# PENSION MARKETS IN FOCUS

2021


OECD

# Pension Markets in Focus 2021

Please cite this publication as:

OECD (2021), Pension Markets in Focus 2021, www.oecd.org/finance/pensionmarketsinfocus.htm

# Foreword

Pension Markets in Focus provides detailed and comparable statistics on retirement savings around the world. This annual statistical report contributes to the effort of making data on retirement savings available, as the OECD Core Principles of Private Pension Regulation advocates for, to enable regulators and stakeholders to evaluate the design and operation of the pension system relative to its goals.These statistics can support policy discussions through international comparisons and peer learning, and are the basis of policy recommendations in the OECD series of Pension Reviews and Pensions Outlook. These statistics can also be helpful to private sector representatives, journalists, academics and anyone interested in funded pension systems.

The 2021 edition of this annual report provides an overview of retirement savings at the end of 2020 in 92 jurisdictions and outlines the developments in the pension sector worldwide. The report exhibits an extensive range of indicators relevant to retirement savings, harmonised and standardised across jurisdictions. It monitors the key financial aspects, such as the amount of assets accumulated, the way these assets are invested and their investment performance, both over the past year and over the longer term. The report also examines the proportion of the population covered by pension plans, the amount of contributions paid into these plans and the benefits that members receive at retirement.

This edition covers the impact that COVID-19 may have had on retirement savings in 2020. COVID-19 has threatened people's health and lives, and affected businesses, labour and financial markets since early 2020. It is therefore likely to have influenced trends in retirement savings as well, as these savings are closely linked to people's ability to work and contribute, the number of people contributing to a retirement savings plan and the performance of these contributions in financial markets.

The special feature in this year's edition looks into public pension reserve funds, providing an overview of their features and highlighting some of the commonalities and differences with providers of retirement savings plans.

The data used to prepare the first part of this report have been collected from national authorities within the framework of the OECD's Global Pension Statistics project, initiated in 2002 by the OECD Working Party on Private Pensions. The OECD's partnership with the International Organisation of Pension Supervisors (IOPS) and the World Bank in more recent years has broadened the geographical coverage of this report well beyond the 38 OECD countries.

The OECD is grateful to the IOPS and the World Bank who helped in the data collection, and to national authorities for providing data and comments.

This report was prepared by Romain Despalins under the supervision of Pablo Antolin and Stéphanie Payet from the Private Pension Unit of the OECD Directorate for Financial and Enterprise Affairs. Karen Castillo and Pamela Duffin provided editorial assistance.

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## COVID-19 impacts

| | | |
|---|---|---|
| **Decline in assets limited to early 2020** in most countries except when large early withdrawals happened | Policy responses to COVID-19 soften the impact of the lockdowns on contributions to pension plans | Largest early withdrawals happened when access to savings was unconditional |

## Assets at end-2020

| | | |
|---|---|---|
| **Over USD 56 trillion** worldwide, a 11% increase compared to end-2019 | Total OECD pension assets amounted to **100% of the overall OECD GDP** | Most assets are held in pension funds: **over USD 35 trillion** |

## Drivers of the trends

| | | |
|---|---|---|
| **More people have a pension plan than before** in most jurisdictions | **Contributions usually increased in 2020**, including in largest pension markets | Benefits paid to retirees still limited in a number of countries with recent funded pension systems |
| Average real investment rate of return in 2020:<br>**4.1%** in the OECD<br>**3.2%** in 32 other jurisdictions | **2 main asset classes drive investment performance**: bonds and equities | **Pension providers stayed the course** and usually maintained their investment strategies in 2020 |

## Types of pension plans

| | | |
|---|---|---|
| **Assets in DC and personal plans increased faster than in DB plans** in 14 out of the 19 countries reporting the breakdown | **The funding of DB plans improved in 2020 in most countries**. | Most countries cap some of the fees that pension providers can charge to members of DC schemes |

## Public pension reserve funds

| | | |
|---|---|---|
| **More than 20 OECD countries have a public pension reserve fund**<br>These reserve funds manage assets amounting **USD 7 trillion** | **3 main types of mandate**<br>Liquidity buffer<br>Temporary buffer<br>Permanent stabiliser | All reserve funds achieved a positive investment performance over a 10-year period |

# 1 Overview of retirement savings at end-2020

The OECD, in co-operation with the International Organisation of Pension Supervisors (IOPS) and the World Bank, collects detailed statistics on retirement savings plans every year to monitor the latest developments in the funded and private components of pension systems. Monitoring pension systems closely is key to assessing their strengths and identifying the challenges they face in a timely manner. This monitoring requires detailed and up-to-date statistics. All countries track and follow the developments in their pension systems through regular data collection exercises. The OECD, the IOPS and the World Bank contribute to this monitoring endeavour by gathering and publishing up-to-date national statistics on retirement savings plans, in a harmonised and comparable fashion, to the extent possible. The compilation of national statistics that follows aims at providing tools for cross-country comparisons.

This report covers all retirement savings plans where assets accumulate to finance future benefit payments. These assets can accumulate in pension funds, through pension insurance contracts or in other vehicles. These plans can be administered by a public or private entity and can cover public or private sector workers, the unemployed and even children in some countries. Employers' book reserves, which are private (unfunded) plans, are also included in this report. By contrast, reserves that some countries set aside to support the payments from public pay-as-you-go or unfunded schemes (such as Japan's Government Pension Investment Fund and Korea's National Pension Fund) are outside the scope of the first section of this report. However, the special feature this year provides a detailed analysis of public reserve funds. Annex A describes the features of retirement savings plans that are analysed hereafter in greater detail. This annex also specifies which types of plans exist in all reporting countries and whether data in this report cover these plans.

This section provides an overview of retirement savings, based on official statistics collected for 2020. It also looks into the trends during that year and over the longer term. As the data refer to end-2020, the analysis includes the potential impact that COVID-19 may have had on retirement savings. Countries were hit by the COVID-19 pandemic that threatened people's health and lives, affected businesses, labour and financial markets, as governments have tried to contain the spread of the virus through social distancing measures such as partial, local or national lockdowns, shutting down parts of their economy. Policy makers usually tried to cushion the blow for people through various economic support measures. Developments in labour and financial markets, as well as these economic support measures, may have influenced trends in the pension sector in 2020, as retirement savings are closely linked to people's ability to contribute, their salary, the number of people contributing into a retirement savings plan, and the performance of these contributions in financial markets.

The analysis shows that assets in retirement savings plans have continued to grow in 2020 despite COVID-19, exceeding USD 56 trillion worldwide at-end 2020. This growth was supported by an increase in the number of people participating in a retirement savings plan, an increase in the overall contributions into these plans and positive investment returns in many countries. Outflows from pension plans have exceeded inflows only in a few countries providing unconditional access to retirement savings in order to support people in the short-term during the pandemic. The shift away from defined benefit plans (DB) embedding benefit promises from plan sponsors towards defined contribution (DC) plans where the risk is

shared collectively or borne individually by members was still underway, alleviating pressure on plan sponsors although the funding position of DB plans withstood the crisis well.

This section first describes the size and the evolution of retirement savings, focusing on the amount of assets in pension plans, the proportion of individuals covered by these plans, contributions that these plans receive and the benefits they pay to retirees. Secondly, it shows the investment performance of pension assets and the way these assets were invested in 2020 and in the last decade. The last part of this section presents the size of DB and DC plans (in terms of assets) and the evolution of the pension landscape through the end of 2020, before looking further into some specificities of these plans (i.e. funding ratios for DB plans, fees charged to members for DC plans).

## 1.1. Size and evolution of retirement savings

### *1.1.1. Assets*

Substantial assets have been accumulated in retirement savings plans to finance future pension benefits around the world. Pension assets exceeded USD 56 trillion worldwide at the end of 2020, a 11% increase compared to end-2019 when they amounted to USD 50.6 trillion.[1] Pension assets were mainly accumulated in pension funds, representing over USD 35 trillion of assets at the end of 2020.[2] Some countries also use other vehicles to save for retirement. Examples include: pension insurance contracts sold by insurance companies (Denmark and France) or products offered and managed by banks and investment companies (individual retirement accounts - IRAs in the United States).

The amount of assets in retirement savings plans varies across countries. In absolute terms, the largest amounts were recorded in North America (Canada and the United States), Western Europe (the Netherlands, Switzerland and the United Kingdom), Australia and Japan, exceeding USD 1 trillion in these seven countries (Figure 1.1, Panel A). Lower amounts of assets were accumulated in the rest of the world, below USD 0.2 trillion in 70 out of the 92 reporting jurisdictions.[3]

In relative terms, differences also exist across countries. Comparing the amount of pension assets to the size of the economy, measured by GDP, gives a better picture of the relative importance of retirement savings plans domestically. Within the OECD area, 9 out of 38 countries had assets exceeding their GDP at the end of 2020 (Figure 1.1, Panel B). In countries like Iceland, assets accumulated may appear small (in USD terms) compared to other countries, but are high with respect to the size of their economy (207% of GDP). However, the amount of assets remained relatively low even when compared to GDP in a number of reporting jurisdictions, below 20% of GDP in 52 of them including some large and fast developing countries (e.g. China, India).[4]

[1] The estimate for 2020 is based on the total amount of investments relating to retirement savings plans. This amount is used as an estimate of total assets in retirement savings plans. While in general, the difference between assets and investments would be minimal, this difference may be more significant in some cases, such as in the United States, where claims of pension funds on the plan sponsors are considered as assets of the (defined benefit) plan but not as investments.

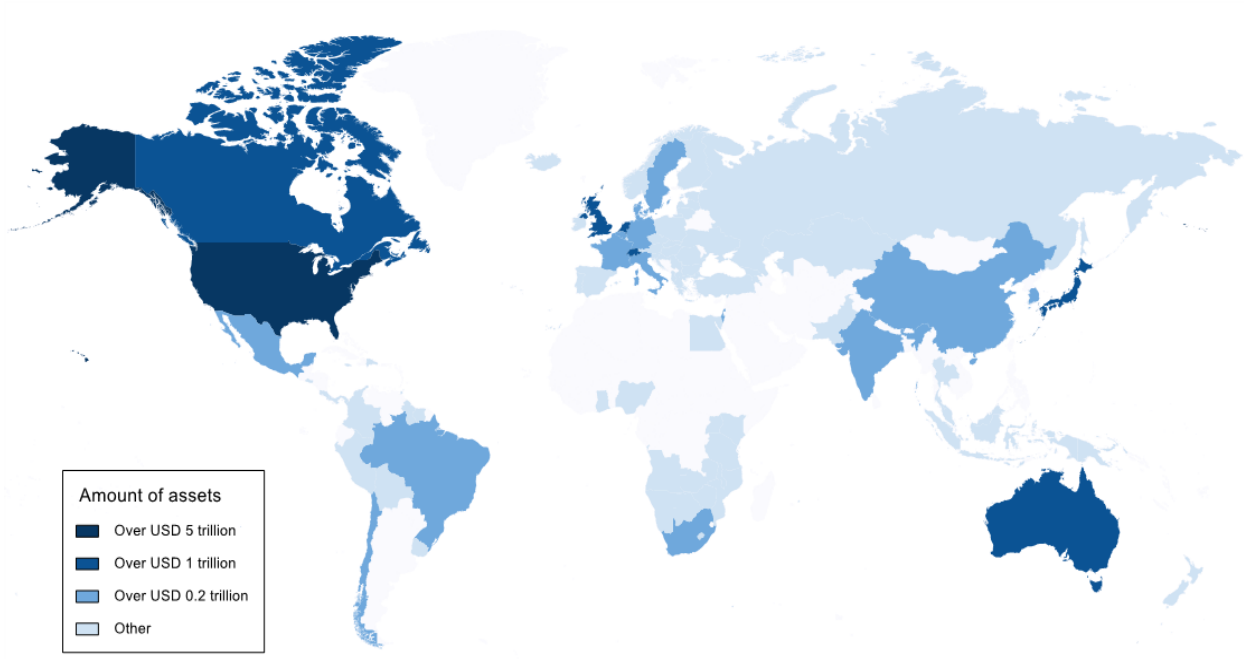
[2] See OECD Pension Funds in Figures 2021.

[3] The total amount of assets in retirement savings plans is available in millions of national currency in Table A.B.1, in USD million in Table A.B.2 and as a percentage of GDP in Table A.B.3 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

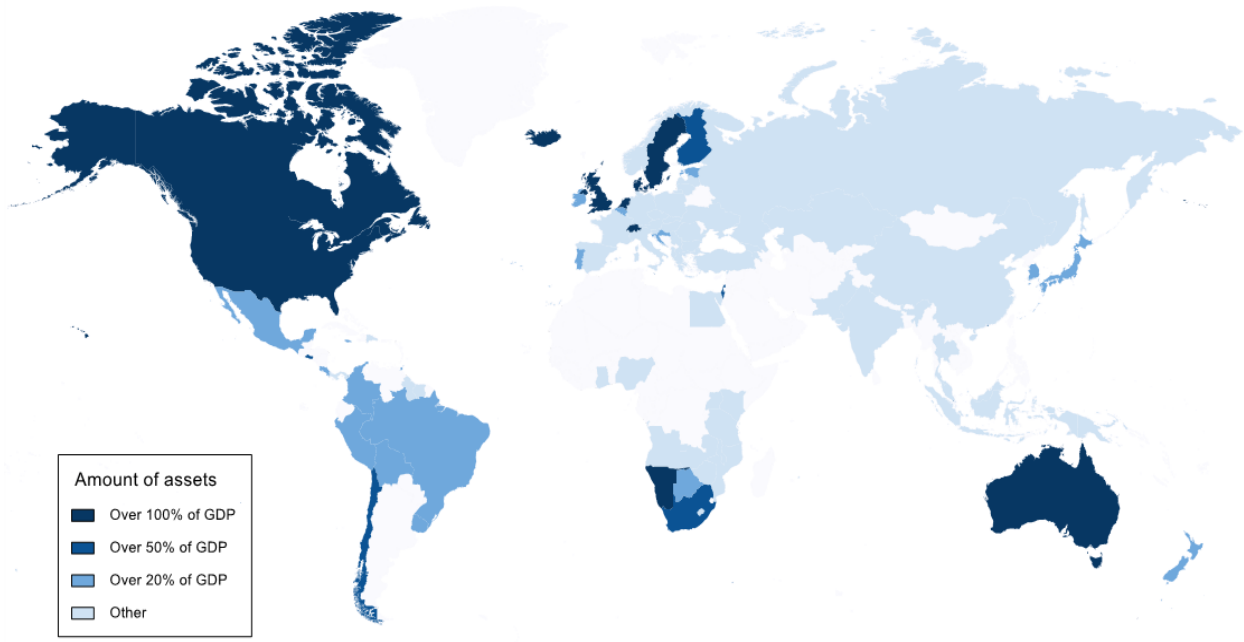
[4] Statistics in some jurisdictions only cover a part of their retirement savings plans. Please see the methodological notes and Annex A for more information about the data coverage.

## Figure 1.1. Assets in retirement savings plans around the world, 2020 or latest year available

A. In USD trillion




B. As a percentage of GDP

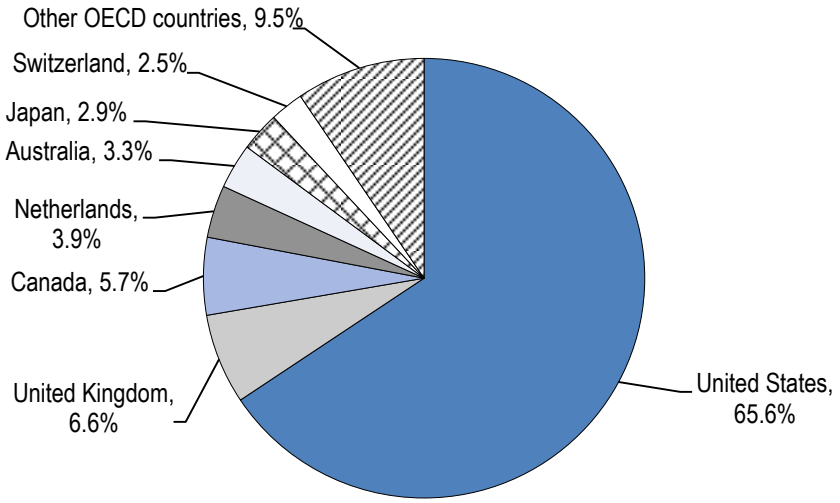



Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Seven out of the 38 OECD countries held more than 90% of the total pension assets within the OECD area. The United States has the largest pension market within the OECD, with assets worth USD 35.5 trillion, representing 65.6% of the OECD area total (Figure 1.2). The United Kingdom recorded the second largest amount (USD 3.6 trillion, i.e. 6.6% of OECD area pension assets), followed by Canada (USD 3.1 trillion, 5.7% of OECD area pension assets), the Netherlands (USD 2.1 trillion, 3.9% of OECD area pension assets), Australia (USD 1.8 trillion, 3.3% of OECD area pension assets), Japan (USD 1.6 trillion, 2.9% of OECD area pension assets) and Switzerland (USD 1.3 trillion, 2.5% of OECD area pension assets). The 31 other OECD countries jointly hold the remaining 9.5% of pension assets in the OECD area.

### Figure 1.2. Geographical distribution of pension assets in the OECD area, 2020

As a percentage of total pension assets

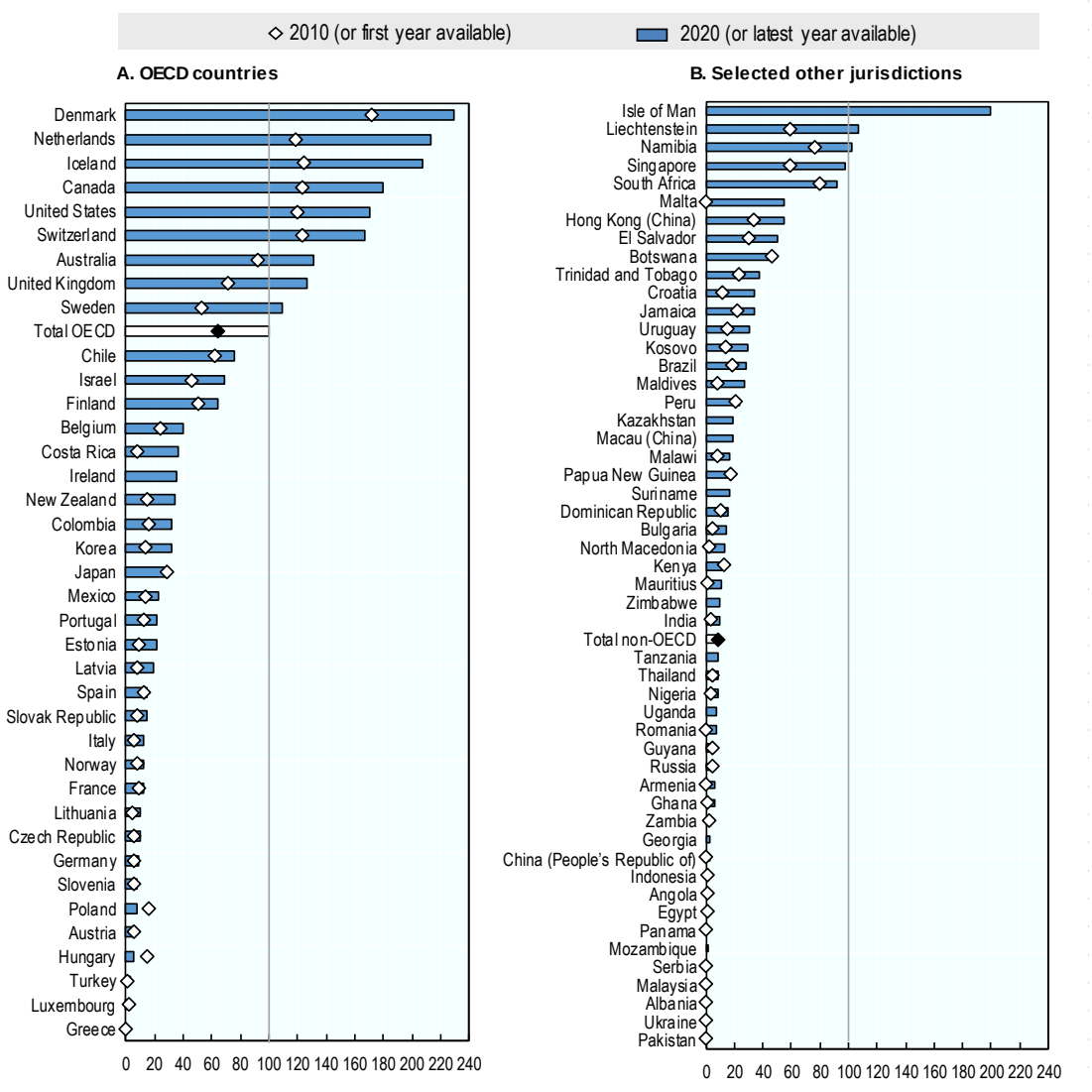



Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Pension assets have increased faster than GDP over the last decade, highlighting the growing importance of retirement savings worldwide. Figure 1.3 shows that the total of all pension assets over total GDP in the OECD area rose from 64% at end-2010 to 100% ten years later. Pension assets in the OECD area therefore matched the sum of the GDP of all OECD countries at end-2020. However, there are differences across countries. Nine OECD countries had pension assets exceeding their GDP at end-2020, compared to six at end-2010. As in 2010, Denmark topped the ranking in 2020, with assets worth 229% of GDP, followed by the Netherlands (213%) and Iceland (207%) in the OECD area. Pension assets have also grown strongly in some non-OECD jurisdictions, exceeding GDP in some cases such as in Liechtenstein (106%) and Namibia (102%). By contrast and despite some increases, pension assets still represented less than 1% of GDP at the end of 2020 in some countries (Albania, Greece and Serbia).

