” when certain conditions are met.		State
ROMATSA	ERS for all staff members which allows the employees to retire 5 years earlier than the legal retirement age, subject to certain conditions dependent on the number of years an employee has been contributing to the pension scheme. This is driven by national legislation.		State
Skyguide	An ERS is available, at the earliest 5 years before the normal age specified in each pension plan for Skyguide personnel.		ANSP
Slovenia Control	ATCOs can retire earliest at the age of 55 through an ERS under condition of working as an ATCO for 32 years or more. If ATCOs decide not to retire after meeting the minimum conditions, they may continue to work in either operational or non-operational positions	No ERS in place	ANSP

ANSP	Early retirement schemes available to ATCOs	Early retirement schemes available to all employees	ERS available from the State/ANSP
SMATSA	The majority of ATCOs retire before the age of 65. Male employees are eligible for early retirement if they have worked for 40 years and are aged at least 55 years and 8 months, while female employees must have worked for 37 years and be aged at least 55. ACTOs have reduced requirements for working years, where each 12-month period worked is counted as 16 months.	No ERS in place	ANSP
UkSATSE	There are two retirement schemes available to ATCOs: ATCOs can receive payment from the fund if they leave operational duties after 20 (men) or 15 (women) years of working. ATCOs receive payment from the fund and can continue working as an ATCO when they reach 50 (men) or 45 (women).	Staff can continue working in all positions and start receiving payment from the fund when they reach 60 (men) or 56 (women).	ANSP

Table A2.1: Additional details on early retirement schemes provided by ANSPs

ANNEX 3: ADDITIONAL INFORMATION ON ACCOUNTING STANDARDS

ANSP	Country	Accounting Standard	Funded/ Unfunded	Departures from IAS19 disclosed
Avinor	Norway	IFRS (IAS19)	Funded / Unfunded	Funded plan is part of SPK (Public Service Fund) - assets are "share of funds". (Figures are for Avinor AS.)
DFS	Germany	IFRS (IAS19)	Funded / Unfunded	-
ENAV	Italy	IFRS (IAS19)	Unfunded	IFRS first time adoption from 2014
MATS	Malta	IFRS (IAS19)	Unfunded	Discount rate of 7% used to calculate provision, source not disclosed.

Table A3.1: ANSPs with DB liabilities applying IFRS (IAS19)

ANSP	Country	Standard	Funded/ Unfunded	Departures from IAS19 disclosed
BULATSA	Bulgaria	IFRS (IAS19)	Unfunded	1) Liability limited to expected payments in next 5 years. 2) Discount rate based on government bond yields averaged over last 24 months.
LPS	Slovakia	IFRS (IAS19)	Unfunded	Uses "risk-free" rate, rather than € AA-rated corporate bonds.
LVNL[1]	Netherlands	IFRS (IAS19)	Funded / Unfunded	1) Actuarial gains / losses for FLNA Rotterdam, Eelde & Beek recognised in P&L 2) No provision for some other FLNA rights. DBO shown is for FLNA (early retirement benefits); accounts also have provisions for jubilee, termination & other benefits.
Slovenia Control	Slovenia	IFRS (IAS19)	Unfunded	Discount rate based on government bonds (not AA-rated corporate bonds).
SMATSA	Serbia	IFRS (IAS19)	Unfunded	Limited information disclosed (source of discount rate unclear

Table A3.2: ANSPs with DB liabilities disclosing departures from IAS19 approach[2]

[1] Note: main plan is funded multi-employer plan (ABP Pension Fund), share of assets & liabilities not identifiable, so accounted for on DC basis and funding information on ABP provided."

[2] Note: in some cases, IAS19 principles are applied in assessing DB liability value, but not full IAS19 reporting.

ANSP	Country	Standard	Funded/ Unfunded	Departures from IAS19 disclosed
Austro Control	Austria	Austrian GAAP	Unfunded / Funded	IAS19 principles followed, except for amortisation entry (understates DBO by €25m). Also, for the funded plan only the net deficit is shown.
DCAC Cyprus	Cyprus	Cash basis accounting method	Unfunded	DB pension scheme is managed by the Central Government, which manages pension funds for all government employees.
Finavia	Finland	Finnish GAAP	Part-funded	No DB liabilities disclosed. Mandatory TyEL (DB) pension provided via insurance contract with Ilmarinen. Finavia is only liable for making contributions to the scheme and so its contributions are assessed on a defined contribution basis.
IAA	Ireland	IFRS - FRS102	Funded	Broadly in line with IAS19, except "additional cash cost" of €9.7m disclosed in 2016. Also, IFRIC14 does not apply under FRS102, which could lead to further differences in future.
LFV	Sweden	Swedish GAAP	Unfunded	Significant differences to IAS19. Unable to estimate IAS19 position from information disclosed / prepared for accounts. A separate valuation would be needed if IAS19 is applied.
NAV Portugal	Portugal	Portuguese GAAP	Funded / Unfunded	Uses expected return on assets assumption (IAS19 applies discount rate). Discount rate assumption setting approach may be close enough to IAS19 - unclear whether government or corporate bonds used. Could adjust to IAS19.
Naviair	Denmark	Danish GAAP	Unfunded	No DB liabilities disclosed. Some employees participate in defined benefit civil service scheme to which Naviair contributes.
ROMATSA	Romania	Romanian GAAP	Unfunded	There are no differences between local GAAP – MOF 1802/2014 and IFRS/IAS (IAS 19) regarding the accounting treatments for the calculations of the defined benefit scheme.