## Figure 1.3. Total assets in retirement savings plans, in 2010 (or first year available) and 2020 (or latest year available)

As a percentage of GDP



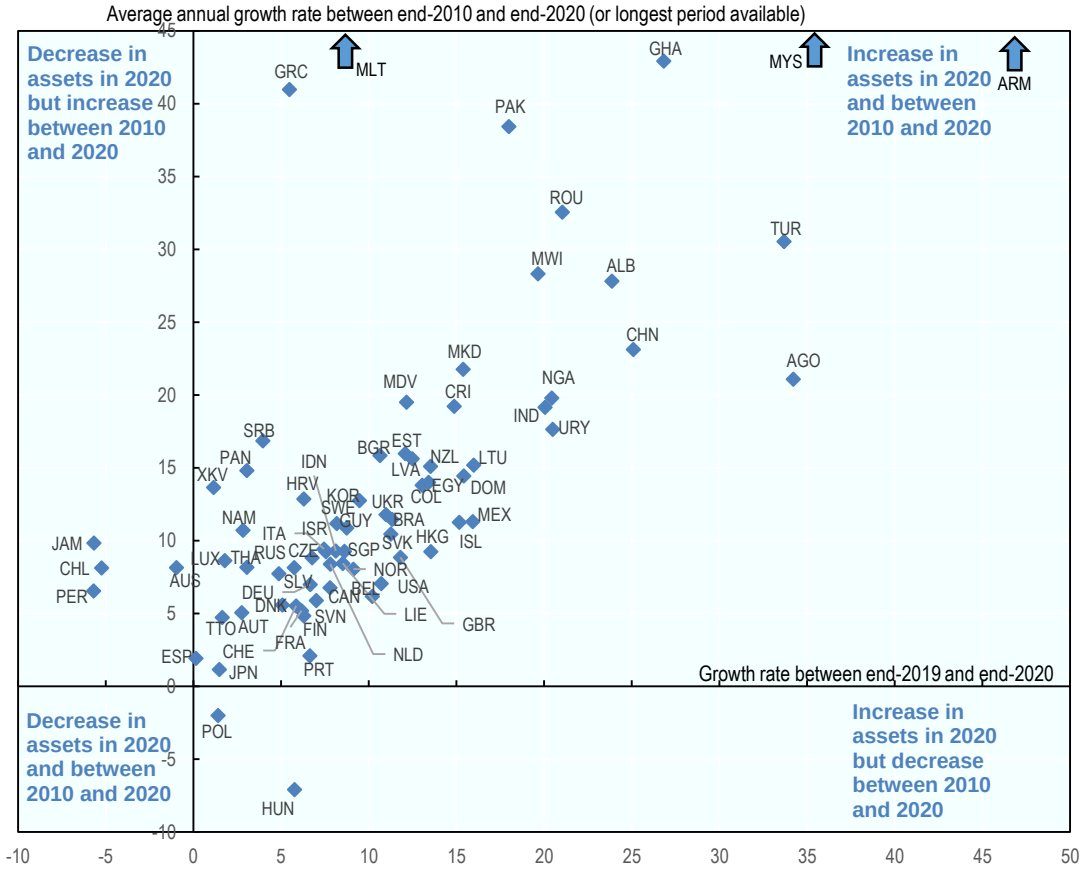

Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

In nominal terms, pension assets grew in all reporting jurisdictions between 2010 and 2020, except in Hungary and Poland (Figure 1.4). This growth has been especially fast in countries with young funded pension systems and small amounts of pension assets relative to the size of their economy (Armenia, Greece and Romania). Armenia and Romania phased in mandatory participation in pension plans relatively recently (in 2014 and in 2008 respectively). These plans are in an accrual phase as they gain contributing members while none or few have yet to receive benefits. Greece also introduced occupational insurance funds relatively recently (in 2002). The large rise of pension assets in Greece was due to the transformation of four funds operating on a pay-as-you-go basis into funded occupational schemes in 2013. By contrast,

the amount of pension assets was lower in 2020 than in 2010 in Hungary and Poland, following a reform of the pension system in these countries in 2011 and 2014 respectively.[5]

## Figure 1.4. Annual nominal growth rates of pension assets between end-2019 and end-2020 and between end-2010 and end-2020 (or longest period available) in selected OECD and other jurisdictions

In per cent




Note: Arrows are for countries whose values are outside the range of the axes. Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Almost all jurisdictions recorded larger amounts of pension assets at the end of 2020 than a year before, despite an initial decline of pension assets in early 2020 due to COVID-19. Financial markets plunged at the onset of the outbreak as governments shut down parts of their economies to contain the spread of COVID-19, leading to a fall in the value of pension assets in Q1 2020 in many jurisdictions (OECD, 2020). However, financial markets rebounded in the following quarters, and so did assets in retirement savings

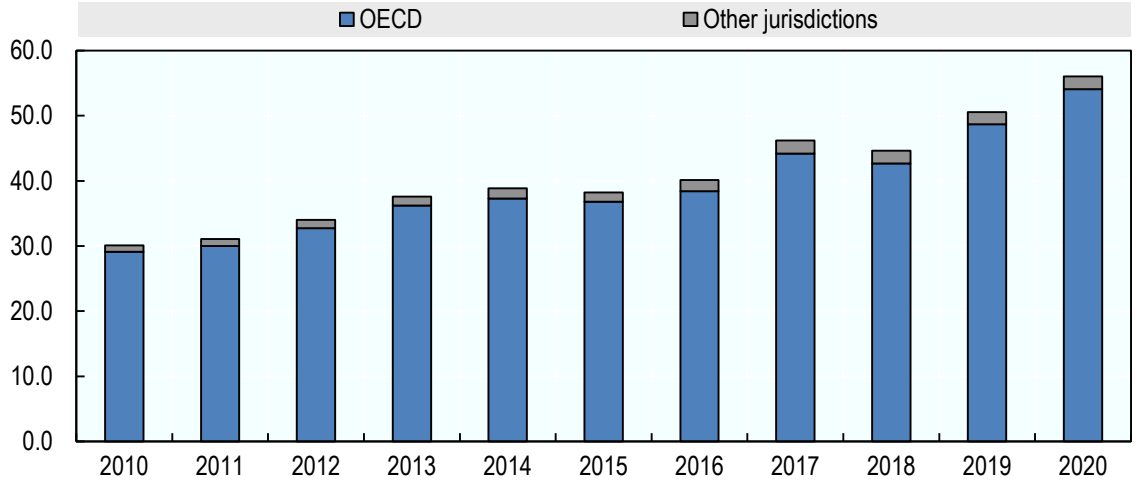
[5] In Hungary, new entrants to the labour market have been enrolled in the public pay-as-you-go system only and no longer in a funded pension plan since 2011 following a pension reform. Members of the previously mandatory funded pension plans were given the choice of keeping their accounts or transferring their assets into the pay-as-you-go system. Most participants chose to switch back to the pay-as-you-go system. In the case of Poland, domestic sovereign bonds that were held by open pension funds were transferred to the social security system in 2014, and contributions to open pension funds became voluntary.

plans. By end-2020, asset levels had grown at the same pace, if not faster, than on average in the last decade in most of the largest pension markets. Examples include: Canada (7.8% in 2020 compared to 6.8% on average per year over the last decade), Japan (1.5% compared to 1.2%), Switzerland (5.8% compared to 5.5%), the United Kingdom (11.8% compared to 8.9%) and the United States (10.7% compared to 7.1%). Jurisdictions recording the highest asset growth in 2020 include Angola (34.2%), Armenia (47%), Malaysia (35.7%) and Turkey (33.7%), partly as a result of growing numbers of members or strong investment performance (Armenia).[6] By contrast, assets declined in Chile (-5.2%) and Peru (-5.7%) where members could withdraw a part of their savings unconditionally, and in Australia (-1%) and Jamaica (-5.7%) where domestic financial markets had not recovered by the end of the reporting period (which is end-June 2020 in Australia).

Assets in retirement savings topped USD 56 trillion worldwide at the end of 2020, pursuing their long-term upward trend (Figure 1.5). OECD countries totalled USD 54 trillion pension assets, while other reporting jurisdictions totalled USD 2 trillion. The drop in 2018 is due to the sharp fall in equity markets in the last quarter of 2018.

### Figure 1.5. Total amount of assets in retirement savings plans in the OECD area and in other jurisdictions, 2010-2020

in USD trillion




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Multiple factors usually account for trends in pension assets, such as the evolution of people having a pension plan, their contributions, the benefits that these plans pay to retirees and the financial performance of pension assets. The subsequent subsections of this report examine these factors in detail.

### *1.1.2. Coverage*

Participation in a retirement savings plan may be mandatory, voluntary or encouraged through automatic enrolment. Employers may be obliged by law to set up a pension plan for their employees who then have to join the plan (e.g. Finland, Norway, Switzerland). In Denmark, the Netherlands and Sweden, the

[6] See the following subsections of this report on the coverage and investment rates of return of retirement savings plans.

legislation does not require employers to set up a plan for their employees. However, participation in a plan in these countries is quasi-mandatory as the decision is made at the industry or branch level through collective bargaining agreements. Some Latin American and European countries do not require employers to set up a plan for their employees but require employees to join a private pension fund of their choice (Chile, Colombia and Mexico) or a state funded pension plan (Denmark). By contrast, in a number of other countries (Austria, the Czech Republic and France), there is no compulsion for employers to set up an occupational plan or for employees to open an individual pension account. In-between, some countries use soft compulsion to encourage employees to participate in a plan through their automatic enrolment (Lithuania, New Zealand, Poland, Turkey and the United Kingdom). In these countries, employers are usually responsible for enrolling their employees in a pension plan under certain conditions.[7] Employees, however, have the option to opt out of the plan within a certain timeframe.[8]

Individuals may participate in several different types of plans. They may have to participate in a mandatory plan accessed through their work and may also contribute voluntarily to a pension plan that they open on their own. In some countries, they could be members of several voluntary plans, contributing to the occupational plan of their current employer while retaining rights in the plans of their former employers.

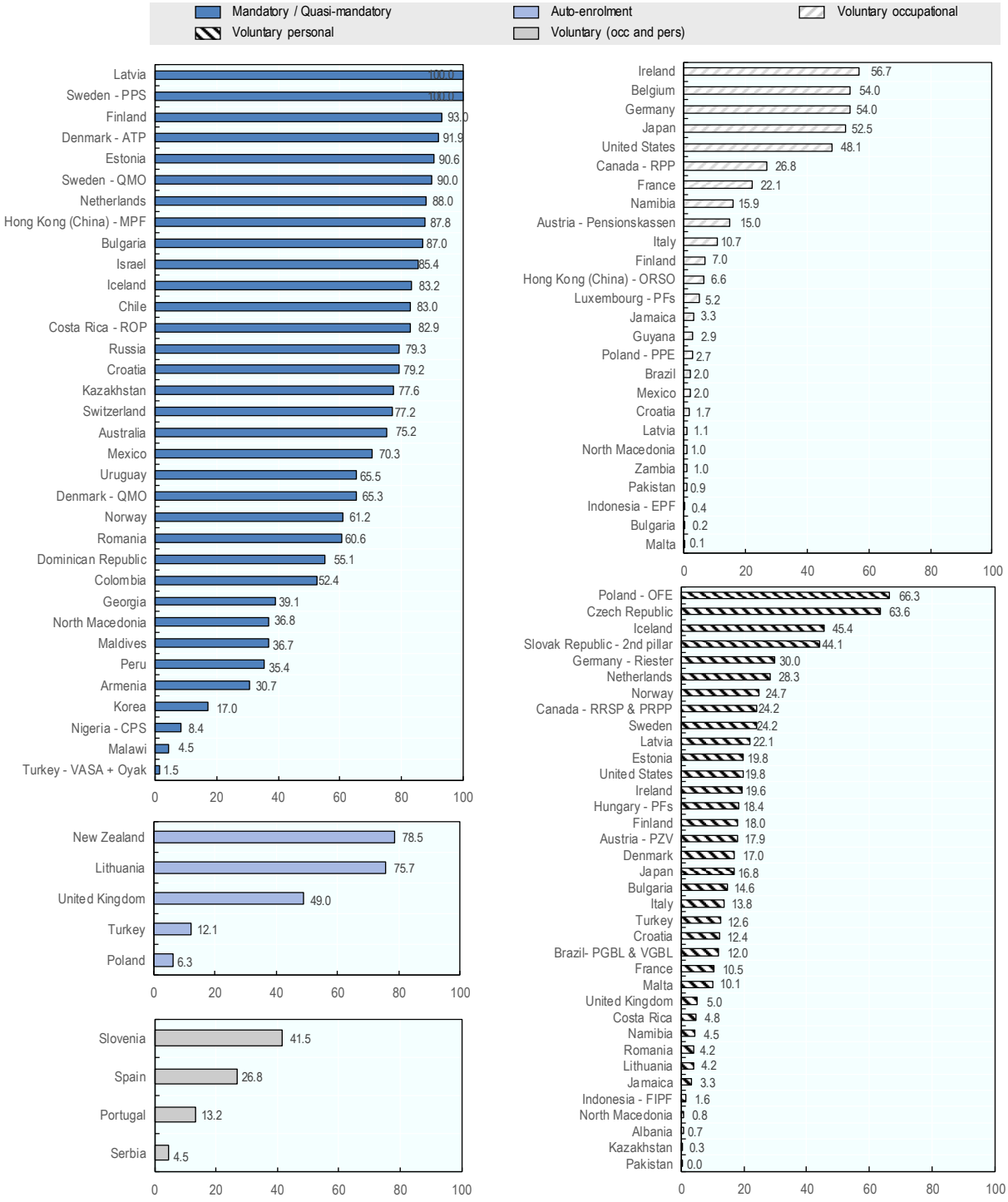
The proportion of the working-age population having a retirement savings plan is usually relatively high when participation is mandatory. Mandatory pension plans cover more than 75% of the working-age population in 17 out of the 32 OECD and non-OECD reporting jurisdictions where such plans exist (Figure 1.6). In several Northern European countries (namely Denmark, Estonia, Finland, Iceland, Latvia and Sweden), nearly all the working-age population participates in a mandatory retirement savings plan. The coverage of mandatory individual accounts is also nearly universal in Chile (83%) and Costa Rica (82.9%) but this is not the case in some other Latin American countries such as Colombia (52.4%) and Peru (35.4%) where people can choose to participate either in the public pay-as-you-go or private funded pension system. The high level of informality in these countries (ILO, 2018) may also account for the relatively lower coverage rate of mandatory plans covering formal workers. Informality is also probably responsible for the low coverage of contributory pension schemes in Nigeria (8.4%). Participation in mandatory or quasi-mandatory plans is also relatively limited in countries where this obligation applies to certain employees only (e.g. military personnel in Turkey, employees born in 1974 or later in Armenia).

[7] Lithuania does not rely on employers to implement automatic enrolment. Employers have the duty to calculate and transfer the contributions of employees to the State Social Insurance Fund Board (SoDra). SoDra enrols employees and self-employed into a pension fund (OECD, 2019).

[8] In Turkey, participants can suspend contribution payments and begin making payments anytime they wish, while remaining in the system. They can also leave the system anytime by withdrawing their accumulated assets.

## Figure 1.6. Coverage of retirement savings plans in selected OECD and other jurisdictions

As a percentage of the working-age population




Note: Please see the methodological notes at the end of the report.

Source: OECD Global Pension Statistics; ABS Household Income and Wealth 2017-18 (Australia); FSMA Annual Report 2020 (Belgium); Statistics Canada; ATP Annual Report 2020 and Danish Insurance Association (Denmark); DREES (France); Survey on Pension Provision 2019 of the Federal Ministry of Labour and Social Affairs (Germany); Central Statistical Office (Ireland); Ministry of Health, Labour and Welfare (Japan); OECD Pensions Outlook 2012 (Netherlands); Finance Norway; Poland's Financial Supervision Authority; 2017 edition of the survey "Inquérito à Situação Financeira das Famílias (ISFF)" (Portugal); Survey of Household Finances (EFF) 2017 of the Bank of Spain; Statistics Sweden for voluntary personal plans; DWP's Family Resources Survey 2019/20 (United Kingdom); 2019 National Compensation Survey (United States).

Some countries have managed to reach similar coverage rates of their working-age population as some mandatory systems through the automatic enrolment of workers in a retirement savings plan, while giving them the option to opt out. In New Zealand, 78.5% of the working-age population had a KiwiSaver plan in 2020, 13 years after starting enrolling newly hired employees automatically into this programme. The coverage rate of second pillar pension plans is also relatively high in Lithuania (75.7% at end-2020), which introduced its automatic enrolment programme in 2019. Before 2019, participation in a second pillar pension plan was voluntary in Lithuania and employees could choose to opt in (but could not leave once in). Since 2019, the State Social Insurance Fund Board enrols both employees and the self-employed aged under 40 into a plan (OECD, 2019). The proportion of the working-age population with an employment-related pension plan is lower but still close to 50% in the United Kingdom where employers are required since 2012 to enrol automatically all eligible workers (i.e. workers with no employment-related plan, aged between 22 and the state pension age and earning more than GBP 10 000 a year).[9] By contrast, the coverage rates of automatic enrolment plans were lower in Poland (6.3%) and Turkey (12.1%), where the automatic enrolment programme started in 2019 and 2017 respectively.

Participation in voluntary plans varies across countries. More than half of employees in Germany and Ireland, and more than half of the working-age population in Belgium, the Czech Republic, Japan and Poland are covered by a voluntary plan. None of these countries (except Poland before 2014) has mandatory plans where all the working-age population has to contribute.[10] Saving for retirement was therefore only possible through voluntary participation in these countries. The participation in voluntary plans was much lower in some other countries, especially in Albania, Bulgaria, Pakistan and Kazakhstan. In Bulgaria and Kazakhstan, however, many individuals are already participating in mandatory funded plans, covering 87% and 77.6% of the working-age population respectively. The low take-up of voluntary plans in Albania and Pakistan might be due to a lack of awareness of these plans or a lack of interest of a large part of population (especially the young) in private pensions.[11]

More people tend to hold a retirement savings plan than ten years ago, independently of whether participation in a plan has been mandatory, voluntary or encouraged through soft compulsion (Table 1.1). The membership base has usually increased the fastest in jurisdictions that introduced auto-enrolment and mandatory plans recently, such as in Armenia (with 3.9 percentage points more of the working-age population covered by an employment-related plan on average per year since participation became mandatory in 2014), New Zealand (3.7 percentage points more per year in the last decade), Croatia (3.1), Israel (2.9), Bulgaria (2.7), Estonia (2.3), the United Kingdom (2.2) and Latvia (2.1). The increase in the proportion of people having a retirement savings plan was more limited in countries where most of the working-age population was already in a plan in 2010 (e.g. in ATP in Denmark), but also at the other extreme in some countries where the coverage rate was relatively low (e.g. Italy, Nigeria) for different specific reasons. In the case of Italy, automatic enrolment into a pension fund has been competing with a previously existing severance system.[12] In Nigeria, informality has probably slowed down the enrolment of people in a mandatory employment-related plan.

[9] Self-employed are not required by law to enrol themselves in a plan in the United Kingdom.

[10] Participation in open pension funds used to be mandatory in Poland before 2014. The proportion of people still having a plan in open pension funds was still high in 2020.