Table A3.3 ANSPs with DB liabilities reporting under local GAAP

ANNEX 4: KEY DATA

ANSP	2010							2016						
	1st pillar pension cost	Occupational DB costs reported as staff costs	Occupational DB costs reported as financial costs	Total occupational DB costs	Occupational DC cost	Total pension cost	Total ANSP Cost	1st pillar pension cost	Occupational DB costs reported as staff costs	Occupational DB costs reported as financial costs	Total occupational DB costs	Occupational DC cost	Total pension cost	Total ANSP Cost
Albcontrol	0.1	-	-	-	0.1	0.2	19.1	0.1	-	-	-	0.3	0.3	22.5
ANS CR	8.8	-	-	-	1.2	9.9	124.3	7.9	-	-	-	2.2	10.1	128.4
ARMATS	0.4	-	-	-	-	0.4	7.1	-	-	-	-	-	-	7.0
Austro Control	8.0	20.8	12.2	33.0	0.5	41.5	272.0	8.4	38.3	7.7	46.0	1.0	55.4	293.6
Avinor	6.3	14.7	-	14.7	-	20.9	184.8	6.7	14.7	-	14.7	0.0	21.5	186.9
Belgocontrol	23.0	-	-	-	-	23.0	181.2	15.3	-	-	-	-	15.3	162.1
BULATSA	1.2	1.8	0.4	2.1	1.6	4.9	84.6	1.4	2.5	0.2	2.7	2.0	6.1	93.1
Croatia Control	2.1	-	-	-	0.3	2.4	72.5	2.1	-	-	-	0.7	2.8	89.2
DCAC	0.3	2.9	-	2.9	-	3.3	53.5	1.0	3.5	-	3.5	-	4.5	53.1
DFS	32.1	24.0	46.6	70.6	-	102.7	1 052.9	33.0	141.0	39.2	180.2	-	213.3	1 222.6
DHMI	22.9	-	-	-	-	22.9	427.9	46.0	-	-	-	-	46.0	705.6
DSNA	173.8	-	-	-	-	173.8	1 438.3	204.5	-	-	-	-	204.5	1 436.8
EANS	1.0	-	-	-	-	1.0	11.7	1.5	-	-	-	-	1.5	16.5
ENAIRE	50.0	-	-	-	1.3	51.3	922.9	59.8	-	-	-	-	59.8	767.8
ENAV	83.0	-	-	-	23.3	106.4	808.9	86.4	-	0.5	0.5	26.7	113.6	775.8
Finavia	-	-	-	-	16.2	16.2	305.4	-	-	-	-	14.9	14.9	306.5
HCAA	-	-	-	-	-	-	188.0	6.3	-	-	-	-	6.3	162.8
HungaroControl	9.3	7.3	-	7.3	0.2	16.9	104.9	8.6	-	-	-	1.8	10.4	96.0
IAA	1.4	27.5	5.4	32.9	-	34.2	165.5	1.7	20.6	2.8	23.4	0.1	25.2	167.3
LFV	13.6	23.8	26.2	50.0	6.2	69.9	388.6	16.6	34.3	24.4	58.8	4.9	80.2	330.8
LGS	1.6	-	-	-	-	1.6	23.6	1.8	-	-	-	-	1.8	24.4
LPS	2.9	0.9	-	0.9	1.2	5.0	53.9	3.9	0.4	-	0.4	1.6	5.9	64.5
LVNL	-	-	-	-	17.3	17.3	141.6	-	-	-	-	27.7	27.7	200.5
MATS	0.1	-	-	-	-	0.1	16.5	0.2	-	-	-	-	0.2	19.6
M-NAV	1.0	-	-	-	-	1.0	12.9	1.7	-	-	-	-	1.7	12.7
MoldATSA	0.7	-	-	-	-	0.7	7.1	0.6	-	-	-	-	0.6	7.7
MUAC	-	-	-	-	11.6	11.6	157.5	-	-	-	-	11.2	11.2	148.9
NATS	31.8	81.7	-	81.7	1.1	114.6	929.6	42.8	102.9	-	102.9	8.5	154.3	966.0
NAV Portugal	13.1	22.4	-	22.4	0.2	35.8	178.2	13.1	-0.6	-	-0.6	2.4	14.9	146.9
NAVIAIR	0.1	-	-	-	7.8	7.9	134.7	0.1	-	-	-	7.5	7.6	159.8
Oro Navigacija	2.2	-	-	-	-	2.2	23.4	2.6	-	-	-	-	2.6	27.0
PANSA	5.5	-	-	-	0.7	6.2	142.9	7.6	-	-	-	5.7	13.3	168.7
ROMATSA	17.3	-	-	-	-	17.3	181.5	8.7	9.2	-	9.2	6.4	24.3	200.3
Sakaeronavigatsia	-	-	-	-	-	-	15.8	-	-	-	-	0.0	0.0	22.8
Skyguide	7.8	-	-	-	28.3	36.1	351.2	9.5	-	-	-	40.8	50.3	393.3
Slovenia Control	1.4	-	-	-	1.4	2.8	31.4	1.5	-	-	-	1.5	3.0	35.7
SMATSA	4.9	-	-	-	-	4.9	80.6	5.2	-	-	-	0.2	5.4	79.7
UkSATSE	12.4	-	-	-	-	12.4	132.3	4.4	-	-	-	-	4.4	73.4
Total	540.0	227.8	90.8	318.6	120.6	979.3	9 428.7	611.1	366.9	74.9	441.8	168.0	1 220.9	9 776.1