[11] https://www.tiranatimes.com/?p=142723

[12] In Italy, employees value their severance system and often opt out from auto-enrolment, preferring to keep the new accruals of severance pay in the system and not to divert them into a pension plan. The overwhelming majority of those who actually enrolled in a pension plan made the explicit choice to join the plan and pay additional contributions, in order to get the matching contributions by the employer – therefore they are not counted as auto-enrolled.

## Table 1.1. Variation in the coverage of retirement savings plans between 2019 and 2020, and between 2010 (or the first year available) and 2020 on average per year, by type of plan

In percentage points of the working-age population

| Mandatory | Variation between 2019 and 2020 | Average variation per year between early 2010s and 2020 |
|---|---|---|
| Georgia | 6.2 | .. |
| Denmark - ATP | 5.8 | 1.2 |
| Hong Kong (China) - MPF | 3.2 | .. |
| Armenia | 3.0 | 3.9 |
| Croatia | 2.6 | 3.1 |
| Estonia | 2.4 | 2.3 |
| Mexico | 2.2 | 1.4 |
| Romania | 1.9 | .. |
| Bulgaria | 1.9 | 2.7 |
| Costa Rica - ROP | 1.8 | .. |
| North Macedonia | 1.7 | 1.8 |
| Norway | 1.6 | 1.1 |
| Dominican Republic | 1.4 | .. |
| Colombia | 1.3 | 2.0 |
| Peru | 1.0 | 1.0 |
| Uruguay | 0.8 | .. |
| Nigeria - CPS | 0.6 | 0.3 |
| Malawi | 0.2 | 0.4 |
| Israel | 0.2 | 2.9 |
| Russia | 0.2 | 0.2 |
| Maldives | 0.1 | 1.7 |
| Latvia | 0.0 | 2.1 |
| Kazakhstan | -0.7 | .. |
| Chile | -4.9 | 0.6 |

| Automatic-enrolment | Variation between 2019 and 2020 | Average variation per year between early 2010s and 2020 |
|---|---|---|
| Poland | 5.0 | .. |
| Lithuania | 1.5 | .. |
| New Zealand | 1.1 | 3.7 |
| Turkey | 1.0 | .. |
| United Kingdom | 1.0 | 2.2 |

| Voluntary (occupational and personal) | Variation between 2019 and 2020 | Average variation per year between early 2010s and 2020 |
|---|---|---|
| Slovenia | 0.6 | 0.3 |
| Serbia | 0.1 | 0.1 |

| Voluntary occupational | Variation between 2019 and 2020 | Average variation per year between early 2010s and 2020 |
|---|---|---|
| Japan | 0.7 | .. |
| Italy | 0.3 | 0.3 |
| Austria - PF | 0.2 | 0.3 |
| Poland - PPE | 0.1 | 0.1 |
| Guyana | 0.1 | 0.1 |
| Jamaica | 0.1 | 0.0 |
| Albania | 0.0 | 0.1 |
| Bulgaria | 0.0 | 0.0 |
| Latvia | 0.0 | 0.0 |
| North Macedonia | 0.0 | 0.1 |
| Malta | 0.0 | .. |
| Croatia | 0.0 | 0.1 |
| Luxembourg - PFs | 0.0 | 0.0 |
| Indonesia - EPF | 0.0 | 0.0 |
| Hong Kong (China) - ORSO | -0.1 | -0.1 |

| Voluntary personal | Variation between 2019 and 2020 | Average variation per year between early 2010s and 2020 |
|---|---|---|
| Estonia | 8.7 | 0.6 |
| Malta | 4.0 | .. |
| Slovak Republic (P2) | 2.1 | 0.7 |
| Norway | 1.7 | -0.2 |
| Japan | 1.4 | .. |
| Brazil - PGBL & VGBL | 1.1 | 0.5 |
| Latvia | 1.1 | 1.3 |
| Italy | 1.0 | 0.7 |
| Jamaica | 0.3 | 0.3 |
| Bulgaria | 0.3 | 0.3 |
| Romania | 0.2 | .. |
| Lithuania | 0.2 | .. |
| Croatia | 0.2 | .. |
| Albania | 0.1 | 0.1 |
| North Macedonia | 0.1 | 0.1 |
| Hungary - PFs | 0.0 | -4.5 |
| Costa Rica | 0.0 | .. |
| United Kingdom | 0.0 | .. |
| Indonesia - FIPF | 0.0 | 0.0 |
| Kazakhstan | 0.0 | .. |
| Turkey | -0.1 | .. |
| Poland - OFE | -0.2 | 0.8 |
| Czech Republic | -0.6 | .. |
| Austria - PZV | -1.2 | -1.0 |

Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics and other sources.

Participation in a voluntary retirement savings plan only fell compared to 10 years ago in the case of occupational plans (ORSO plans) in Hong Kong (China) (-0.1 percentage point of the working-age population covered per year on average over the last decade), personal plans in Norway (-0.2), PZV contracts in Austria (-1) and pension funds in Hungary (-4.5).[13] In Hong Kong (China) with the introduction of mandatory provident fund schemes in 2000, some employers chose to close or reduce the size of their voluntary ORSO schemes.[14] In Austria, the number of PZV contracts was increasing until 2012 but has been declining afterwards, following a cut in government subsidies and a low return outlook given the low interest rate environment. In the case of Hungary, the coverage rate dropped as participation in a plan (mandatory before 2011) became voluntary.

Governments have tried to increase the coverage of retirement savings plans in different ways. Lithuania was one of the latest countries to introduce an automatic enrolment programme (for all workers below 40). Some other countries have aimed to increase the coverage rate of certain groups of people in particular (such as Korea, Kenya and Nigeria). In July 2017, Korea extended the scope of people eligible to open an individual retirement pension plan (IRP) to the self-employed, workers with less than one year of service, part-time workers, government employees and members of the armed forces. Kenya has recently launched pension products targeting workers in the informal sector. Likewise, Nigeria launched a micro pension plan in 2019 to expand the coverage of workers in the informal sector. To encourage people to open and contribute to a pension plan, some countries, such as Malta, are also using financial incentives (OECD, 2020). Over the past few years, Malta introduced incentives in the form of tax credits to encourage Maltese people to save for retirement.

The growth of the membership base has continued in 2020. The rising number of members was particular strong for mandatory plans in Georgia (introduced in 2019) and employee capital plans (PPK) in Poland, even though Poland's initial deadline for the second of its four-stage schedule to introduce automatic enrolment (applying to companies with between 50 and 250 employees) was postponed because of COVID-19. The number of members contributing to ATP in Denmark also soared in 2020 (+5.8 percentage points of the working-age population compared to 2019). The growth rate of members in 2020 was sometimes close to the 10-year annual average for a number of plans, such as in the second pension pillar in Estonia (2.4 in 2020 compared to 2.3 on average over the last decade), in mandatory plans in North Macedonia (1.7 in 2020 compared to 1.8 on average over the last decade), in voluntary occupational plans in Italy (0.3 both in 2020 and on average over the last decade).[15] The proportion of the working-age population with a pension plan also continued to increase but at a slower pace than over the past decade in some cases, such as for mandatory plans in Israel (+0.2 percentage points of the working-age population in 2020, compared to 2.9 on average over the last decade), KiwiSaver plans in New Zealand (1.1 in 2020 compared to 3.7 over the last decade) and employment-related plans in the United Kingdom (1 in 2020 compared to 2.2 over the last decade), as the pandemic may have slowed the rate of new joiners or participation in employment-related schemes might have hit a ceiling among eligible employees.[16,17]

The growth in members was positive in most countries in 2020, likely as a result of job retention schemes and other policy measures intending to mitigate the impact of COVID-19 on the labour markets and helping

[13] PZV contracts are personal pension insurance contracts.

[14] New ORSO regulation may affect corporate retirement offerings | Asia Asset Management

[15] The increase in the proportion of working-age population holding a third pillar pension plan in Estonia was much larger in 2020 than on average over the last ten year due to less favourable withdrawal conditions for those joining the third pillar from 2021. See https://news.err.ee/1156063/5-400-people-joined-voluntary-third-pension-pillar-in-october

[16] See https://www.pensions-expert.com/DC-Auto-enrolment/Pandemic-dampens-DC-membership-growth-in-2020

[17] See Auto-enrolment participation stagnates in 2020 - DC & Auto-enrolment - Pensions Expert

employees to keep their jobs or retain rights in their retirement savings plans during the pandemic. Yet, the proportion of people holding a retirement savings plan relative to the working-age population declined in a few countries such as in Chile.

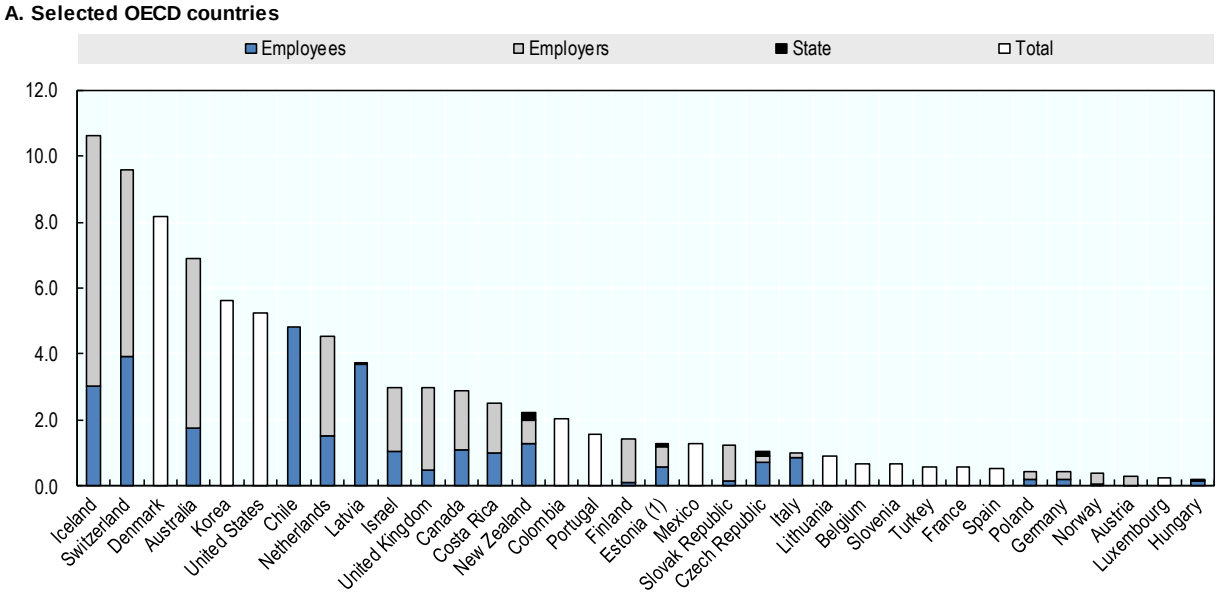
### *1.1.3. Contributions*

The total amount of contributions into retirement savings plans depends on the proportion of people having access and joining a plan, the proportion among them actually contributing to these plans and the amount of payments made on their behalf or they made directly.[18] The payments may be made by members themselves, their employers or the state (e.g. matching contributions or other financial incentives).

The largest amounts of contributions into retirement savings plans were recorded in 2020 in countries with mandatory funded pension plans. Relative to the size of their economy, contributions were the largest in Iceland (10.6% of GDP), Switzerland (9.6%), the Dominican Republic (8.5%), Denmark (8.2%) and Australia (6.9%) (Figure 1.7).[19] Participation in a pension plan is mandatory in all these countries, and the proportion of people having a plan is relatively high (between 55% and 92% of the working-age population). Plans in these countries receive contributions from both employers and employees. By contrast, pension plans received the lowest amount of contributions in the voluntary pension system in Pakistan, and in Albania where participation in a plan is voluntary and less than 2% of the working-age population holds a pension plan.

**Figure 1.7. Employer, employee and state contributions paid to retirement savings plans, in selected OECD and other jurisdictions, 2020 (or latest year available)**

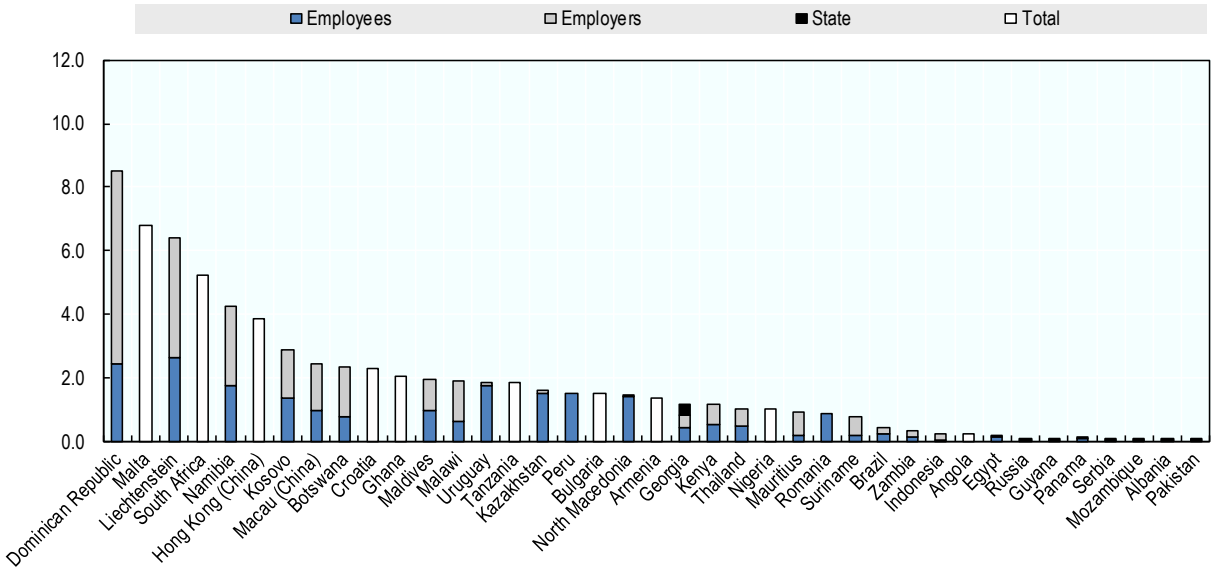
As a percentage of GDP




[18] The proportion of individuals actively saving for retirement and making contributions to a plan may be lower than the proportion of individuals having a plan, as individuals with a plan may not necessarily contribute to it. They may simply hold rights in their former employers' plan or may have assets in their personal plan but may not contribute to it on a regular basis.

[19] Contributions into retirement savings plans (as a percentage of GDP) are also available for each reporting country and each year between 2010 and 2020 in Table A.B.4 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

**B. Selected other jurisdictions**




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Regulation usually sets a contribution rate for mandatory and auto-enrolment plans. The responsibility to pay the contributions may fall on the employees (e.g. in Chile, Croatia, Ghana, Kazakhstan, North Macedonia, Peru, Romania), on the employers (e.g. in Australia, Korea, Norway, the Slovak Republic) or on both (e.g. in Estonia, Iceland, Switzerland). This obligation may only apply to certain employees or under certain conditions (e.g. mandatory employer contributions only for employees earning at least AUD 450 a month in Australia).[20] Romania has recently exempted workers in the construction sector from contributing to mandatory pension plans for the period 2019-2028. Contributions may be complemented by state matching contributions (e.g. New Zealand, Turkey) or subsidies (e.g. social quota in Mexico).

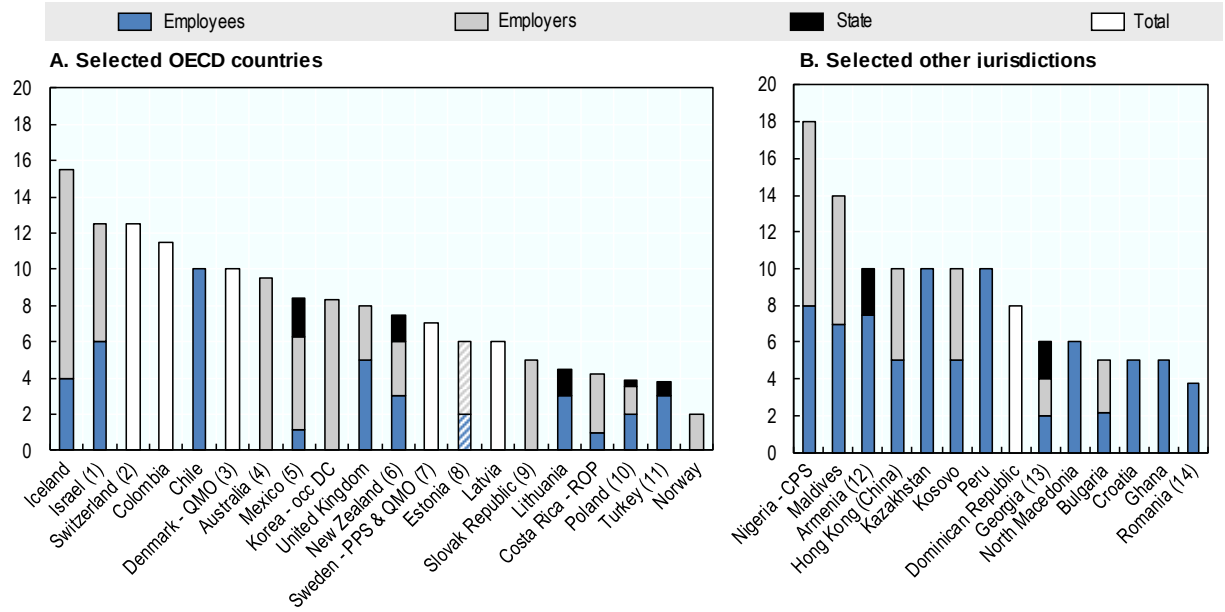
Mandatory contribution rates are fixed at different levels across countries. Iceland, Israel and Switzerland have the highest among OECD countries, respectively at 15.5%, 12.5% and 12.5% on average (Figure 1.8), which probably accounts for the high amount of contributions (relative to GDP) in these countries, together with the high coverage rates of these plans.[21] Nigeria has even a higher mandatory contribution rate outside the OECD area – at 18% of salary for its contributory pension scheme (CPS), split between employers (10%) and employees (8%) – but a low proportion of the working-age population participates in this scheme (less than 10%), which is the reason why the overall amount of contributions is relative low (at 1% of GDP). Mandatory contribution rates also represent over 10% of salary in two other countries: Colombia (11.5%) and the Maldives (14%). By contrast, Norway has the lowest mandatory contribution rate among the reporting countries (2% paid by the employer). Employers and employees can however, agree on whether employees have to contribute on top of employer contributions. These mandatory contribution rates sometimes vary by income or by sector in which employees work (e.g. public or private in Mexico). In Kazakhstan, employers have to pay an additional mandatory contribution of 5% of salary for workers in hazardous jobs.

[20] The Australian government announced in May 2021 that it would remove the earning threshold to expand coverage regardless of the monthly salary of people. This measure will apply from 1 July 2022. Find out more at: Removing the $450 per month threshold for super guarantee eligibility | Australian Taxation Office (ato.gov.au)

[21] In Switzerland, the contribution credits to pay vary by age group, from 7% between 25 and 34 years of age, up to 18% for those aged above 55.

## Figure 1.8. Minimum or mandatory contribution rates (for an average earner) in mandatory and auto-enrolment plans (unless specified otherwise), 2020 (or latest year available)

As a percentage of earnings




Note: Please see the methodological notes at the end of the report.
Source: SSA country profiles and other sources.

Some countries have adjusted their mandatory or minimum contribution rates over the years. In New Zealand, the minimum contribution rates to KiwiSaver plans rose from 2% to 3% of gross salary for both the employee and the employer in April 2013. The United Kingdom increased the minimum contribution rates from 1% to 2% of qualifying earnings for employers and from 1% to 3% for employees in April 2018, and then to 3% for employers and 5% for employees in April 2019. The contribution rate in the Slovak Republic decreased between 2012 and 2016 (from 9% to 4% of the salary) but has been recently increasing since 2017 by 0.25 percentage point every year with the goal of reaching 6% from 2024. By contrast, the contribution rate declined in Romania from 5.1% in 2017 to 3.75% in 2018.[22] Lithuania changed the minimum contribution rates in 2019 with the introduction of its automatic enrolment programme. Before 2019, workers participating in the second pillar had 2% of their salary diverted from social contributions and could contribute an additional 2% of their salary to benefit from the state contribution of 2% of the average salary. Since 2019, social contributions are no longer diverted. Workers enrolled in a plan have to contribute at least 3% of their income, and receive an additional contribution from the state of 1.5% of the average salary.[23] Mexico decided in 2020 to increase the employer contributions and adjust government contributions (starting from 2023).[24] In Armenia, the overall contribution rate (10% of the salary) is staying the same, but the share paid by the employee is increasing

[22] This measure was enacted simultaneously with changes in the Fiscal Code with respect to gross wages. All in all, nominal contributions to the second pension pillar in 2018 were higher than those of 2017.