Table A4.1 Pension costs, staff costs and total ANSP costs in 2010 and 2016 (real terms, € M 2016)

ANSP	Total number of staff	Active members in DB schemes	Active members in DC schemes
Albcontrol	332	-	332
ANS CR	941	-	815
ARMATS	382	-	-
Austro Control	995	711	494
Avinor	1 030	1 067	1
Belgocontrol	806	-	-
BULATSA	1 066	1 066	1 066
Croatia Control	732	-	732
DCAC	209	209	-
DFS	5 539	5 954	-
DHMI	9 786	-	-
DSNA	7 669	-	-
EANS	191	-	-
ENAIRE	3 923	-	-
ENAV	3 395	-	3 395
Finavia	1 538	-	1 538
HCAA	1 633	-	-
HungaroControl	746	-	736
IAA	652	723	71
LFV	983	1 477	1 537
LGS	353	-	-
LPS	490	475	475
LVNL	995	-	933
MATS	145	-	-
M-NAV	272	-	-
MoldATSA	291	-	-
MUAC	616	-	616
NATS	4 216	2 768	1 043
NAV Portugal	984	252	743
NAVIAIR	646	-	233
Oro Navigacija	306	-	-
PANSA	1 828	-	1 575
ROMATSA	1 509	1 539	1 352
Sakaeronavigatsia	785	-	520
Skyguide	1 543	-	1 543
Slovenia Control	221	-	221
SMATSA	909	-	909
UkSATSE	4 357	-	-
Total	63 014	16 241	20 880

Table A4.2 Number of staff and active scheme members in 2016

	2010		2016				
ANSP	Retirement age for ATCOs	Retirement age for other staff	Retirement age for ATCOs	Retirement age for other staff	Average employee age	% of staff aged over 40	% of staff aged over 60
Albcontrol	62.5	62.5	62.5	62.5	42.5	56%	10%
ANS CR	65.0	65.0	65.0	65.0	43.9	60%	11%
ARMATS	50.0	63.0	50.0	63.0	46.3	69%	15%
Austro Control	60.0	61.5	60.0	61.5	45.7	62%	1%
Avinor	65.0	70.0	65.0	70.0	43.0	61%	9%
Belgocontrol	60.0	61.0	60.0	62.0	45.0	73%	4%
BULATSA	57.0	61.5	57.8	62.3	46.0	75%	9%
Croatia Control	62.5	62.5	63.3	63.3	42.5	62%	4%
DCAC	65.0	65.0	65.0	65.0	44.0	61%	4%
DFS	63.0	67.0	63.0	67.0	43.2	60%	5%
DHMI	65.0	65.0	65.0	65.0	40.7	53%	6%
DSNA	57.0	65.0	57.0	65.0	45.3	68%	8%
EANS	53.0	62.5	53.0	62.5	40.9	47%	9%
ENAIRE	65.0	65.0	65.0	65.0	47.7	86%	8%
ENAV	60.0	62.0	60.0	66.1	43.7	64%	3%
Finavia	65.0	65.0	65.5	65.5	44.0	65%	8%
HCAA	65.0	65.0	67.0	67.0	51.0	89%	21%
HungaroControl	62.0	62.0	63.0	63.0	44.8	64%	9%
IAA	65.0	65.0	65.0	65.0	n/a	0%	0%
LFV	60.0	65.0	60.0	65.0	47.0	78%	10%
LGS	62.0	62.0	62.0	62.0	45.0	53%	16%
LPS	62.0	62.0	62.0	62.0	45.0	70%	7%
LVNL	65.0	65.0	67.0	67.0	46.3	73%	8%
MATS	62.5	62.5	63.0	63.0	46.0	75%	4%
M-NAV	63.0	63.0	63.0	63.0	46.1	77%	8%
MoldATSA	52.5	59.5	52.5	63.0	44.3	60%	13%
MUAC	55.0	n/a	57.0	n/a	42.9	0%	0%
NATS	n/a	n/a	n/a	n/a	44.0	66%	3%
NAV Portugal	57.0	65.0	57.0	66.0	48.0	75%	12%
NAVIAIR	55.0	65.0	55.0	65.0	45.0	74%	5%
Oro Navigacija	61.3	61.3	62.5	62.5	44.7	64%	14%
PANSA	62.5	62.5	63.1	63.1	43.0	59%	11%
ROMATSA	60.5	60.5	62.7	62.7	46.2	75%	8%
Sakaeronavigatsia	62.5	62.5	62.5	62.5	44.0	58%	16%
Skyguide	56.5	62.0	57.0	63.0	42.5	61%	3%
Slovenia Control	53.0	57.0	55.0	60.0	44.0	73%	3%
SMATSA	65.0	65.0	65.0	65.0	44.0	65%	7%
UkSATSE	57.5	57.5	58.0	58.0	44.5	63%	9%
Weighted average	61.3	63.8	61.6	64.4	44.2	65%	7%

Table A4.3: Retirement ages (2010 and 2016), average employee ages (2016) and age structure (2016) at ANSP level

ANSP	2010				2016			
	1st pillar pension costs	Occupational DB costs	Occupational DC costs	Total pension costs	1st pillar pension costs	Occupational DB costs	Occupational DC costs	Total pension costs
Albcontrol	0.3%	0.0%	0.7%	1.0%	0.3%	0.0%	1.1%	1.4%
ANS CR	7.0%	0.0%	0.9%	8.0%	6.2%	0.0%	1.7%	7.9%
ARMATS	5.1%	0.0%	0.0%	5.1%	0.0%	0.0%	0.0%	0.0%
Austro Control	2.9%	12.1%	0.2%	15.3%	2.9%	15.7%	0.3%	18.9%
Avinor	3.4%	7.9%	0.0%	11.3%	3.6%	7.9%	0.0%	11.5%
Belgocontrol	12.7%	0.0%	0.0%	12.7%	9.5%	0.0%	0.0%	9.5%
BULATSA	1.4%	2.5%	1.9%	5.8%	1.5%	2.9%	2.2%	6.6%
Croatia Control	2.9%	0.0%	0.4%	3.3%	2.4%	0.0%	0.8%	3.1%
DCAC	0.6%	5.5%	0.0%	6.1%	1.9%	6.6%	0.0%	8.5%
DFS	3.0%	6.7%	0.0%	9.8%	2.7%	14.7%	0.0%	17.4%
DHMI	5.4%	0.0%	0.0%	5.4%	6.5%	0.0%	0.0%	6.5%
DSNA	12.1%	0.0%	0.0%	12.1%	14.2%	0.0%	0.0%	14.2%
EANS	8.2%	0.0%	0.0%	8.2%	9.2%	0.0%	0.0%	9.2%
ENAIRE	5.4%	0.0%	0.1%	5.6%	7.8%	0.0%	0.0%	7.8%
ENAV	10.3%	0.0%	2.9%	13.1%	11.1%	0.1%	3.4%	14.6%
Finavia	0.0%	0.0%	5.3%	5.3%	0.0%	0.0%	4.9%	4.9%
HCAA	0.0%	0.0%	0.0%	0.0%	3.9%	0.0%	0.0%	3.9%
HungaroControl	8.9%	7.0%	0.2%	16.1%	8.9%	0.0%	1.8%	10.8%
IAA	0.8%	19.9%	0.0%	20.7%	1.0%	14.0%	0.0%	15.0%
LFV	3.5%	12.9%	1.6%	18.0%	5.0%	17.8%	1.5%	24.2%
LGS	6.8%	0.0%	0.0%	6.8%	7.5%	0.0%	0.0%	7.5%
LPS	5.4%	1.6%	2.3%	9.3%	6.1%	0.6%	2.6%	9.2%
LVNL	0.0%	0.0%	12.2%	12.2%	0.0%	0.0%	13.8%	13.8%
MATS	0.9%	0.0%	0.0%	0.9%	1.0%	0.0%	0.0%	1.0%
M-NAV	7.9%	0.0%	0.0%	7.9%	13.2%	0.0%	0.0%	13.2%
MoldATSA	9.4%	0.0%	0.0%	9.4%	8.0%	0.0%	0.0%	8.0%
MUAC	0.0%	0.0%	7.4%	7.4%	0.0%	0.0%	7.5%	7.5%
NATS	3.4%	8.8%	0.1%	12.3%	4.4%	10.7%	0.9%	16.0%
NAV Portugal	7.4%	12.6%	0.1%	20.1%	8.9%	-0.4%	1.6%	10.1%
NAVIAIR	0.1%	0.0%	5.8%	5.9%	0.1%	0.0%	4.7%	4.8%
Oro Navigacija	9.3%	0.0%	0.0%	9.3%	9.6%	0.0%	0.0%	9.6%
PANSA	3.9%	0.0%	0.5%	4.4%	4.5%	0.0%	3.4%	7.9%
ROMATSA	9.5%	0.0%	0.0%	9.5%	4.3%	4.6%	3.2%	12.1%
Sakaeronavigatsia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Skyguide	2.2%	0.0%	8.1%	10.3%	2.4%	0.0%	10.4%	12.8%
Slovenia Control	4.3%	0.0%	4.5%	8.8%	4.2%	0.0%	4.2%	8.4%
SMATSA	6.1%	0.0%	0.0%	6.1%	6.6%	0.0%	0.2%	6.8%
UkSATSE	9.4%	0.0%	0.0%	9.4%	6.0%	0.0%	0.0%	6.0%
Weighted average	5.7%	3.4%	1.3%	10.4%	6.3%	4.5%	1.7%	12.5%