[23] The default contribution rate for new members and those already in the supplementary pension scheme before 2019 who were not making voluntary contributions is lower. This rate will gradually rise to 3% between 2019 and 2023, with a growing state contribution (from 0.3% to 1.5% of the average salary in the country).

[24] See for more details: International Update, February 2021: Recent Developments in Foreign Private & Public Pensions, Social Security & Retirement (ssa.gov)

progressively (from 2.5% of salary in 2020 to 5% in 2023) while the share that the state pays is declining to the same extent.

Some countries have been flexible regarding mandatory contribution rates as a response to COVID-19. They have allowed temporary reductions, postponements or suspensions of mandatory contributions to retirement savings plans (OECD, 2020). For example, employer contributions were lowered by 2.6 percentage points from 1 May 2020 and until the end of 2020 in Finland.[25] Employers and self-employed in Finland could also agree with their pension provider to postpone the payment of pension contributions into earnings-related pension plans by three months and pay a 2% interest on these delayed contributions (but with no penalty on late contributions). In Colombia, mandatory contributions to the personal pension system were reduced from 16% to 3% for April and May 2020.[26] Estonia suspended employer contributions of 4% of salary to the second pension pillar between 1 July 2020 and 31 August 2021.[27] Members were also given the possibility to stop their own contributions between 1 December 2020 and 31 August 2021.

On top of the minimum mandatory contributions, individuals or their employers may have the option of making additional voluntary contributions. In New Zealand, the minimum contribution rate for KiwiSaver plans has been 3% for employees since 1 April 2013. Members can however select a higher personal contribution rate of 4%, 6%, 8% or 10% of salary. In Poland, where automatic enrolment into Employee Capital Plans (PPK) has been in place since 2019, the minimum contribution rate is 2% for employees and 1.5% for employers if employees do not opt out of the PPK. Employers and employees have the option of making additional contributions of up to 2.5% (for employers) and 2% (for employees). In the Slovak Republic, individuals can voluntarily contribute into their second pillar pension plan or ask their employers to pay voluntary contributions into their plan on their behalf (provided that employers and employers have concluded an agreement on this). In Australia, employees have no obligation to contribute to a plan but can make voluntary contributions on top of their employer's contributions. This is the other way around in Peru. Employers are not required to contribute but can make voluntary contributions on behalf of their employees.

Countries may encourage voluntary contributions to retirement savings plans through financial incentives. Countries may use tax incentives (i.e. indirect subsidies provided through the tax code) or other incentives (e.g. matching contributions, fixed nominal subsidies) where the state makes direct payments to the pension plans of eligible individuals.

Contributions to retirement savings plans increased in most countries in 2020 (Figure 1.9). The largest increases happened in Germany (50.4%), Nigeria (33.7%) and Poland (29.9%). These increases were even higher than the average annual growth rate of contributions over the last ten years in these countries (1.8%, 5.5% and -8%) as some of these countries saw a significant increase in their number of members in 2020 (as a result of the recent rolling out of automatic enrolment programmes in the case of Poland for instance). The amount of contributions to retirement savings plans also increased in 2020 in some of the countries with the largest pension systems, such as Australia (5%), Canada (1%), the Netherlands (2.3%), Switzerland (13.7%) and the United Kingdom (5.3%).

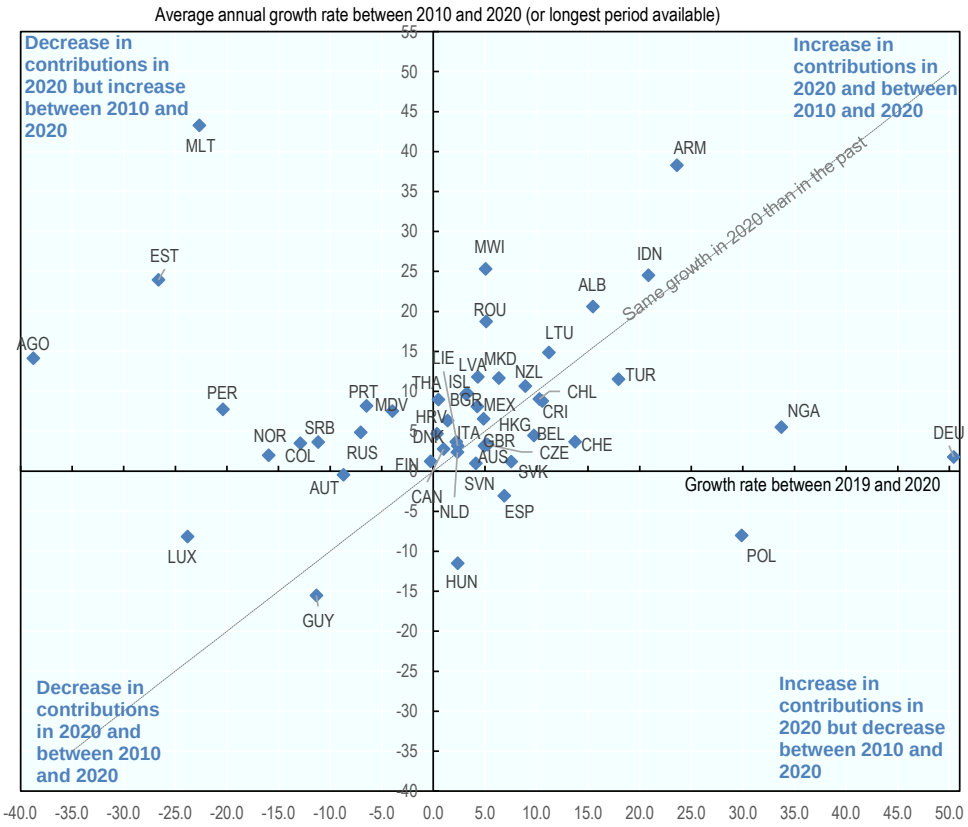
[25] Pension providers could use buffer funds to offset this reduction in contributions to pay current pensions.

[26] The Constitutional Court of Colombia declared this policy unconstitutional. The Ministry of Labour issued a decree in April 2021 requiring missing contributions for April and May 2020 to be paid within 36 months from 1 June 2021.

[27] Employers continued to pay the 4% contributions (as part of their social security contributions), but these contributions were temporarily retained in the public scheme.

## Figure 1.9. Annual nominal growth rates of contributions between 2019 and 2020 and between 2010 and 2020 (or longest period available) in selected OECD and other jurisdictions

In per cent




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

These increases in contributions in 2020 may be due to several factors such as the increase in the contribution rate in employment-related schemes in the United Kingdom in April 2019 (which did not lead to a significant uptick in the number of employees opting out[28] and where the proportion of people with a plan continued to increase), measures supporting jobs and contributions to retirement savings plans during the pandemic such as job retention schemes (JRS). JRS included a top-up for pension contributions in the Netherlands (30% of the compensation amount before 1 June 2020, 40% afterwards) and in the United Kingdom (3% of the qualifying subsidised earnings, representing the minimum employer contributions, until the end of July 2020). The job retention scheme in Australia (JobKeeper) did not finance directly superannuation contributions but required employers to pay contributions according to the ordinary rules for the usual wages of the employees. In Switzerland, the government did not directly subsidise employers' contributions to mandatory occupational plans, but encouraged employers to pay their contributions by tapping into their own contribution reserves. Some evidence suggests that the increase in contributions to retirement savings plans in 2020 in some countries could also be due to the changes in people's

[28] Auto-enrolment weathers second contribution increase - DC & Auto-enrolment - Pensions Expert

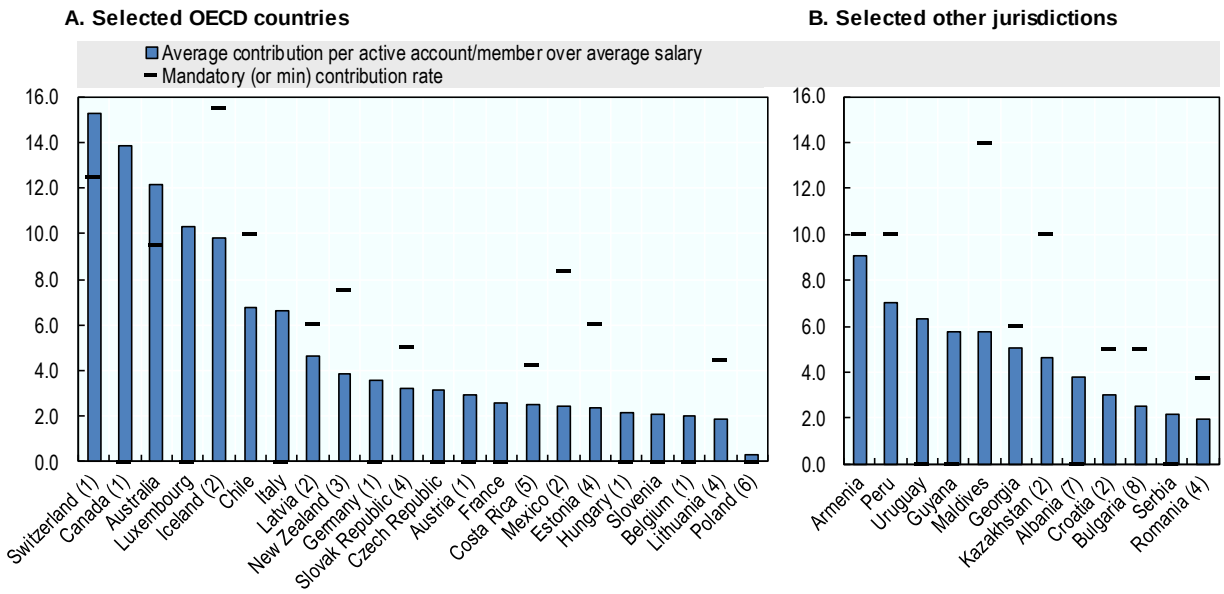
consumption patterns in 2020, leading some to save more (including in their retirement savings plans) as travel entertainment services were shut down.[29]

Yet, the overall contributions declined in 14 out of the 49 jurisdictions in Figure 1.9 in 2020, from -0.3% in Finland to -38.8% in Angola. Estonia recorded a large decline of contributions in 2020 (-26.6%), probably resulting from the option that was granted to suspend employer and employee contributions to the second pension pillar.

All in all, the amount of contributions paid per member varied a lot across countries in 2020. Figure 1.10 shows that the largest amount of contributions per member were paid in Australia, Canada and Switzerland (over 12% of the average wage per member), given the high coverage rate in these countries, high contribution rates, and programmes to support the wages of people during the pandemic. Additional voluntary contributions from employees into superannuation schemes may also account for the high rate in Australia, above the mandatory 9.5% contribution rate. Contributions per member (relative to the average wage) are lower in other countries. Contributions per member are usually lower than the mandatory contribution rates (when there are some), such as in Latin American countries (Chile, Mexico), which may be due to some people not making contributions in a plan (even if they have one). For instance, contributions in Mexico are mandatory under formal employment, but voluntary for unemployed, independent and informal workers. Employees may not be contributing to their pension account the whole time as they move from the formal to the informal sector.

## Figure 1.10. Average annual contribution per active account or member in selected OECD and other jurisdictions, latest year available

As a percentage of average annual wages




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics and other sources.

[29] See for instance for Canada: Household consumption in a pandemic - Bank of Canada. As another example, one of the largest pension funds in Denmark PFA sees record extra contributions as consumption stalls | News | IPE

### *1.1.4. Benefit payments*

Benefit payments represent an outflow from retirement savings plans, reducing the amount of assets in the plans. The amount of these payments at the aggregate level depends, to a large extent, on the seniority of the system and the number of people eligible to these benefits.

Benefit payments at retirement can take several forms. They can be a lump sum payment, a regular stream of income in retirement (e.g. pensions or programmed withdrawals) or a combination of the two. Benefit payments can be paid as a full or partial lump sum under certain conditions in some countries. In Switzerland for instance, members can claim a payment of a quarter of their retirement assets (up to the full amount depending on the plan rules) as a lump sum benefit. Some countries allow full lump sum payments when the accumulated assets are lower than a given threshold (e.g. below EUR 12 900 for Pensionskassen in Austria), when the assets would provide an income below a certain amount (e.g. minimum national salary in Colombia), or when people contributed for a shorter period than the one set in the law (e.g. 1 250 weeks in Mexico, lowered to 750 in 2021 and then increasing gradually by 25 weeks per year until reaching 1 000 weeks in 2031). A part of the lump sum payments may however be reinvested in alternative savings vehicles after the lump sums are taken out.

Individuals may have the option of receiving a retirement income from the entity managing their assets or from another entity. They may for instance be able to purchase an annuity from a life insurance company such as in Chile. In this case, assets are transferred from the entity in charge of the asset accumulation phase (i.e. AFPs in Chile) to the one in charge of paying benefits to retirees.

The entity in charge of the pay-out phase may be a public entity such as in Latvia, Lithuania (from July 2020) or Poland. Individuals in Latvia can choose to transfer their assets to the State Social Insurance Agency, which then combines these assets with the ones accumulated in their notional account from the pay-as-you-go system in order to pay overall benefits. In Lithuania, since July 2020 assets of retiring individuals entitled to a life annuity are transferred from private pension funds in charge of the accumulation phase to a special unit of the State Social Insurance Fund Board (SoDra, i.e. the entity in charge of the payment of public PAYG pensions), which is in charge of making the annuity payments. In Poland, open pension funds have become accumulation-only vehicles since the pension reform in 2014. The accumulated assets of members with ten or fewer years to retirement are incrementally transferred to the Social Insurance Institution for benefit payments (which is the so-called “slider”).

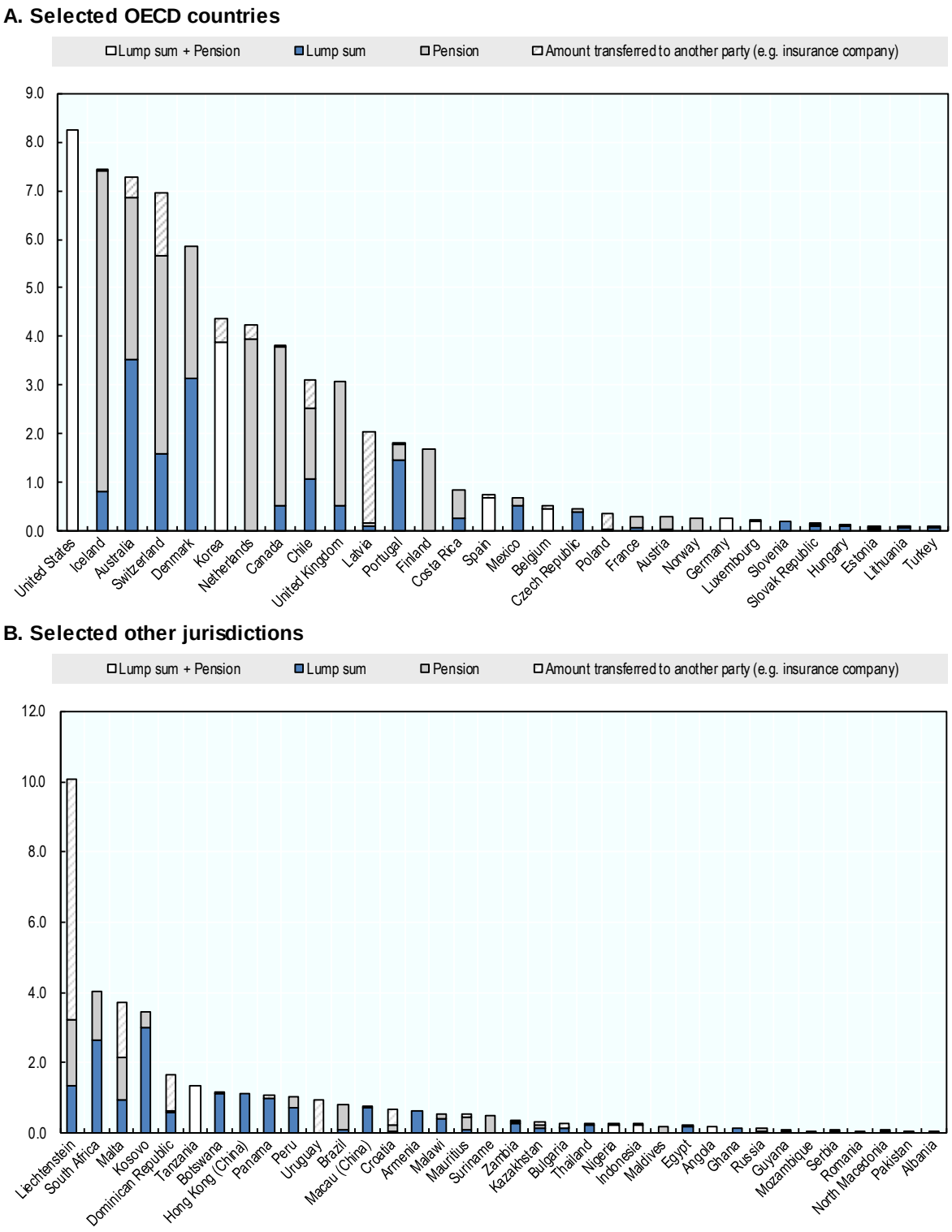
Payments from pension providers to retirees or to entities in charge of the pay-out phase were the largest in 2020 in Australia, Denmark, Iceland, and Switzerland, which all have mature pension systems and large amounts of pension assets accumulated (over 100% of GDP in all of them).[30] Figure 1.11 shows that these payments amounted to 7.3% of GDP in Australia, 5.8% in Denmark, 7.4% in Iceland and 6.9% in Switzerland in 2020, close to the 2019 level in the case of Switzerland (6.8%) or even above in the case of Australia (6.3%) and Iceland (6.0%) (OECD, 2020). In some countries where retirement savings plans were introduced recently, the size of pension payments remained relatively limited (e.g. Albania, Lithuania).[31] The largest transfers of assets to a third party were observed in Chile (0.6% of GDP), Latvia (1.9%) and Switzerland (1.3%) in 2020 among OECD countries.

[30] Payments from pension providers to retirees and to entities in charge of the pay-out phase amounted to 10.1% of GDP in Liechtenstein in 2019 and 8.3% of GDP in the United States in 2018 (latest year available).

[31] The amount of benefits paid from retirement savings plans as a lump sum or a pension is available for each reporting country and each year between 2010 and 2020 as a percentage of GDP in Table A.B.5 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

## Figure 1.11. Total benefits paid from retirement savings plans and assets transferred to a third-party, 2020 or latest year available

As a percentage of GDP



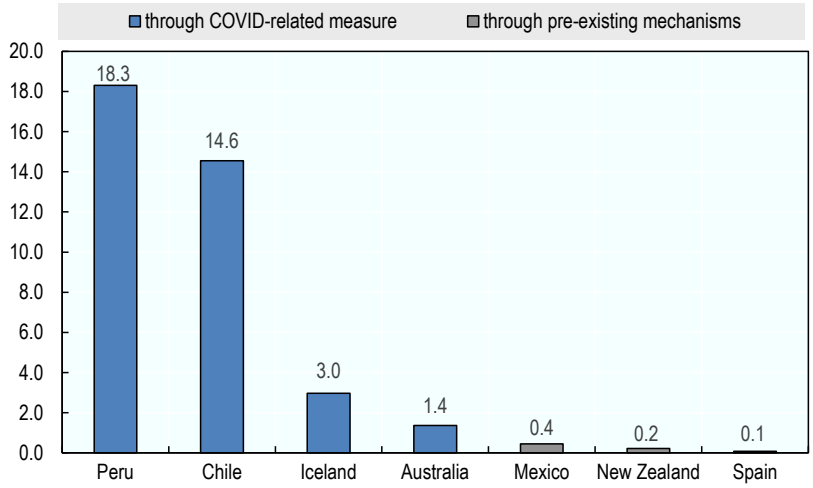

Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

COVID-19 has had an impact on the payout phase. Latvia put in place a policy allowing certain plan members close to retirement to postpone the beginning of the pay-out phase, to protect them from investment losses while financial markets were reaching lows at the end of Q1 2020 (OECD, 2020). Members of the state funded pension scheme have been given the possibility to postpone their pay-out choice (between purchasing a life annuity and getting a public pension based on their notional and financial capital) until 30 November 2021. Some anecdotal evidence suggests that COVID-19 may have led some workers to change their retirement plan and delay retirement (29% of workers according to a survey from Fidelity International on 2 000 adults in the United Kingdom in August 2021, 16% of full time workers among 1 125 American workers aged 55 to 75 in a survey conducted on behalf of The Pew Charitable Trusts).[32]

Some countries recorded large early withdrawals from pension plans, especially those allowing unconditional access to savings in the time of COVID-19. In Mexico where plan members were already allowed to withdraw a part of their savings in case of unemployment before COVID-19 (under certain conditions), the amount of early withdrawals due to unemployment soared in 2020 by 60% but was still relatively small compared to the overall amount of pension assets in the system (less than 0.5% of assets at end-2019, Figure 1.12). The amount of withdrawals from the system in Australia (through the Early Release of Super Initiative introduced in March 2020) was higher than in Mexico but still relatively marginal compared to the overall amount of pension savings (1.4% in early January 2021) as COVID-19 related early withdrawals were capped at AUD 20 000 (twice AUD 10 000) and possible under specific circumstances only. The largest withdrawals from the system happened in Chile and Peru where people had the possibility to access their savings unconditionally twice in 2020.[33] Temporary measures that facilitated access to savings during COVID-19 may induce individuals to take out their savings, posing a potential negative effect on retirement adequacy in the future and increasing the risk that some people may fall into poverty later at old-age.