Table A4.4: Share of pension scheme types in total ANSP costs (in %) in 2010 and 2016

ANSP	1st pillar pension costs		Occupational DB costs		Occupational DC costs		Total pension costs	
	Change in M€	Change in %	Change in M€	Change in %	Change in M€	Change in %	Change in M€	Change in %
Albcontrol	0.01	12.8%	0.00	0.0%	0.13	103.1%	0.14	74.2%
ANS CR	-0.85	-9.7%	0.00	0.0%	1.07	92.3%	0.22	2.2%
ARMATS	-0.36	-100.0%	0.00	0.0%	0.00	0.0%	-0.36	-100.0%
Austro Control	0.44	5.5%	13.00	39.4%	0.45	83.9%	13.89	33.4%
Avinor	0.43	6.8%	0.09	0.6%	0.02	n/a	0.54	2.6%
Belgocontrol	-7.72	-33.5%	0.00	0.0%	0.00	0.0%	-7.72	-33.5%
BULATSA	0.24	20.2%	0.55	26.0%	0.40	24.4%	1.19	24.1%
Croatia Control	0.04	2.1%	0.00	0.0%	0.38	126.2%	0.42	17.7%
DCAC	0.65	189.5%	0.56	18.9%	0.00	0.0%	1.21	36.8%
DFS	0.93	2.9%	109.61	155.2%	0.00	0.0%	110.54	107.6%
DHMI	23.07	100.6%	0.00	0.0%	0.00	0.0%	23.07	100.6%
DSNA	30.64	17.6%	0.00	0.0%	0.00	0.0%	30.64	17.6%
EANS	0.56	57.9%	0.00	0.0%	0.00	0.0%	0.56	57.9%
ENAIRE	9.82	19.7%	0.00	0.0%	-1.32	-100.0%	8.50	16.6%
ENAV	3.31	4.0%	0.53	n/a	3.44	14.7%	7.27	6.8%
Finavia	0.00	0.0%	0.00	0.0%	-1.26	-7.8%	-1.26	-7.8%
HCAA	6.27	n/a	0.00	0.0%	0.00	0.0%	6.27	n/a
HungaroControl	-0.72	-7.7%	-7.34	-100.0%	1.54	665.6%	-6.52	-38.6%
IAA	0.35	25.8%	-9.51	-28.9%	0.07	n/a	-9.09	-26.6%
LFV	2.97	21.8%	8.72	17.4%	-1.33	-21.5%	10.36	14.8%
LGS	0.24	14.8%	0.00	0.0%	0.00	0.0%	0.24	14.8%
LPS	0.97	33.0%	-0.50	-57.2%	0.42	34.5%	0.89	17.7%
LVNL	0.00	0.0%	0.00	0.0%	10.48	60.7%	10.48	60.7%
MATS	0.04	25.6%	0.00	0.0%	0.00	0.0%	0.04	25.6%
M-NAV	0.66	64.9%	0.00	0.0%	0.00	0.0%	0.66	64.9%
MoldATSA	-0.05	-7.1%	0.00	0.0%	0.00	0.0%	-0.05	-7.1%
MUAC	0.00	0.0%	0.00	-8.2%	-0.49	-4.2%	-0.49	-4.2%
NATS	11.02	34.7%	21.22	26.0%	7.45	676.7%	39.69	34.6%
NAV Portugal	0.02	0.1%	-23.04	-102.7%	2.13	905.0%	-20.89	-58.4%
NAVIAIR	-0.01	-8.5%	0.00	0.0%	-0.29	-3.8%	-0.30	-3.8%
Oro Navigacija	0.42	19.3%	0.00	0.0%	0.00	0.0%	0.42	19.3%
PANSA	2.08	37.6%	0.00	0.0%	4.97	717.5%	7.05	113.2%
ROMATSA	-8.60	-49.8%	9.25	n/a	6.40	n/a	7.05	40.8%
Sakaeronavigatsia	0.00	0.0%	0.00	0.0%	0.01	n/a	0.01	n/a
Skyguide	1.73	22.2%	0.00	0.0%	12.52	44.3%	14.25	39.5%
Slovenia Control	0.14	10.3%	0.00	0.0%	0.09	6.3%	0.23	8.3%
SMATSA	0.34	7.0%	0.00	0.0%	0.17	n/a	0.51	10.4%
UkSATSE	-8.02	-64.7%	0.00	0.0%	0.00	0.0%	-8.02	-64.7%
Total	71.06	13.2%	123.14	38.6%	47.42	39.3%	241.62	24.7%