## Figure 1.12. Amount of pension assets withdrawn before retirement in selected countries in 2020 due to COVID-19

As a percentage of total assets in retirement savings plans at end-2019




Note: Please see the methodological notes at the end of the report.
Source: Websites of national authorities, Asset News, El Financiero, Pension Policy International.

[32] See https://www.pensions-expert.com/DB-Derisking/Number-of-workers-delaying-retirement-due-to-Covid-19-rises and In Early Results, COVID-19 Appears to Have Little Impact on Retirement Preparation and Withdrawals

[33] Chile and Peru both allowed plan members to access their savings unconditionally for a third time in 2021. A bill for a fourth savings withdrawal was being discussed in Chile at the time of the drafting of this report, see: Chilean bill to allow for fourth pension withdrawal advances in Congress | Reuters

## 1.2. Investment performance and allocation of pension assets

The performance of portfolio investments is a key driver in the evolution of assets in retirement savings plans. From the perspective of plan members, positive investment returns enhance the security of benefit promises in defined benefit plans, and increase the amount of assets and retirement benefits they can expect from defined contribution plans.

### *1.2.1. Investment rates of return*

The growth of pension assets in 2020 partly stems from the positive investment performance of retirement savings plans. Although lower than in 2019, pension plans managed to obtain a real investment rate of return (net of investment expenses) of 4.1% in the OECD area and 3.2% in other jurisdictions in 2020 on average (Figure 1.13). The average real investment rate of return, weighted by the assets managed at end-2020, can give a slightly different picture as it shows how the investments of pension providers fare in countries where they are the most important. The weighted average real investment rate of return was at 6% in the OECD and 5.7% in other jurisdictions, higher than simple averages. Some of the largest pension markets, such as Canada, the Netherlands, Switzerland and the United States, recorded relatively strong gains, with a real return above 5% in 2020. Mandatory provident fund (MPF) schemes in Hong Kong (China) were the top performers among all reporting jurisdictions in 2020 (12.7%), followed by personal plans in Mexico (9.3%) and pension funds in Iceland (8.7%). Overall, retirement savings plans recorded investment gains in most jurisdictions (30 out of 33 reporting OECD jurisdictions, and 30 out of 32 other reporting jurisdictions).[34]

Following a drop in the first quarter of 2020, global equity markets recovered during the rest of the year (BIS, 2021), enabling pension providers in many jurisdictions to recover investment losses from the first quarter. This rebound was driven by sectors that thrived during the pandemic (e.g. tech companies), stimulus from Central Banks to keep borrowing costs low (e.g. decline in interest rates), and positive prospects during the year (development of vaccines and their approval by health authorities).[35] Falling interest rates may have led to positive returns on corporate and government bonds with long duration. In some jurisdictions, such as the Netherlands, pension funds also earned gains from their interest rate hedges as interest rates dropped.[36]

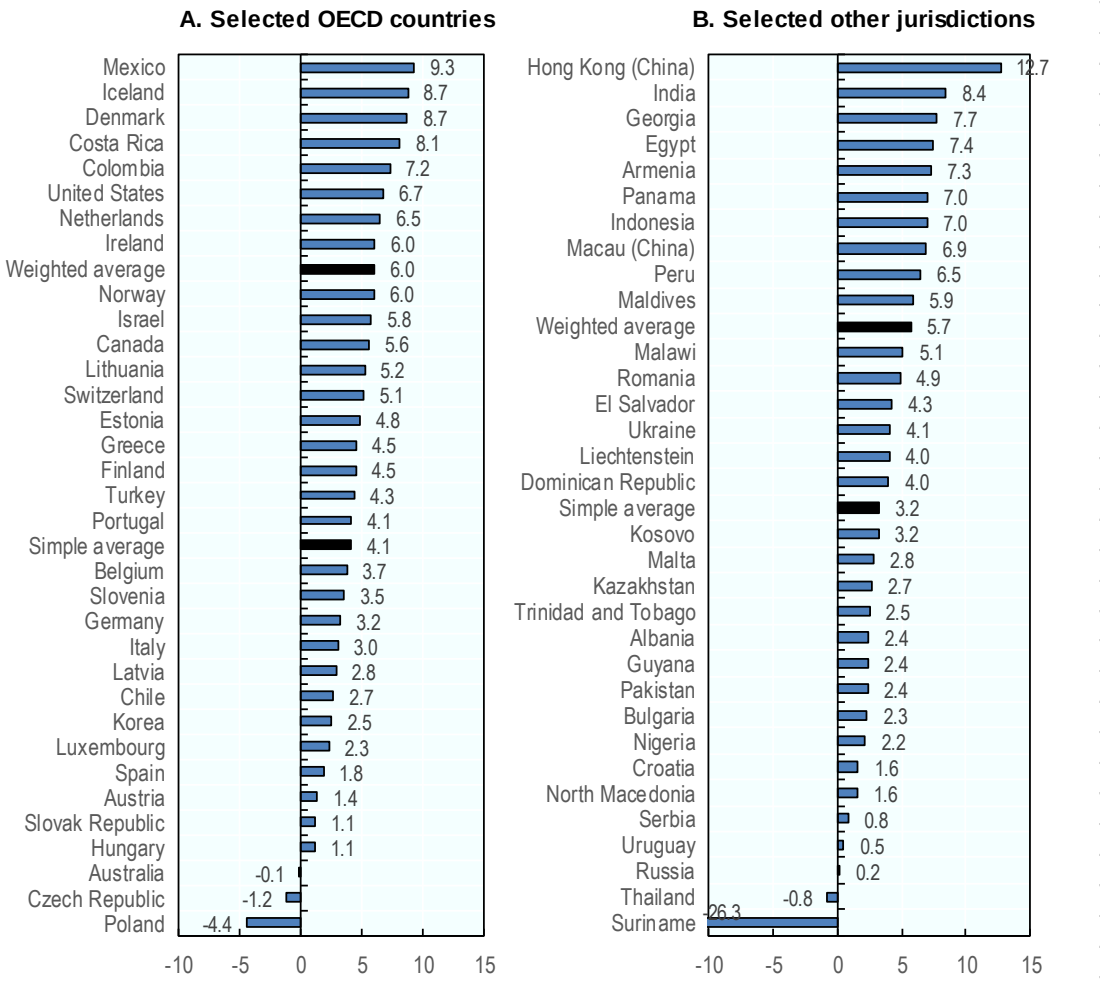
[34] Nonetheless, retirement savings plans recorded investment losses in real terms in 2020 in a few jurisdictions due to a relatively low investment return of conservative investments (e.g. in the Czech Republic), the relatively slow upswing of some domestic equity markets (e.g. in Poland) or high inflation (e.g. in Suriname).

[35] See https://www.slideshare.net/OECD-DAF/global-financial-markets-february-2021

[36] See IPE's article Dutch pension funds return an average 10.2% for 2020

## Figure 1.13. Annual real investment rates of return of retirement savings plans, net of investment expenses, 2020

In per cent



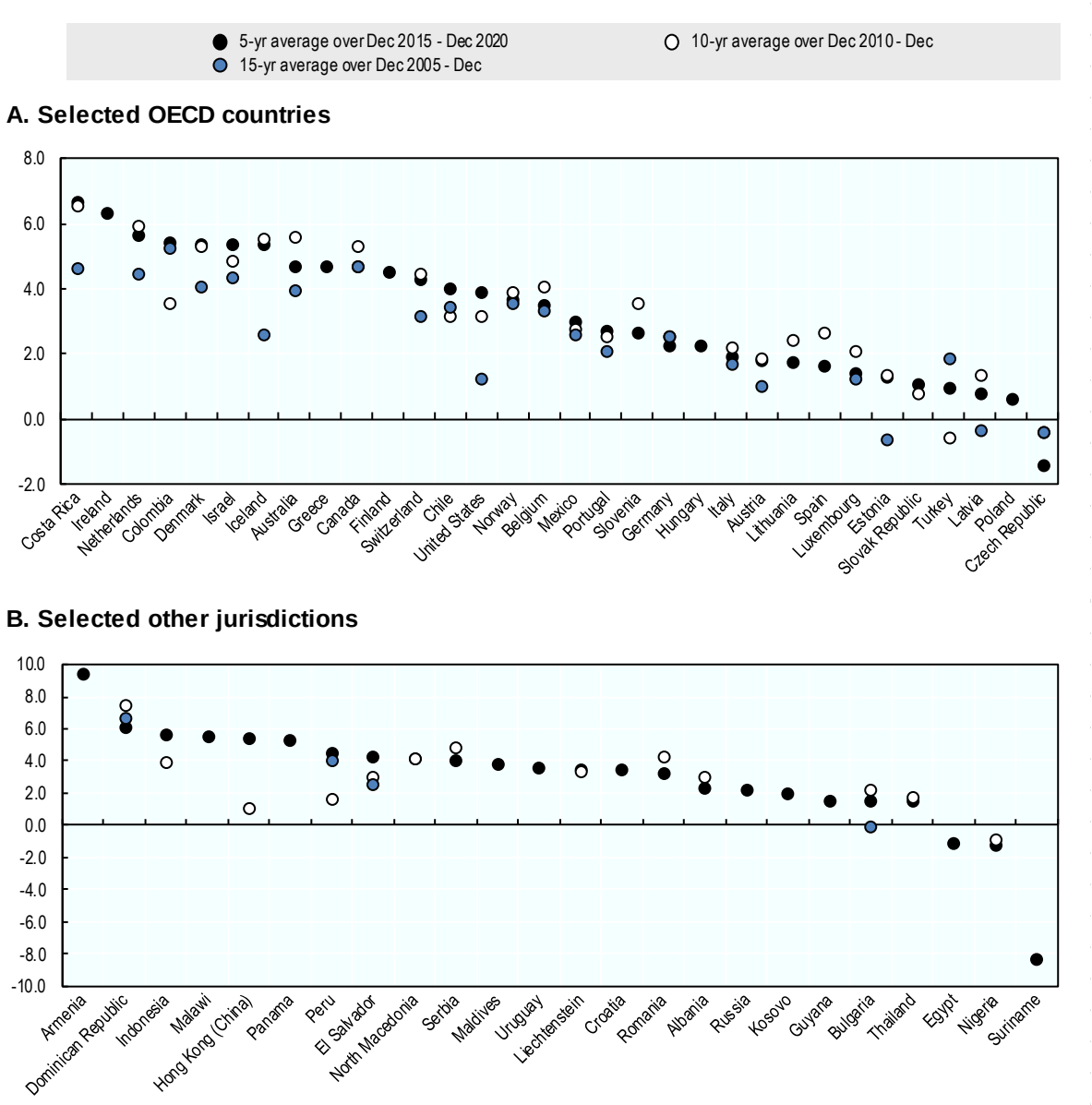

Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Pension providers in most countries obtained positive investment returns over the long-term. Generating long-term returns is more important than yearly returns. Saving for retirement is for the long haul and fluctuations in investment performance are likely during the life of a retirement portfolio. Despite COVID-19 and investment losses for retirement savings plans in many jurisdictions in Q1 2020 and in 2018 (following the drop in equity markets in Q4 2020), the average annual real investment rates of return were positive between December 2015 and December 2020 in all reporting OECD countries except the Czech Republic, and in all reporting non-OECD countries except Egypt, Nigeria and Suriname (Figure 1.14). The annual investment performance was the highest on average over the last five years in Armenia (9.5%), Costa Rica (6.7%), Ireland (6.3%), the Dominican Republic (6.2%) and the Netherlands (5.7%). Pension funds in Costa Rica, the Dominican Republic and the Netherlands remain the top performers among 40 reporting jurisdictions when considering the last ten years, with average annual real returns at 6.5%, 7.5% and 5.9% respectively. Over the last 15 years and despite the 2008 financial crisis and the related

investment losses, the annual investment performance of retirement savings plans was still positive in 23 out of 27 reporting jurisdictions, and ranged between -0.7% in Estonia to 6.6% in the Dominican Republic.[37]

## Figure 1.14. Real geometric average annual investment rates of return of retirement savings plans over the last 5, 10 and 15 years

In per cent




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

[37] The annual nominal and real investment rates of return are available for each reporting country and each year between 2010 and 2020 in Table A.B.6 and in Table A.B.7 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

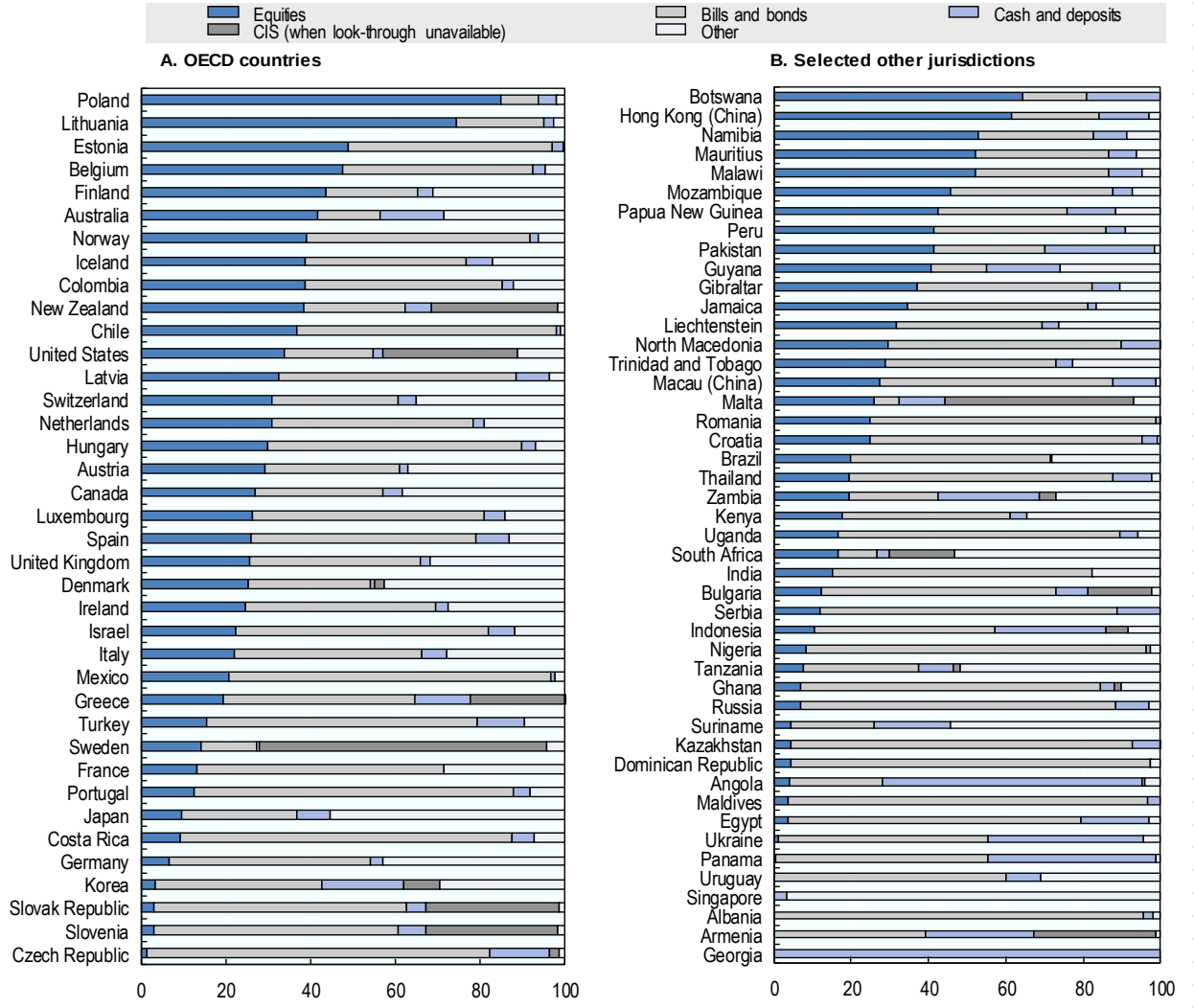
### *1.2.2. Asset allocation*

Asset allocation and returns go hand in hand, as well as risk levels. Higher portfolio allocation to risky assets entail higher potential returns and higher return volatility.

In most countries, bonds and equities were the two main asset classes in which retirement savings were invested at the end of 2020, accounting for more than half of investments in 35 out of 38 OECD countries, and 38 out of 46 other reporting jurisdictions (Figure 1.15).[38] Therefore, developments in bond and equity markets play a major role in the financial performance of retirement savings plans. The combined proportion of bonds and equities was the highest (relative to the size of the portfolio) in Romania (98.6%), Chile (97.8%), the Dominican Republic (97.2%), Estonia (96.9%), the Maldives (96.7%), Mexico (96.5%), Nigeria (96.2%), Albania (95.6%), Croatia (95.1%) and Lithuania (95%).

## Figure 1.15. Allocation of assets in retirement savings plans in selected asset classes and investment vehicles, 2020 or latest year available

As a percentage of total investment




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

[38] The category "bonds" refers to both bills and bonds.

Pension assets can be invested in bonds and equities either directly or indirectly through collective investment schemes (CIS). For some countries, the look-through of investments in collective investment schemes was not available, such as for the Slovak Republic (where 31.5% of assets were invested in CIS), Sweden (67.7% of investments) and the United States (32% of investments). Only the direct investments in bonds and equities are available: 62.5% for the Slovak Republic, 27.1% for Sweden, 54.6% for the United States. The overall exposure of pension assets to fixed income securities and equities is therefore probably higher in these countries.

The relative importance of equities and bonds varied considerably across countries in 2020. Although there was in general a greater preference for bonds, the reverse was true in 11 OECD countries and 12 other jurisdictions (including several in Africa) where equities outweighed bonds. This was the case for instance in Botswana where 64.4% of assets were invested in equities compared to 16.2% in bonds, and Hong Kong (China) where 61.4% of assets of mandatory provident fund (MPF) schemes and MPF-exempted ORSO registered schemes were invested in equities compared to 22.8% in bonds.

Public sector bonds, as opposed to corporate bonds, represented a larger share of the combined direct bond holdings (i.e. excluding investment via collective investment schemes) in a number of countries. For example, public sector bonds accounted for 100% of total direct bond holdings in Albania, 99.9% in North Macedonia, 97.8% in the Maldives, 96.9% in Croatia, 95.9% in Kazakhstan and Serbia, 89% in Israel, 88.9% in the Czech Republic but only 22.1% in Norway, 13.9% in New Zealand, 11.7% in Suriname and 9.1% in Macau (China).

Several reasons may account for the high proportion of investments in government bonds in some countries. One of them may be a lack of other investment opportunities domestically, as reported by some national authorities (e.g. Albania, the Maldives, Serbia). Albania created a stock exchange recently (the Albanian Stock Exchange) that may enable a greater diversification of pension assets, currently almost fully invested in domestic government bonds. Another reason may be the need for a fixed and guaranteed income stream. For example, in the Czech Republic, transformed pension funds offering an annual non-negative nominal guarantee to plan members invest in bills and bonds to receive a fixed income stream and ensure they keep their promise. Investment regulations in some countries may also require pension providers to invest a certain proportion of their assets in certain instruments (e.g. at least 30% of assets in earmarked government bonds for old and new pension funds in Israel) (OECD, 2021).

Cash and deposits also accounted for a significant share of pension assets in some OECD and non-OECD jurisdictions. For example, pension funds in Australia and Peru held 15% and 5% of assets in cash and deposits respectively, more than in 2019 (12.7% and 2.5% respectively) to face potential outflows from COVID-19 related early withdrawals in 2020. The proportion was 40.3% in Ukraine where non-state pension funds invest mostly in instruments with minimum degree of risk.

In most reporting countries, loans, real estate (land and buildings), unallocated insurance contracts, private investment funds and other alternative investments (shown as “other” in Figure 1.15) only accounted for relatively small proportions of the investments of pension assets, though with some exceptions. In a few countries, the share of assets invested in “other” was relatively high: 35% in Switzerland, 37.1% in Austria, 38.3% in Canada, 42.5% in Denmark and 42.9% in Germany for instance. This relatively large share may deserve monitoring from the supervisory authorities. Real estate was a significant component of the portfolios of pension providers (directly or indirectly through collective investment schemes) in some countries such as Canada (11.9% of total assets) and Switzerland (20.1%).

Many jurisdictions set limits on investments of retirement assets in less traditional asset classes such as real estate (OECD, 2021). Direct investment in real estate is not allowed in Colombia, Costa Rica, the Czech Republic (for participation funds), Italy, Japan (except for the Mutual Aid Associations), Lithuania, Mexico, Poland, Portugal (for personal retirement savings schemes financed through harmonised and non-harmonised investment funds), Turkey among OECD countries; and Albania, Armenia, Croatia (for pension funds), Georgia (for mandatory pension funds), Hong Kong (China), India, Kazakhstan, Kosovo, the

Maldives, Nigeria, North Macedonia, Pakistan, Peru, Russia (for mandatory plans), Thailand and Uruguay among other jurisdictions. However, in most of the jurisdictions previously listed, only direct investment is prohibited and indirect investments in real estate may be allowed to some extent through bonds and shares of property companies, or real estate investment trusts (REITs) for instance.

Some countries have loosened investment limits over recent years and encouraged investments in infrastructure, long-term projects and other alternative assets. For example, Croatia has expanded the investment opportunities for mandatory pension funds, allowing them to invest in infrastructure projects directly and in alternative investment funds. Since 2019, pension funds in Romania have been allowed to invest 15% of their assets in infrastructure projects created under the national legislation of the Emergency Government Ordinance. Hong Kong (China) removed the aggregate investment limit of 10% for REITs listed on selected approved stock exchanges in 2020. In Switzerland, the investment category for infrastructure has now its own limit at 10%, separated from the 15% limit for alternative investments since October 2020, to allow pension funds to expand their exposure to infrastructure.

The allocation of assets in retirement savings plans remained broadly the same at the end of 2020 compared to the end of 2019, despite COVID-19 and the instability it created in financial markets especially in the first part of 2020. The proportion of pension assets invested in equities (respectively bonds) changed by less than 5 percentage points between end-2019 and end-2020 in 67 (respectively 57) out of 69 reporting jurisdictions (Figure 1.16, Panel A). Pension providers usually stayed the course and maintained their investment strategies in 2020 despite uncertainties, in line with OECD's recommendations.

In some cases however, pension providers reported a change in their asset allocation following some policy measures and the evolving economic and financial environment in 2020. The proportion of pension assets in equities declined by 6 percentage points in Jamaica between end-2019 and end-2020, because of a decline in the value of equities in the portfolio of pension providers to some extent. By contrast, pension funds in Estonia reduced their exposure to bonds by 8 percentage points and increased their exposure to equities by 9 percentage points between end-2019 and end-2020, probably as a result of the rise of the maximum investment limit in equities (from 75% to 100% of assets from September 2019) and a search for higher investment performance. In the Czech Republic, pension funds diverted over 8 percentage points of their assets in cash towards bonds (especially government bonds) because of the declining interest rates in 2020. In Peru, pension funds sold some local long-term fixed income securities in 2020 to increase their cash holdings and be able to meet early withdrawal requests from plan members following the enactment of laws authorising early access to retirement savings.

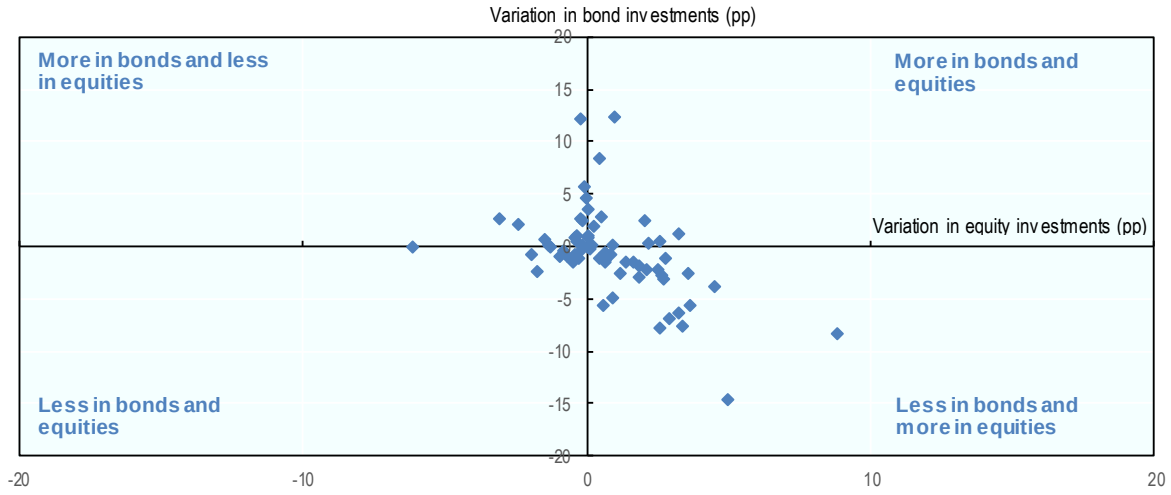
Focusing on the long term, there is a shift away of investments from bonds and an increased exposure towards equities.[39] The share of pension assets invested in bonds declined by 2 percentage points while the share in equities increased by 4 percentage points on average among 53 reporting jurisdictions between 2010 and 2020. The proportion of assets invested in bonds declined by more than 5 percentage points in 18 out of 53 jurisdictions (Figure 1.16, Panel B). In these 18 countries, the proportion of investments in equities increased by more than 10 percentage points on average. However, the decline in investments in bonds was not always offset by an increase in investments in equities of the same scale. For instance, the proportion that pension funds in Switzerland invested in bonds declined by 7 percentage points between 2010 and 2020, but only 3 percentage points were directed to equities. The largest reallocation went to other investments.

[39] The allocation of pension assets in selected investment categories is available for each reporting country and each year in Table A.B.8 (for equities), Table A.B.9 (for bills and bonds), Table A.B.10 (for cash and deposits) and Table A.B.11 (for the "other" category) in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

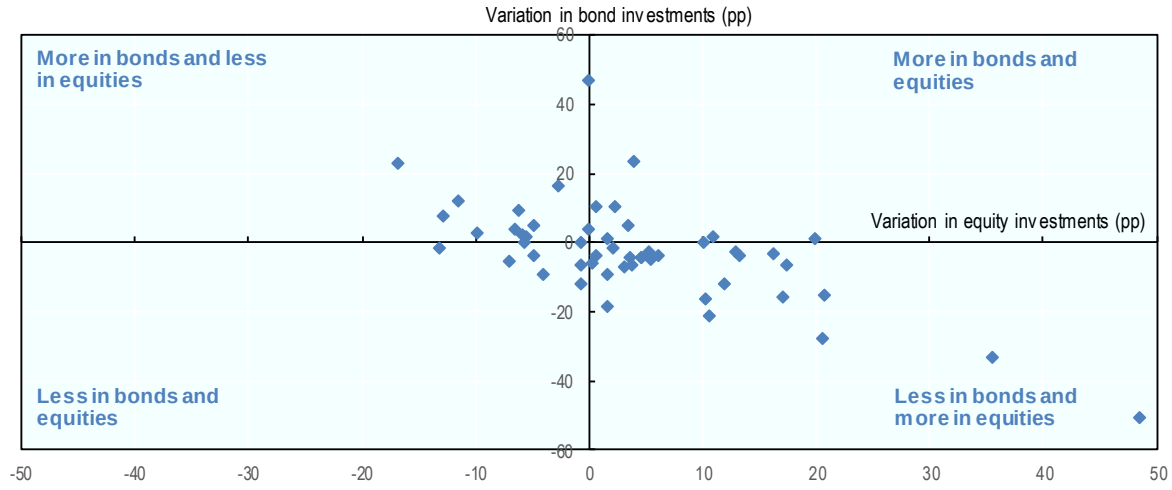
## Figure 1.16. Variations in the proportion of pension assets invested in equities and bills and bonds between 2019 and 2020 and over the longest time period possible in selected jurisdictions

In percentage points

**A. Between 2019 and 2020**




**B. Between 2010 and 2020 (or the longest time period possible)**




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

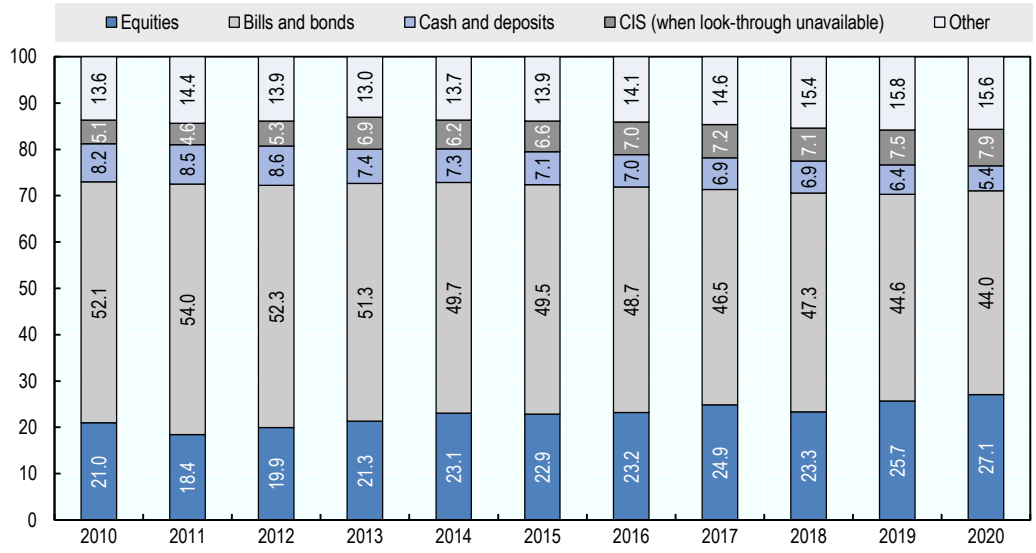
In some cases, changes in the asset allocation may be driven by the preferences of plan members (when they can select the investment strategy) or the age structure of the population. In Hong Kong (China), the Mandatory Provident Fund Schemes Authority noted a preference of members for growth funds, which could partly account for the relatively high (over 50% of total assets) in the period 2010-2020. In life-cycle investment strategies, assets of plan members shift to more conservative and less risky investments as they age. These strategies are in place in several countries such as Chile. Over the last decade, a number of countries introduced life-cycle investment strategies, such as Croatia (2014), Slovenia (2016), Nigeria (2018) and Lithuania (2019).

Investments in alternative asset classes, investments in other classes than equities, bills, bonds, cash and deposits, have increased in absolute terms (by over USD 3 trillion), but relative to the size of the portfolio

the increase may be noticeable to a lesser extent.[40] Figure 1.17 shows the average allocation of pension assets in 25 reporting OECD countries between 2010 and 2020. The proportion of pension assets in alternative investments increased from 13.6% in 2010 to 15.6% in 2020 on average over these 25 countries. Adjustments to the portfolio of pension providers, potentially as a search for yield to meet pension promises, are not intrinsically bad as long as they do not imply an excessive increase in the risk profile of the portfolio. Nevertheless, pension regulators and supervisors need to continue to monitor these developments closely to avoid damaging increases in the risk profile of the portfolio of pension providers in their search for yield.

## Figure 1.17. Average allocation of pension assets in selected asset classes and investment vehicles in a selection of OECD countries, 2010-2020

As a percentage of total investment




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

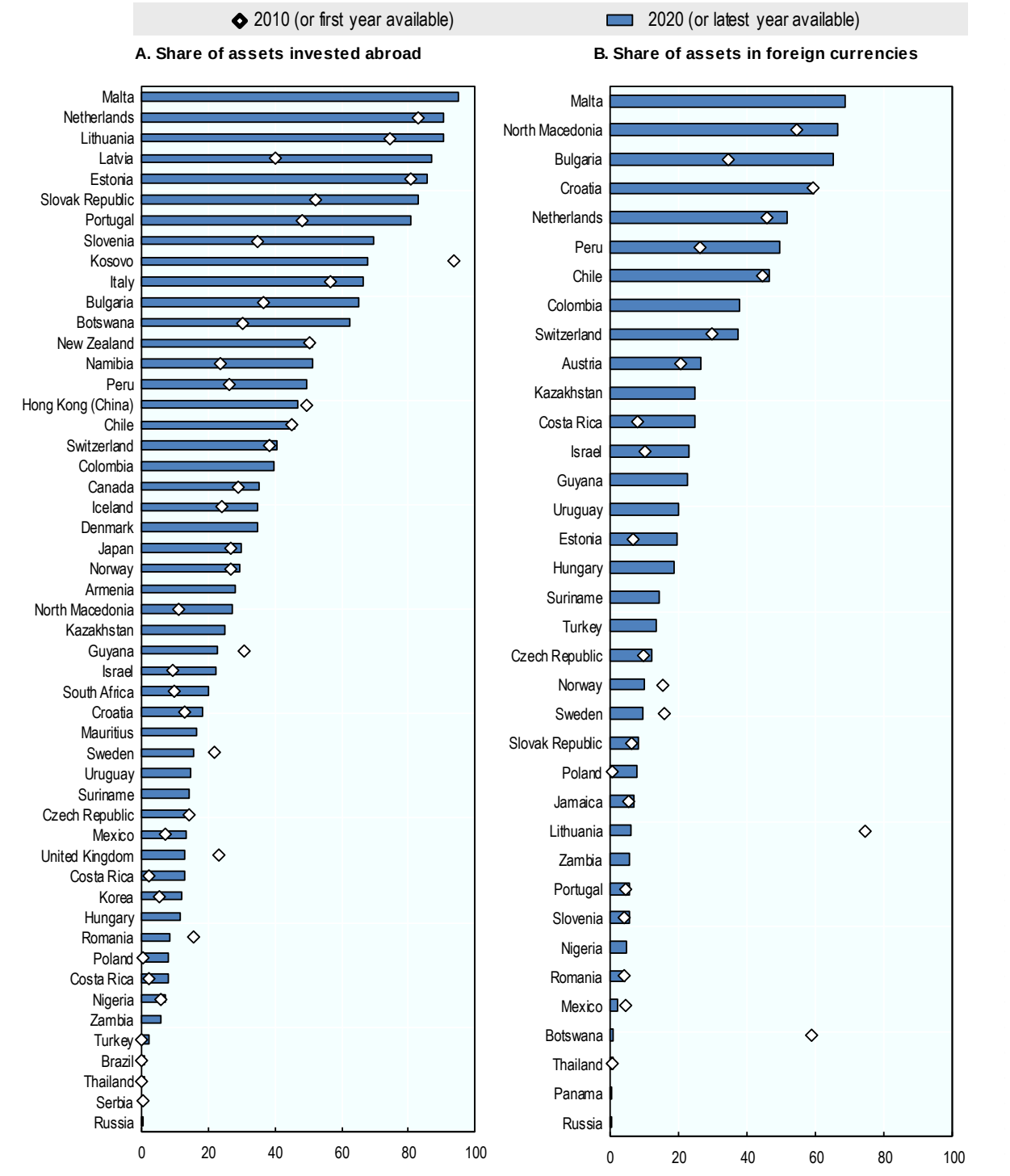
The proportion of pension assets invested abroad increased over the last decade for 33 out of 40 countries reporting data at the beginning and the end of the period (Figure 1.18).[41] This increase may be related to the lifting of investment restrictions on foreign investments (such as in Peru) and a potential search for higher yields or risk diversification.

[40] Results here are based on the asset allocation of pension providers in a group of 25 OECD countries reporting data over the period 2010 - 2020.

[41] The share of pension assets invested abroad is available for each reporting country and for each year between 2010 and 2020 in Table A.B.12 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

## Figure 1.18. Share of pension assets invested abroad and in foreign currencies, in 2010 (or first year available) and 2020 (or latest year available)

As a percentage of total investment




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Countries with the highest proportion of pension assets invested abroad were Eurozone members with small capital markets. The ten jurisdictions with the largest proportion of assets invested abroad are all from the euro area or were using the euro as their main currency in 2020: Malta (95% of assets invested abroad), the Netherlands (91%), Lithuania (90%), Latvia (87%), Estonia (86%), the Slovak Republic (83%), Portugal (81%), Slovenia (70%), Kosovo (68%) and Italy (67%). The domestic capital markets of some of these countries may be too small to absorb the savings from pension plans (Stewart, Despalins, & Remizova, 2017). A significant share of pension assets may have been invested in other countries within the euro area, as the share of pension assets exposed to foreign currency was much lower than the share of assets abroad for Estonia (20%), Lithuania (6%), Portugal (6%), the Slovak Republic (8%) and Slovenia (6%) for instance. The share of pension assets exposed to foreign currencies dropped between 2010 and 2020 in Lithuania, which adopted the euro in 2015.[42]

Some other countries with small domestic capital markets have opted for domestic investment options instead of investments abroad. Pension funds from Albania and the Maldives did not invest abroad at all for instance. These funds mainly invest in domestic bonds instead, even though domestic regulation does not prevent them from investing abroad. Investing abroad is completely forbidden only in a few reporting non-OECD jurisdictions, including the Dominican Republic, Egypt, India, Nigeria (DC schemes) and Zimbabwe (OECD, 2021).[43]

## 1.3. Specificities and challenges of defined benefit and defined contribution plans

The pension landscape includes various types of retirement savings plans worldwide.[44] The features of these plans may entail specific challenges, such the sustainability of the pension promise or the adequacy of retirement benefits. Plan sponsors, members and providers may also be exposed to and bear different risks depending on the design of the plan.

### *1.3.1. The landscape of retirement savings plans*

Individuals may be accumulating savings for retirement through various types of pension plans. They may be members of occupational pension plans, accessed through employment and established by employers on behalf of their employees or by social partners. Depending on how pension benefits are calculated and who bears the risks, occupational plans can be either defined benefit (DB) or defined contribution (DC). In DC plans, participants bear most of the risks, while in DB plans, sponsoring employers assume some of the risks if assets do not cover pension liabilities. Individuals may also have the option of opening a personal plan with a pension fund or another financial institution without any intervention from their employer and not necessarily in the context of an employment relationship.[45]

In almost all OECD countries, employers can set up occupational plans for their employees (Table A A.1). In OECD countries where employers do not set up occupational plans (e.g. Colombia, Estonia, Lithuania

[42] The share of assets denominated in foreign currency is available for each reporting country and for each year between 2010 and 2020 in Table A.B.13 in the statistical annex of this report, accessible online at: https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

[43] In Nigeria, some legacy (DB) schemes were in existence prior to the commencement of DC schemes and have been allowed to continue. Some of these DB schemes have investments in foreign assets.