Table A4.5: Changes in pension costs between 2010 and 2016 (real terms, €2016 and %)

ANSP	2010	2016	% change
Albcontrol	603	959	59.0%
ANS CR	11 025	10 763	-2.4%
ARMATS	782	-	0.0%
Austro Control	41 198	55 696	35.2%
Avinor	19 543	20 848	6.7%
Belgocontrol	24 781	19 022	-23.2%
BULATSA	4 058	5 745	41.6%
Croatia Control	3 204	3 827	19.5%
DCAC	17 444	21 459	23.0%
DFS	18 760	38 500	105.2%
DHMI	2 904	4 700	61.9%
DSNA	21 525	26 663	23.9%
EANS	6 526	7 932	21.6%
ENAIRE	12 168	15 243	25.3%
ENAV	32 714	33 469	2.3%
Finavia	9 383	9 717	3.6%
HCAA	-	3 838	0.0%
HungaroControl	24 684	13 888	-43.7%
IAA	50 431	38 574	-23.5%
LFV	51 324	81 599	59.0%
LGS	4 829	5 184	7.4%
LPS	10 564	12 078	14.3%
LVNL	17 931	27 885	55.5%
MATS	1 064	1 282	20.4%
M-NAV	3 721	6 159	65.5%
MoldATSA	2 117	2 128	0.5%
MUAC	16 967	18 101	6.7%
NATS	24 631	36 593	48.6%
NAV Portugal	36 942	15 146	-59.0%
NAVIAIR	11 120	11 752	5.7%
Oro Navigacija	6 894	8 497	23.2%
PANSA	3 646	7 262	99.2%
ROMATSA	11 003	16 112	46.4%
Sakaeronavigatsia	-	10	0.0%
Skyguide	25 065	32 608	30.1%
Slovenia Control	12 929	13 557	4.9%
SMATSA	5 664	5 959	5.2%
UkSATSE	2 035	1 002	-50.7%
Weighted average	15 181	19 375	27.6%

Table A4.6: Pension costs per staff in 2010 and 2016 (real terms, €2016)

ANSP	Value of scheme assets	Value of Defined Benefit Obligations (DBO)	Net DBO (+) or surplus (-) in scheme	Net DBO per active scheme member	Net DBO as % of total ANSP assets
Austro Control	212.2	569.3	357.1	0.5	74%
Avinor	217.8	299.4	81.5	0.1	35%
BULATSA	-	7.4	7.4	0.0	3%
DCAC	-	-	-	-	-
DFS	2 252.3	4 565.6	2 313.3	0.4	119%
IAA	512.8	671.6	158.9	0.2	45%
LFV	494.6	613.1	118.5	0.1	15%
LPS	-	5.2	5.2	0.0	6%
NATS	6 636.8	7 065.1	428.3	0.2	21%
NAV Portugal	246.9	347.8	100.9	0.4	34%
ROMATSA	-	60.5	60.5	0.0	21%
UkSATSE	-	-	-	-	0%
Total	10 573.3	14 205.0	3 631.7	0.2	53%

Table A4.7: Pension assets and liabilities relating to occupational DBs in 2016 (real terms, € M 2016)

ANSP	2010 Actuarial assumptions				2016 Actuarial assumptions				Sensitivity of DBO to changes in the discount rate (2016)	
	Discount rate	Expected return on plan assets	Annual increase in salaries	Projected increase in benefits	Discount rate	Expected return on plan assets	Annual increase in salaries	Projected increase in benefits	1% increase in discount rate	1% decrease in discount rate
Austro Control	4.5%	5.5%	2.5%	1.8%	2.0%	2.0%	2.3%	0.8%	-97.0	97.0
Avinor	4.0%	5.1%	4.0%	3.0%	2.6%	2.6%	2.5%	1.5%	-49.7	67.6
BULATSA	4.8%	-	1.5%	-	2.5%	-	2.6%	-	-0.2	0.2
DCAC	-	-	-	-	-	-	-	-	-	-
DFS	5.5%	4.0%	3.5%	1.3%	2.4%	2.4%	2.5%	1.3%	-940.5	1 027.0
IAA	5.4%	6.5%	3.0%	2.0%	1.9%	1.9%	1.5%	-	-	132.4
LFV	1.4%	-	-	-	-0.3%	-	-	-	-82.8	133.7
LPS	1.5%	-	3.2%	-	-	-	2.1%	-	-0.5	0.6
NATS	5.5%	6.5%	4.0%	3.5%	2.6%	2.6%	2.0%	3.1%	-1 625.0	1 907.6
NAV Portugal	5.5%	5.5%	3.5%	3.0%	2.0%	2.5%	2.4%	1.9%	-	-
ROMATSA	-	-	-	-	3.5%	-	1.5%	-	-	-
UkSATSE	-	-	26.3%	-	-	-	8.2%	-	-	-
Average (total for sensitivity)	4.3%	5.5%	5.7%	2.4%	2.1%	2.3%	2.8%	1.7%	-2 795.6	3 365.9

Table A4.8: Actuarial assumptions (2010 and 2016) and DBO sensitivity to 1% change in discount rate (2016)

ANSP	DC scheme inception Year	Employer defined contribution rate 2010	2011	2012	2013	2014	2015	2016
Albcontrol	2010	-	-	-	-	6.7%	6.7%	6.7%
ANS CR	2001	2.2%	4.0%	3.9%	3.9%	3.8%	3.7%	3.5%
Austro Control	1997	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Avinor	2013	-	-	-	-	-	-	-
BULATSA	n/a	-	-	-	-	-	-	-
Croatia Control	n/a	-	-	-	-	-	-	-
ENAV	2007	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%	6.9%
Finavia	2010	17.4%	18.7%	17.9%	17.5%	17.7%	17.6%	17.5%
HungaroControl	2013	0.7%	0.6%	0.5%	40.5%	4.5%	4.1%	4.4%
IAA	2012	-	-	-	-	-	-	-
LFV	n/a	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
LPS	2001	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
LVNL	n/a	14.4%	16.5%	18.6%	19.9%	18.7%	16.4%	16.0%
MUAC	2005	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	17.5%
NATS	2009	8.1%	8.3%	13.0%	13.6%	14.1%	14.5%	14.6%
NAV Portugal	2007	8.2%	5.3%	5.7%	5.6%	5.5%	5.5%	5.8%
NAVIAIR	2007	11.6%	11.7%	11.0%	10.9%	10.9%	11.4%	11.2%
PANSA	2008	1.0%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
ROMATSA	2011	-	-	-	6.5%	6.9%	6.9%	6.9%
Sakaeronavigatsia	2015	-	-	-	-	-	-	-
Skyguide	2003	17.5%	17.4%	17.8%	18.2%	18.4%	19.2%	20.1%
Slovenia Control	2008	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%
SMATSA	2016	-	-	-	-	-	-	-
Average		8.5%	9.0%	9.4%	11.9%	9.4%	9.4%	9.3%

Table A4.9: DC scheme inception dates and employer contribution rates (2010 to 2016)

ANSP	Country	Currency	Exchange rate 2016 (1 €=)	2016 PPP (in € M Real 2016 prices)	Price Index for 2010 (2016=1)
Albcontrol	Albania	ALL	139.0	60.3	0.886
ANS CR	Czech Republic	CZK	27.0	17.7	0.920
ARMATS	Armenia	AMD	528.0	264.1	0.813
Austro Control	Austria	EUR	1.0	1.1	0.892
Avinor	Norway	NOK	10.0	13.8	0.893
Belgocontrol	Belgium	EUR	1.0	1.1	0.905
BULATSA	Bulgaria	BGN	2.0	0.9	0.979
Croatia Control	Croatia	HRK	7.5	4.8	0.932
DCAC	Cyprus	EUR	1.0	0.9	0.962
DFS	Germany	EUR	1.0	1.1	0.928
DHMI	Turkey	TRY	3.3	1.8	0.634
DSNA	France	EUR	1.0	1.1	0.938
EANS	Estonia	EUR	1.0	0.7	0.873
ENAIRE	Spain	EUR	1.0	0.9	0.944
ENAV	Italy	EUR	1.0	1.0	0.928
Finavia	Finland	EUR	1.0	1.2	0.905
HCAA	Greece	EUR	1.0	0.8	0.994
HungaroControl	Hungary	HUF	311.0	183.7	0.891
IAA	Ireland	EUR	1.0	1.1	0.964
LFV	Sweden	SEK	9.5	12.3	0.954
LGS	Latvia	EUR	1.0	0.7	0.929
LPS	Slovakia	EUR	1.0	0.7	0.921
LVNL	Netherlands	EUR	1.0	1.1	0.919
MATS	Malta	EUR	1.0	0.8	0.909
M-NAV	FYR Macedonia	MKD	61.3	26.5	0.914
MoldATSA	Moldova	MDL	21.9	9.6	0.693
MUAC	Netherlands	EUR	1.0	1.1	0.919
NATS	United Kingdom	GBP	0.8	1.0	0.888
NAV Portugal	Portugal	EUR	1.0	0.8	0.927
NAVIAIR	Denmark	DKK	7.4	10.0	0.941
Oro Navigacija	Lithuania	EUR	1.0	0.6	0.918
PANSA	Poland	PLN	4.4	2.4	0.928
ROMATSA	Romania	RON	4.5	2.3	0.887
Sakaeronavigatsia	Georgia	GEL	2.7	1.2	0.854
Skyguide	Switzerland	CHF	1.1	1.7	1.018
Slovenia Control	Slovenia	EUR	1.0	0.8	0.941
SMATSA	Serbia	RSD	123.0	56.5	0.739
UkSATSE	Ukraine	UAH	28.3	9.1	0.486