[44] See Annex A

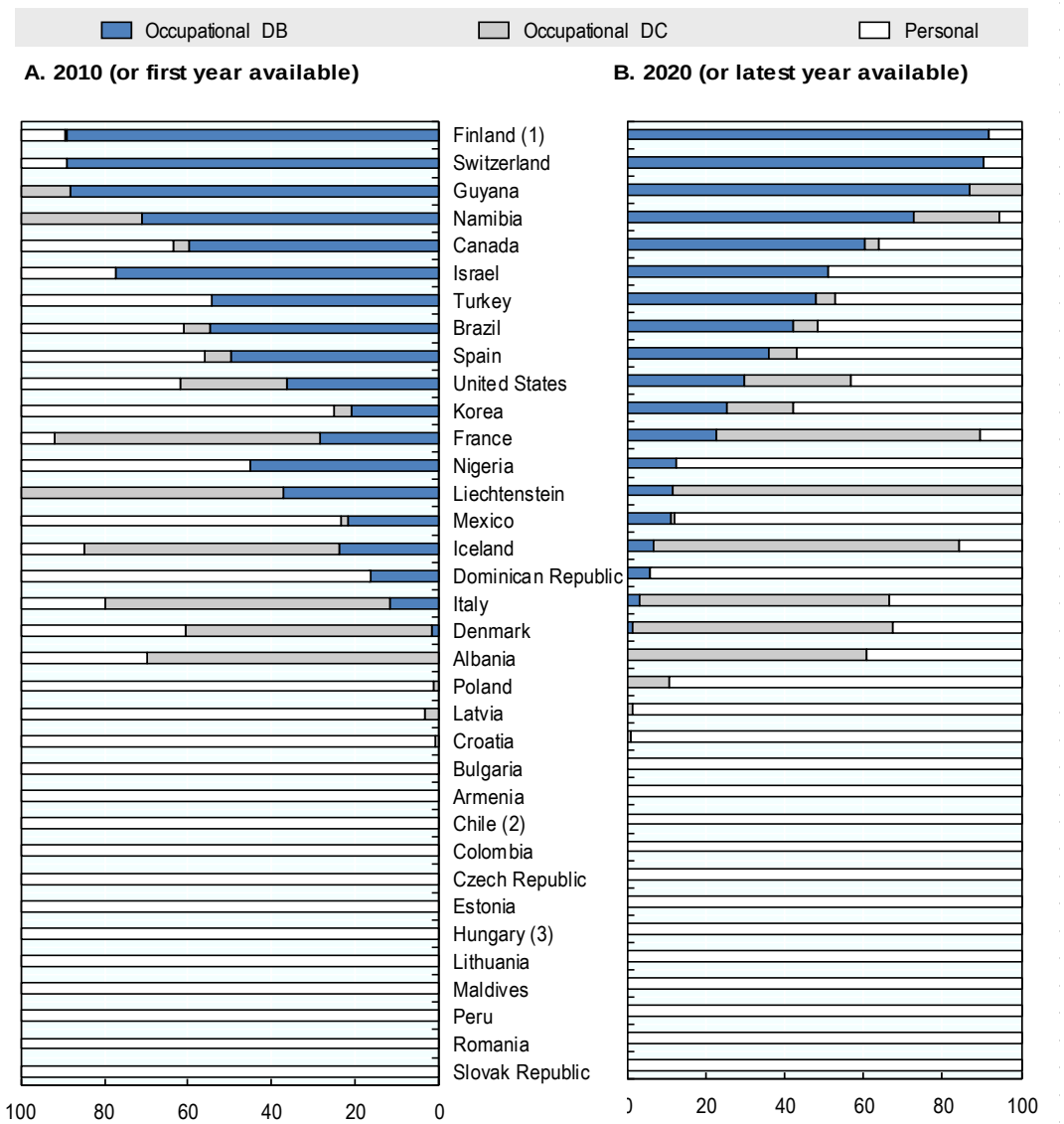
[45] There is nowadays a full range of plans between traditional DB plans where plan sponsors bear all the risks (e.g. investment, inflation and longevity risks) and individual DC plans where individuals bear all the risks. The features of these plans may be closer to DB or DC plans but all have some risk sharing components between the different parties.

and the Slovak Republic), individuals can usually still have access to (personal) pension plans through their work and choose the fund they would like to join. All OECD countries and almost all the other jurisdictions in this report offer personal plans.

Most countries - 27 OECD countries and 24 out of the 42 other reporting jurisdictions – had DB plans in 2020, but the size of these plans varied. DB plans have a relatively large prominence, in terms of assets, in some pension markets such as in Switzerland (90% of all pension assets) (Figure 1.19). However, the proportion of pension assets in DB plans was lower than in occupational DC and in personal plans combined, in most reporting countries. Less than 50% of pension assets were held in DB plans in 29 out of 35 reporting jurisdictions. Some countries had no occupational DB plan at all, especially in Latin America and Central and Eastern Europe.

## Figure 1.19. Split of pension assets by type of plan, 2010 (or first year available) and 2020 (or latest year available)

As a percentage of total assets




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

Occupational DC plans and personal plans have been gaining prominence at the expense of DB plans even in countries with a historically high proportion of assets in DB plans such as the United States. The proportion of assets in DB plans was lower in 2020 than in previous years in 14 out of the 19 reporting countries with DB plans, including the United States (30% in 2020 compared to 37% in 2010). The fastest shift away from DB plans happened in Nigeria (from 45% of assets in 2010 to 13% in 2020) and Israel (from 77% in 2010 to 51% in 2020). The Pension Reform Act of 2004 introduced defined contribution schemes (named contributory pension schemes) in Nigeria which employers and employees have to contribute to, except if employers were covering their employees with a different pension scheme existing before the reform.[46] In Israel, DB plans have been closed to new members since 1995. Some other countries also closed DB plans to new members, such as Italy since 1993. New members had the option (in Italy) or the obligation (in Israel and Nigeria) to join DC plans instead. More recently, Iceland reformed a pension plan for state and municipal employees at the end of 2016, converting it from DB to DC. Some major European markets (e.g. the Netherlands and the United Kingdom) are also transitioning from a DB to a DC system.[47]

### *1.3.2. Funding ratio of defined benefit plans*

Funding ratios measure the proportion of liabilities that available assets cover. When the value of assets in DB plans is less than the value of liabilities arising from the retirement income promise, or in other words, when the funding ratio is below 100%, the plan is underfunded. DB plan sponsors are usually responsible for guaranteeing the funding of the plan.

Funding ratios are not strictly comparable across jurisdictions as there are different national valuation methods of assets and liabilities. Assets can be expressed at mark-to-market or book values. The valuation of liabilities relies on several assumptions, including the treatment of current members and new entrants, discount rates and the life expectancy of members. These assumptions vary across countries and sometimes even within a given country depending on the purpose of the valuation. Liabilities of DB plans could be measured for an assessment of the solvency position of these plans by the supervisor (and a comparison with minimum funding requirements), but also for accounting purposes for the plan sponsors for example (Yermo, 2007).

The size of the liabilities partly depends on how current members and new entrants are treated in the valuation. The valuation may exclude new entrants as well as any additional rights that current workers could accrue after the valuation year, reflecting only accrued-to-date liabilities of the plan. Accrued-to-date liabilities could be calculated following an accrued benefit obligation (ABO) approach where future benefits are calculated based on the salary and past service at the time of the valuation, or a projected benefit obligation (PBO) approach that takes into account expected future increases in salaries. For example, an ABO approach was used in the minimum funding scenario for DB funds in Portugal in 2020, as per the ASF Regulation (OECD, 2019).[48] Another way of valuing liabilities of a DB plan can be to consider that current workers will continue to accrue rights and that the plan remains open (with or without new entrants). This going-concern approach is for instance applied in the valuation of liabilities of DB plans in Spain where future contributions into the plans are also taken into account.

[46] See http://www.iopsweb.org/resources/44873757.pdf . The Pension Reform Act 2014 (that repealed the Act of 2004) closed entrance into existing occupational DB schemes from 1 July 2014 for new employees of the sponsoring companies.

[47] European DC assets expected to pass €10trn by 2030 - European Pensions

[48] Minimum funding requirements have been reviewed in 2021. The valuation method is expected to change once a new regulation is published.

Different discount rates are used around the world to express future pension obligations in today's terms. Discount rates can lie anywhere between the risk-free rate (e.g. a long-term government bond yield) and the expected return on the assets backing the liabilities (OECD, 2020). For example, the UK's Pension Protection Fund uses conventional and index-linked gilt yields to calculate the liabilities of the DB plans in the scope of its index (PPF 7800).[49] Discount rates of single-employer pension plans in the United States are determined by reference to high-quality corporate bonds. In the Netherlands, pension funds use an Ultimate Forward Rate (UFR), which is an extrapolation of the observable term structure to take into account the very long duration of pension liabilities. Some countries like Finland, Iceland and Luxembourg use fixed discount rates (at 3%, 3.5% and 5% respectively). The discount rate was fixed at 4.5% in Portugal to assess the compliance of DB funds with the minimum funding requirements in 2020 (OECD, 2019).

The liabilities also depend on how long benefits will be paid to retirees. These calculations are based on mortality tables. Mortality tables may be built on the experience of different populations (e.g. annuitant population, general population) and may take into account future mortality improvements using different methods and models across countries (e.g. Lee Carter, Cairns-Blake-Dowd).

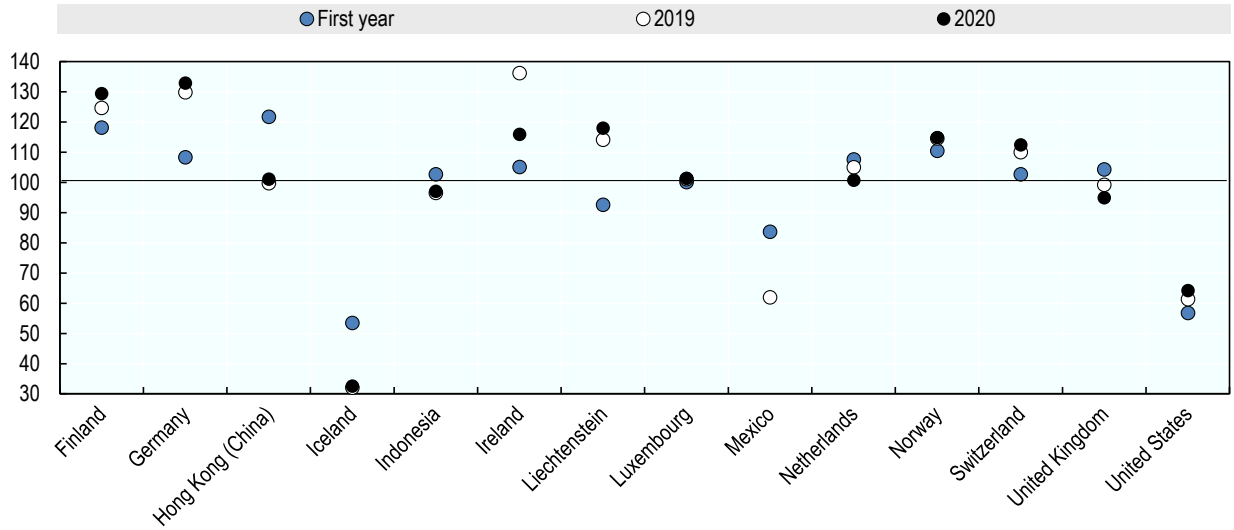
Available data show that assets in DB plans were equal or even exceeded the level of pension liabilities, as calculated and aggregated by data providers at the national level, in most jurisdictions at the end of 2020 (or the latest year available) (Figure 1.20).[50] Funding levels of DB plans were above 100% in 9 out of the 14 reporting jurisdictions, and between 95% and 100% in two others (i.e. Indonesia and the United Kingdom). However, the funding ratio of three reporting jurisdictions (i.e. Iceland, Mexico and the United States) ranged from 33% (in Iceland) to 64% (in the United States), meaning that assets in DB plans would not have been sufficient in these three countries to cover all the pension liabilities, as calculated by national authorities providing data, at the end of 2020 (2019 for Mexico). These aggregated funding ratios hide the disparities of the solvency of the many DB plans that sometimes exist within each country.

[49] See PPF7800 Index

[50] The funding position of DB plans is assessed in this report as the ratio between the investments and the technical provisions (net of reinsurance) of DB plans. Calculations are based on data provided by national authorities participating in the joint OECD, IOPS and World Bank Global Pension Statistics exercise. Investments of DB plans may be a low estimate of assets of DB plans as they would not include receivables and claims against the plan sponsor to cover the funding shortfall. Technical provisions represent the amount that needs to be held to pay the actuarial valuation of benefits that members are entitled to. This is the minimum obligation (liability) for all DB pension plans.

## Figure 1.20. Funding ratio of DB plans in selected jurisdictions, 2010 (or first year available), 2019 and 2020

In per cent




Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

The funding ratio of all DB plans (aggregated at the national level) has evolved differently over the years across countries. The funding position of DB plans improved by 25 percentage points in Liechtenstein (from 93% in 2010 to 118% in 2020), 25 percentage points in Germany (from 108% in 2010 to 133% in 2020), 11 percentage points in Finland (from 118% in 2011 to 129% in 2020), 11 percentage points in Ireland (from 105% in 2016 to 116% in 2020) and 9 percentage points in Switzerland (from 103% in 2010 to 112% in 2020). The funding ratio of DB plans also improved in Luxembourg, Norway and the United States between 2010 and 2020. However, the opposite trend was observed in Hong Kong (China), Iceland, Indonesia, Mexico, the Netherlands and the United Kingdom where the funding ratio deteriorated between 6 percentage points (in Indonesia) and 22 percentage points (in Mexico) over the last decade. In Hong Kong (China), the funding ratio of DB plans fluctuated during the period, but investments consistently exceeded net technical provisions, resulting in a funding ratio higher than 100% in 2020.

The evolution of the number of DB plans for which the aggregated funding ratio was calculated may influence the trends. Liechtenstein reported that many DB plans were converted into DC plans, leaving a single well-funded DB plan in the market. This probably accounts for the drop in assets and liabilities of DB plans in Liechtenstein between 2012 and 2014, as well as the improvement of the aggregated funding ratio. In Iceland, the funding ratio dropped between 2016 and 2017 as a public-sector scheme for state and municipal employees (one of the most highly funded) was converted into a DC plan and therefore not included anymore in the aggregated funding ratio from 2017 onwards.

The funding ratio of DB plans in 2020 improved in most reporting jurisdictions (10 out of 13) despite COVID-19, with the strongest improvement recorded in Finland (from 125% at end-2019 to 129% at end-2020). Yet, national authorities and private-sector companies that monitored the funding ratio of DB plans closely in 2020 had usually found a deterioration of this ratio in the first quarter of 2020 such as in Finland, the Netherlands, Switzerland and the United Kingdom (OECD, 2020). This decline was partly due to the fall in the asset values of DB plans during the first quarter while liabilities may have also even been increasing in some cases. However, the recovery of financial markets after Q1 2020 has supported the improvement of the funding ratios during the rest of 2020, with assets increasing faster than liabilities at the end in most reporting jurisdictions in 2020. Exceptions include Ireland, the Netherlands and the United Kingdom.

Countries usually have some mechanisms in place to ensure the sustainability of DB plans and guarantee the benefits promised to members to some extent. Some countries use minimum funding requirements, usually requesting a recovery plan (with different timeframes across countries) for underfunded plans. These recovery plans could imply additional contributions from employers (e.g. the United Kingdom) and penalties for the sponsors failing to make these deficit-repair contributions (e.g. up to KRW 10 million in Korea from 2022), but also the risk of benefit cuts or adjustments (e.g. in the Netherlands). Some countries may request a funding over 100% through the holding of a capital buffer (e.g. 4% for Pensionskassen in Austria, 4.5% for those in Germany). Some countries also have a pension protection fund (e.g. the Guarantee Fund in Liechtenstein, the Pension Protection Fund in the United Kingdom, the Pension Benefit Guarantee Corporation in the United States), which can take over the liabilities of a DB plan and pay benefits to members when an employer goes bankrupt or an underfunded plan is wound up.

In the context of COVID-19, a number of countries provided some leeway towards some of the funding requirements, to avoid putting plan sponsors further under pressure in difficult times. Germany and the United Kingdom have extended the deadline for the submission of recovery plans for underfunded pension plans. In Finland, the Financial Supervisory Authority could extend the deadline for pension insurance institutions to start implementing recovery plans when their solvency capital fell below the required level. Canada introduced a moratorium on solvency special payments (to cover funding deficits of DB plans) from April 2020 to end-December 2020. The Pensions Regulator in the United Kingdom announced in March 2020 that it would refrain from taking regulatory actions if sponsors of DB plans stopped or reduced deficit repair contributions (DRC) according to the recovery plans. However, this grace period was only for three months. In the Netherlands, the reduction of the minimum required funding ratio for pension funds (from 100% to 90% for 2019/20) has been extended to 2021, to prevent pension cuts.[51] More recently, the United States also introduced a set of measures to support underfunded single and multi-employer DB plans in the American Rescue Plan Act of 2021 (the ARPA).[52]

### *1.3.3. Fees charged to members of defined contribution plans*

Fees charged by pension providers for the cost of running pension plans reduce the amount of assets in those plans. This affects negatively the retirement benefit payments that members will eventually get.

The fee structures that pension providers apply vary across countries. Fees can be charged on contributions or on salaries directly as in some Latin American countries (e.g. Colombia), on assets (e.g. Estonia, Spain), on performance, or a combination (e.g. the Czech Republic where pension funds can charge fees on assets and profits, Bulgaria where supplementary voluntary pension funds can charge fees on contributions and returns). On top of regular fees, members in some countries can be charged fees when they join, switch or leave a pension provider (e.g. Albania, Hungary, the Czech Republic).

Most countries - 35 out of 42 reporting countries - cap some of the fees that pension providers can charge to members (Table 1.2). Most of them cap fees on assets (28 out of 35), which is one of the most widespread way for pension providers to charge members. The Dominican Republic changed the way fees could be levied on personal pension plans in February 2020 (previously from salary and returns, now from assets only). Armenia has one of the highest caps on fees on assets among those setting one, at 5% of

[51] Dutch minister to prevent 'unnecessary' pension cuts | News | IPE

[52] The ARPA reduced the minimum required contributions from sponsors of underfunded single-employer plans by extending the discount rate corridor, putting a ceiling to the discount rate and extending the amortisation period of deficit from 7 to 15 years. The ARPA also provides financial assistance to underfunded multiemployer plans by granting them (under certain conditions) a one-off payment worth 30 years of benefit payments to their members. Multiemployer plans can also amortise losses (such as COVID-19 related losses) that occurred in the first two plan years ending after 29 February 2020 over 30 years (instead of 15 years). Multiemployer plans can no longer suspend benefit payments.

the net value of the assets annually for voluntary plans. By contrast, Croatia sets one of the lowest caps on fees on assets for mandatory pension funds (at 0.3% of assets under management).