Table A4.10: Exchange rates, Purchasing Power Parities and inflation data

Note: For this study Netherlands has been used for MUAC and Serbia for SMATSA

ANNEX 5: GLOSSARY OF TERMS

Discount rate	The interest rate used in discounted cash flow analysis to determine the present value of future cash flows. In the case of defined benefits schemes reporting under IAS 19 rules, the discount rate should be determined by reference to market yields at the end of the reporting period on high quality corporate bonds (often interpreted as AA rated bonds).
Defined benefit obligation (DBO)	The present value of the ANSP's obligation with regard to future retirement costs. The DBO reflects all future claims that have been earned by employees, but not yet paid out as retirement benefits, as at the valuation date. The value of the DBO is calculated by actuaries using a number of metrics including the discount rate, life expectancy and expected future salary increases.
ECB	European Central Bank
FTE	Full time equivalent employee
IAS 19	The International Accounting Standard covering the reporting of pensions costs. The changes in 2011 had a material impact on the reporting required for defined benefits schemes (see Chapter 4 for details).
Net liability, or net DBO	The difference between a defined benefits plan's assets and the estimated liabilities. In this case a net liability implied benefits are lower than estimated liabilities.
Plan assets	Assets that the ANSP or a third-party fund manager has invested in using the contributions made by the ANSP to fund the DBO. The aim of the asset manager is to ensure that return on the plan assets match or exceed the required rate of return that would ensure that sufficient funds are included in the pool of assets to meet the ANSP's retirement benefit obligation.
Retirement age	The age that an individual can claim the pension benefit under a specified scheme. The State will usually determine this age; company schemes may allow receipt of pension benefits using their own qualification ages.
First pillar (state) pension	The state-run pension which is generally funded through employer and employee social security contributions paid to the State and/or direct tax revenues, and directed to the public pension scheme.
Second pillar (occupational) pension	Pension schemes provided by the employer to its employees through plans run as defined benefit, defined contribution, or hybrid pension schemes.
Third pillar (private) pension	Supplementary pensions which consists of voluntary contributions by members to a private pension. This third pillar is generally offered as a voluntary pension scheme or through individual insurance products.
Early retirement scheme	Retirement schemes offer employees with an opportunity to retire and draw down benefits from their occupational pension before they reach the legal retirement age.
Purchasing Power Parity (PPP)	Purchasing Power Parity is an index which compares different countries' currencies through a "basket of goods" approach. The index accounts for the differences in the cost of living and differences in the market wage rates in the economies of different countries.
Pay-as-you-go defined benefit scheme	Pay-as-you-go defined benefit plans are a type of defined benefit plan in which there are no plan assets and the current contributions serve to fund the current benefits paid to pensioners. There is therefore an intergenerational transfer involved.
Funded defined benefit scheme	A type of defined benefit scheme where employers make contributions, which are invested in plan assets to meet future retirement obligations.
Actuarial gains and losses	Defined benefit plans undergo actuarial valuations to estimate the value of these benefits based on actuarial assumptions. The value of these benefits is then discounted to present value using a discount rate. Changes in the actuarial calculations, including changes in the yields of the bonds used to calculate the discount rate, will impact the value of the net liability. Changes in the net liability stemming from the actuarial assumptions are recorded as remeasurements, also known as actuarial gains and losses, and charged directly to other comprehensive income in the financial statements.

Termination benefits	Employee benefits which are provided in exchange for the termination of the employees' contract. Termination benefits are used to encourage employees to leave service voluntarily.
Salary sacrifice	An agreement to reduce employees' cash pay in exchange for a non-cash benefit such as increased pension contributions.
Corridor approach	An accounting technique which is used to spread the actuarial gains and losses over a period of multiple years to reduce the amount recognised as pension expense.
Actuarial assumptions	Estimates of unknown variables which are used to calculate pension premiums or benefits.
Contribution rate	The rate at which employers and/or employees contribute to the pension schemes. This rate can be variable or the same between different types of staff.
CAGR	Compound Annual Growth Rate - mean annual growth rate over a period over time (more than one year).

Table A5.1: Definitions of key terms used in the report

COPYRIGHT NOTICE AND DISCLAIMER

© European Organisation for the Safety of Air Navigation (EUROCONTROL)

This document is published by the Performance Review Commission in the interest of the exchange of information.

It may be copied in whole or in part providing that the copyright notice and disclaimer are included. The information contained in this document may not be modified without prior written permission from the Performance Review Commission.

The view expressed herein do not necessarily reflect the official views or policy of EUROCONTROL which makes no warranty, either implied or express, for the information contained in this document, neither does it assume any legal liability or responsibility for the accuracy completeness or usufulness of this information.

Printed by EUROCONTROL 96, rue de la Fusée, B-1130 Brussels, Belgium. Tel: +32 2 729 3956. Fax: +32 2 729 9108.