## Table 1.2. Fee structure and caps in selected OECD countries and other jurisdictions

| | Fees on salaries | Fees on contributions | Fees on assets | Fees on returns / performance | Other fees (e.g. exit fees, entry fees, switching fees) |
|---|---|---|---|---|---|
| Selected OECD countries | | | | | |
| Australia (except MySuper) | No cap | No cap | No cap except for low balances (3% each year for balances below AUD 6 000) | No cap | No switching fee for asset transfer to another provider |
| Chile | No cap | x | Capped | x | x |
| Colombia | 3% (including insurance) | x | x | x | Programmed retirement management fees: 1% on the yields paid in the month<br>Fees charged to currently unemployed affiliates: 4.5% on the yields paid in the month<br>Fees related to voluntary contributions: 0.75% to 4% of assets<br>Transfer fees: 1% on the last income quote base IBC |
| Costa Rica - ROP | x | x | 0.35% | x | x |
| Czech Republic - transformed funds | x | x | 0.8% of the average annual value of the funds | 10% of profit | CZK 800 per switch |
| Czech Republic - participation funds | x | x | 1% of the average annual value of the fund (0.4% for conservative funds) | 15% (10% for conservative funds) of (average value of the pension unit in t – highest annual average value of the pension unit since t0) × the average number of pension units in t, where t is the current period and t0 is the time since the creation of the fund | CZK 800 per switch and CZK 500 per change of investment strategy |
| Denmark | No cap | No cap | No cap | No cap | No cap |
| Estonia - 2nd pension pillar | x | x | 1.2% | the lower between: 2% of assets and 20% of the positive difference of the relative change of the value of the net value index and the positive difference of the relative change of the value of the reference index | Redemption fee could be charged |
| Estonia - 3rd pension pillar | x | x | No cap | x | No cap |
| Hungary - voluntary personal pension funds | x | 6% | max 0.8% | x | Entry fee: max. HUF 4 000<br>Switching fee between portfolios : max. HUF 2000<br>Exit fee, Switching pension provider fee : max. HUF 3000 |
| Ireland | No cap | No cap | No cap | No cap | No cap |

| | Fees on salaries | Fees on contributions | Fees on assets | Fees on returns / performance | Other fees (e.g. exit fees, entry fees, switching fees) |
|---|---|---|---|---|---|
| Israel | x | 6% | 0.5% | x | x |
| Italy | x | No cap | No cap | Possible but rare | Not above the actual administration costs |
| Korea - occupational DC | x | x | No cap | x | x |
| Latvia - state funded scheme | x | 2.5% (SSIA) | Up to 0.6% of average value of assets for assets up to EUR 300 million and 0.4% for the part of assets above EUR 300 million | Total fixed fee plus performance fee: 0.85% of average value of assets for plans not investing in commercial companies, other equity securities and equivalent securities. 1.1% otherwise. | x |
| Latvia - private pension funds | x | No cap | No cap | No cap | x |
| Lithuania - 2nd pillar | x | x | 0.65% for life-cycle funds; 0.2% for asset preservation funds | x | Switching fee up to 0.05% of assets |
| Lithuania - 3rd pillar | x | No cap | No cap | No cap | Switching fee up to 0.5% of assets |
| Mexico - personal plans | x | x | No cap | x | x |
| Poland - open pension funds | x | 1.75% | 0.54% of net assets annually (regressive fee algorithm, bigger funds charge smaller percentage), no more than PLN 186 million annually | 0.06% of net assets annually multiplied by the percentage premium ratio = (Ri-Rmin)/(Rmax-Rmin) | x |
| Poland - PPK | x | x | 0.5% of AUM annually, with assets capped at 15% of PPK market assets | 0.1% of AUM when positive rate of return above the benchmark in secondary legislation | No cap |
| Portugal | No cap | No cap | No cap | No cap | Capped |
| Slovak Republic - 2nd pillar | x | 0.25% (SIA) + 1% (maintaining the account) | 0.3% annually of the average annual net asset value | 10% of net asset value × (value of the pension point/highest value of the point - 1). The highest value of the point is calculated over a defined period. | x |
| Slovak Republic - 3rd pillar | x | x | Pay-out supplementary pension funds: up to 0.6% annually of the average annual net asset value Contributory pension funds: up to 1.2% annually of the average annual net asset value | 10% of net asset value × (value of the pension point/highest value of the point - 1). The highest value of the point is calculated over a defined period. | Switching fee: 5% of the member's account balance in the first year after concluding a contract. No switching fee after 1 year. Termination settlement fee: 20% of the member s account balance (only for old contracts). |
| Slovenia | x | 3% | 1% of average assets | x | Custody fee: no cap Switching fee: EUR 15 per switch Exit fee: 1% of assets |
| Spain | x | x | Cap on management fees varying by fund: 0.85% for fixed income funds, 1.3% for mixed funds, and 1.5% for other funds. Custodian fees: 0.20% (calculated daily). | No cap | x |
| United Kingdom - default funds | x | x | 0.75% | x | x |
| United States | No cap | No cap | No cap | No cap | No cap |

| | Fees on salaries | Fees on contributions | Fees on assets | Fees on returns / performance | Other fees (e.g. exit fees, entry fees, switching fees) |
|---|---|---|---|---|---|
| Other jurisdictions | | | | | |
| Albania | x | x | 3% of the net value of the pension fund annually | x | Switching fee up to 0.5% of the amount transferred<br>Early withdrawal fee from 2% to 20% of the net asset value withdrawn depending on the length of membership |
| Armenia - mandatory plans | x | x | 1.5% of the net asset value | x | Redemption fee up to 1% of NAV of redeemed units |
| Armenia - voluntary plans | x | No cap | 5% of the net asset value | x | No cap |
| Brazil - open pension entities | x | 5% | No cap | No cap | Fee on transfers and withdrawals: up to 10% of the amount transferred or withdrawn |
| Bulgaria - VPFOS and VPF funds | x | 7% | x | 10% of the return (in any) accumulated from the start of the year, calculated daily | Entry fee: up to BGN 10<br>Other fees: up to BGN 20 |
| Bulgaria - UPF and PPF | x | 3.75% | 0.75% of the net assets calculated daily | x | Up to BGN 10 when transferring funds from UPF/PPF to a pension scheme of the EU, ECB or EIB |
| Croatia - mandatory pension funds | x | x | 0.3% | x | Entry fee: up to 0.5% of contributions<br>Switching fee: up to 0.8% of the member's assets |
| Croatia - voluntary pension funds | x | x | Up to 3% | x | Switching fee: up to 2.5% of the member's assets |
| Dominican Republic - personal plans | x (0.5% before February 2020) | x | 1.2% (from February 2020) | x (before 2020: 25% of the difference between the fund performance and a weighted average rate) | x |
| Ghana | x | x | 2.5% | x | x |
| Kazakhstan - mandatory plans | x | x | 0.025% per month in the law, lowered to 0.011% in the by-law of the National Bank of Kazakhstan | 7.5% of investment income in the law, lowered to 2% in the by-law of the National Bank of Kazakhstan | x |
| Kosovo - voluntary pension fund | x | Up to 3% | 0.125% monthly commission | Up to 20% of yield above benchmark in the internal act | No cap |
| Liechtenstein | x | No cap | No cap | x | No cap |
| Macau (China) | x | Maximum rate set in the pension fund management regulation | x | x | Maximum rate set in the pension fund management regulation |
| Maldives | x | x | 0.6% | x | x |
| Nigeria | x | NGN 100 monthly per contribution | 2.025% for Fund I; 1.65% for Fund II; and 1.5% for Fund III | 7.5% on earned income for AES Fund and RSA Fund IV | x |

| | Fees on salaries | Fees on contributions | Fees on assets | Fees on returns / performance | Other fees (e.g. exit fees, entry fees, switching fees) |
|---|---|---|---|---|---|
| North Macedonia - mandatory pension funds | x | 2% | 0.03% of assets monthly | x | Switching fee up to EUR 15 per member if membership is less than 720 days, otherwise no switching fee |
| North Macedonia - voluntary pension funds | x | 7% | 0.15% of assets monthly | x | Switching fee up to EUR 10 per member if membership is less than 360 days, otherwise no switching fee |
| Pakistan - voluntary pension funds | x | x | 1.5% | x | 3% of contribution |
| Peru | No cap | x | No cap | x | x |
| Romania - 2nd pillar | x | 0.5% | Depends on rate on return: 0.02% of AUM per month if rate of return below inflation; 0.03% of AUM per month if rate of return is between 0 and 1 pp. above inflation; 1 additional basis point of fee on AUM per month for each additional pp. of the rate of return above inflation up to 0.07% of AUM per month if rate of return is over 4 pp. above inflation. | x | Switching fee: 5% of the amount transferred |
| Romania - 3rd pillar | x | 5% | 2.4% | x | Switching fee: 5% of the amount transferred |
| Serbia | x | No cap | 1.25% | x | No cap (switching fee) |
| Thailand | x | x | No cap | No cap | Fixed amount per member |
| Uruguay | x | 1.5 times the lowest fee available in the market | x | x | x |

Note: "x" means that the type of fee does not exist or is not allowed in the country. In Portugal, in the specific case of personal retirement saving schemes, transfer fees are subject to a maximum of 0.5% of the transferred amount if there is a capital or return guarantee and cannot be charged otherwise.
Source: OECD Reviews of Pension Systems: Latvia; and OECD Global Pension Statistics.

Jurisdictions like Bulgaria, Costa Rica, Croatia, Estonia and Romania have been lowering their cap on fees recently. Bulgaria progressively reduced the maximum fees that supplementary mandatory universal pension funds (UPF) and supplementary mandatory professional pension funds (PPF) could charge on contributions (now at 3.75%, from 5% in 2015) and on assets (now at 0.75%, from 1%). Costa Rica has been reducing the maximum fees on assets for the mandatory ROP system to reach 0.35% in 2020. In Croatia, the cap on asset management fee in the second pension pillar declined from 0.338% in 2019 to 0.3% of assets in 2020, and will continue to decline by 5.5% until it reaches 0.27% In Estonia, the cap for management fees of second pillar pension funds dropped to 1.2% for all pension funds in September 2019 (the cap was previously 1.2% for conservative funds and 2% for other funds). In the case of Romania, the government reduced the 2.5% cap on fees on contributions to mandatory pension plans (before December 2018) to 0.5% (at the beginning of 2020), with 0.1% (out of these 0.5%) redirected to the centralised institution in charge of transferring contributions to pension fund management companies. Romania has also changed the cap on fees on assets, which was fixed at 0.05% of net assets monthly before but which is now determined depending on the investment rate of return of pension companies and the inflation rate.

The actual level of fees charged to members is difficult to compare across countries. Table 1.3 shows the heterogeneity of fees charged by pension providers in reporting countries in 2020. Some of the highest amounts of fees levied from members relative to the amount of assets under management were recorded in Albania (2.4%), Serbia (1.4%) and Pakistan (1.4%). However, these aggregated amounts of fees could be the result of many factors, including the fee structure and the maturity of the system. These aggregated amounts, shown at a given point in time, do not reflect the amount of fees that individuals bear over their lifetime nor how expensive DC plans are from the perspective of members whatsoever. Additionally, fees may pay for different levels of services across countries and should be examined in light of these services and of the value they generate for plan members. Some indirect charges that reduce the pension pot of plan members may also still need to be uncovered and disclosed, and would therefore not be accounted for in the currently available data on fees.

### Table 1.3. Annual fees charged to members in selected countries, by type of fee, 2020

As a percentage of total assets

| | Fees on salaries | Fees on contributions | Fees on assets | Fees on returns / performance | Other fees |
|---|---|---|---|---|---|
| Selected OECD countries | | | | | |
| Australia (1) | | | 0.4 | | |
| Chile | 0.5 | x | 0.3 | x | x |
| Colombia (2) | 0.4 | x | x | x | 0.2 |
| Costa Rica (3) | x | x | 0.3 | x | x |
| Czech Republic | x | x | 0.8 | 0.1 | 0.0 |
| Estonia | x | x | 0.6 | 0.1 | 0.0 |
| Hungary (4) | x | 0.3 | 0.3 | x | .. |
| Korea (5) | x | x | 0.5 | x | x |
| Lithuania | x | .. | 0.6 | .. | 0.0 |
| Mexico (6) | x | x | 0.8 | x | x |
| Poland (7) | x | 0.0 | 0.4 | 0.0 | x |
| Slovak Republic | x | 0.1 | 0.4 | 0.2 | 0.0 |
| Slovenia | x | .. | 0.8 | x | .. |
| Spain (6) | x | x | 1.0 | .. | x |
| Selected other jurisdictions | | | | | |
| Albania | x | x | 2.2 | x | 0.2 |
| Bulgaria | x | 0.4 | 0.6 | 0.0 | 0.0 |
| Croatia (8) | x | x | 0.4 | x | 0.0 |
| Dominican Republic (6) | 0.1 | x | 1.0 | 0.2 | x |
| Kazakhstan (9) | x | x | 0.1 | 0.2 | x |
| Liechtenstein | x | 0.1 | 0.4 | x | 0.0 |
| Maldives | x | x | 0.4 | x | x |
| North Macedonia | x | 0.2 | 0.3 | x | .. |
| Pakistan | x | x | 1.3 | x | 0.0 |
| Peru | 0.5 | x | 0.1 | x | x |
| Romania | x | 0.1 | 0.6 | x | 0.0 |
| Serbia | x | 0.2 | 1.2 | x | .. |
| Thailand (10) | x | x | 0.3 | .. | x |

Note: Please see the methodological notes at the end of the report.
Source: OECD Global Pension Statistics.

However, it is possible to compare the amount of fees charged on assets (expressed as a percentage of assets) in Table 1.3 to the cap set in the legislation for this type of fee in Table 1.2, which are almost the

same in several countries.[53] For instance, pension providers levied fees on assets worth 0.32% of assets in Costa Rica (with a cap at 0.35%), 0.8% in the Czech Republic (with a cap at 0.8%), 0.12% in Kazakhstan (with a cap at 0.011% monthly (ca. 0.132% annually) in the by-law of the National Bank of Kazakhstan), 1.21% in Serbia (with a cap at 1.25%). The choice of the level of the cap is therefore important, but challenging. If the cap is too high, charges may rise to the level of this cap. If the cap is too low, pension providers may try to lower costs and could lower the quality of the services they provide (OECD, 2018). In a number of countries, pension providers charge less on assets than the cap (which may not be binding), such as in Albania (2.2%, with a cap at 3%), 0.6% in Estonia (with a cap at 1.2% for the second pension pillar and no cap for the third pension pillar), 0.3% in Hungary (with a cap at 0.8%).

[53] The value of assets that is used in the OECD calculation is measured at the end of the year, which could be higher than at other times of the year.

# 2 Public pension reserve funds

Public pension reserve funds cut across the traditional boundaries of the different components of pension systems. They manage assets like providers of funded and private pension arrangements, but generally aim at supporting unfunded public pension arrangements. These institutions can play an important role in pension systems, as they sometimes hold and manage more assets than funded and private pension arrangements as a whole, like it is the case in Japan and Korea (OECD, 2019). The OECD Core Principles of Private Pension Regulation has instruments for efficient regulation and management of private pension system that can be relevant and useful for the operations of public pension reserve funds, such as investment and risk management.

This section provides an overview of public pension reserve funds and their features, highlighting some of the commonalities and differences with private pension providers. It provides a background for any stakeholders interested in these institutions.

Public pension reserve funds usually have the task to act as a liquidity buffer, as a temporary buffer against extreme shocks or as a permanent smoothing vehicle between inflows and outflows in public pension arrangements. Like in private pension arrangements, one of their income sources are the earnings of their investments. The financial performance of their investments can help to postpone the depletion date or reduce the necessary adjustments of other parameters of the public pension arrangements. By contrast, withdrawals that are larger than expected can accelerate the depletion of the fund.

This section first presents the different missions and features of public pension reserve funds that exist. Second, it examines how public pension reserve funds accrue assets while it looks into their size and evolution in a third subsection. Fourth, it assesses the conditions to withdraw assets from these reserve funds and the amounts that have been actually withdrawn. This section ends with a summary of some of the main takeaways of this analysis.

## 2.1. Mandates and features of public pension reserve funds across the OECD

The financial sustainability of public pension arrangements partly depends on the relationship between inflows and outflows. Outflows mainly represent benefit payments to current eligible retirees or widow(er)s, which are usually financed by current contributions from working-age people in public pay-as-you-go (PAYG) pension arrangements. Outflows depend on the number of eligible beneficiaries and the benefit formula while inflows depend on the number of contributors, their salary and the contribution rate in many public pension arrangements. The matching between inflows and outflows can be ensured in several ways, such as by adjusting some parameters of the system (e.g. contribution rate, benefit level) when (politically) possible so that benefits that are due do no exceed revenues.

Many countries decided to build up reserves in order to support the operation of public pension arrangements. More than 20 OECD countries, including Australia, Canada, Japan, Korea, the United Kingdom and the United States for instance, hold reserves that are separated and ring-fenced in funds for a specific purpose (Table 2.1). Other countries may also have reserves for their PAYG pension arrangements but these may not be separated from the general budget, such as in the Czech Republic and Latvia for instance. In the Czech Republic and Latvia, surpluses from contributions over benefit

payments represent accounting lines rather than separate pool of assets. In the Netherlands, the AOW Savings Fund was established in 1997 as an integrated part of the national fiscal balance and debt, but is a nominal fund holding no assets (IMF, 2011).

### Table 2.1. Main public pension reserve funds in the OECD

| Country | Reserve funds | Creation date | Supporting the schemes: | Beneficiaries at retirement | Purpose of the reserves |
|---|---|---|---|---|---|
| Australia | Future Fund | 2006 | Unfunded public service, military superannuation and pension schemes, South Australian and Tasmanian railways arrangements | Public servants, military employees, former employees of the South Australian and Tasmanian railways | Strengthen the Australian Government's long-term financial position by making provision for unfunded superannuation liabilities that will become payable during a period when an ageing population is likely to place significant pressure on public finance. |
| Canada | Canada Pension Plan (CPP) Reserve Fund (1) | 1966 / 1997 (creation of the CPP Investment Board) | CPP | Workers (including self-employed) except those in Quebec | Stabilise the revenues and expenditure of the scheme over time |
| Canada | Reserve of the Quebec Pension Plan | 1966 | Quebec Pension Plan | Workers (including self-employed) in Quebec | Stabilise the financing of the Quebec Pension Plan over the long-term. |
| Chile | Pension Reserve Fund | 2006 | Basic solidarity pensions | Those who could not save enough for their retirement | Support financing of government obligations arising from the government's guarantee to basic old-age and disability solidarity pensions and solidarity pension contributions. |
| Finland | Keva's pension liability fund | 1988 | The Keva's member bodies pension scheme (benefits in the public sector pensions act (JuEL); financing in the act on Keva) | Employees in the municipal sector | Support a predictable and long-term stable contribution level |
| Finland | State Pension Fund (VER) | 1990 | The state pension scheme (benefits in the public sector pensions act (JuEL); financing in the act on financing the state pension scheme) | State employees | Ensure that the state pension system is duly prepared for financing future state pensions and equalise fluctuations in state pension expenditure. |
| France | Fonds de Réserves pour les Retraites (FRR) | 1999 (became a separate entity in 2001) | CNAV, Organic, Cancava | Private-sector employees, merchants and craftsmen | Support the financing of the related pension schemes |
| France | AGIRC-ARRCO | 1947 | AGIRC-ARRCO | Private-sector employees | Support benefit payments and ensure the stability of the revenues and expenditure of the scheme |
| France | Reserves of special regimes (basic, complementary or integrated to the main general regime) | Varies by scheme | BDF, CARCDSF, CARMF, CARPIMKO, CARPV, CAVAMAC, CAVEC, CAVOM, CIPAV, CNAVPL base & complémentaire, CNBF base & complémentaire, CNRACL, CPRN, CRPCEN, CRPNPAC, IRCANTEC, MSA complémentaire, RCI | Different beneficiaries depending on the scheme. Include: doctors, nurses, insurance agents, ministerial and public officers, architects, engineers, staff of Bank of France, staff of public notary offices, self-employed, farm workers. | Cover expenses over time |
| Germany | Sustainability Fund (Nachhaltigkeitsrücklage) | 1972 | General pension scheme | Workers | Ensure the liquidity of the system. Short-term smoothing. |
| Israel | National Insurance Fund | 1954 | Social insurance | Workers | Guarantee the sustainability of the scheme in the long term |
| Italy (2) | Privatised funds under L.D 509/1994 | 1994 | Cassa Forense, CIPAG, CNN, CNPADC, CNPR, ENASARCO, ENPACL, ENPAF, ENPAIA, ENPAM, ENPAV, FASC, INARCASSA, INPGI, ONAOSI | Different beneficiaries depending on the scheme. Include: vets, pharmacists, lawyers, engineers, architects, accountants, notaries, doctors, journalists. | Reserves to fulfil obligations |
| Italy (2) | Privatised funds under L.D 103/1996 | 1996 | ENPAB, ENPAIA, ENPAP, ENPAPI, EPAP, EPPI and INPGI | Different beneficiaries depending on the scheme, e.g.: biologists, agronomists, forestry experts, actuaries, chemists, geologists, | Reserves to fulfil obligations |

| Country | Reserve funds | Creation date | Supporting the schemes: | Beneficiaries at retirement | Purpose of the reserves |
|---|---|---|---|---|---|
| | | | | psychologists, nurses. | |
| Japan | Government Pension Investment Fund (GPIF) | 2001 (became independent in 2006) | National Pension and the Employee Pension Insurance | National Pension: all working-age population<br>Employee Pension Insurance: employees | Ensure the financial stability of the National Pension Plan and the Employees' Pension Insurance Plan |
| Korea | National Pension Fund | 1988 | National Pension Scheme | Workplace-based insured, individually insured (e.g. self-employed), voluntarily insured (e.g. student aged under 26 choosing to join the scheme) and voluntarily and continuously insured (e.g. those choosing to continue contributing after the mandatory enrolment age of 59). | Reserve sufficient funds to finance the implementation of the National Pension Scheme and pay out pension benefits |
| Korea | Government Employees Pension Fund (GEPF) | 1966 (establishment apart from government budget) | Government Employees Pension System | Civil servants | Ensure the financial stability of the scheme |
| Korea | Teachers' pension fund | 1974 | Private School Teachers Pension Scheme | Private school teachers | Legal reserve to supplement benefits |
| Korea | Military Pension Fund | 1963 | Military Personnel Pension Scheme | Military personnel | Legal reserves are accumulated in the Fund for the stability of the Military Pension Fund |
| Lithuania | State Social Insurance Reserve Fund | 2017 | State social insurance | Persons insured by the State Social Insurance (e.g. employees, self-employed, farmers) | Cover unforeseen and exceptional expenditures (except administrative expenditures) |
| Luxembourg | Fonds de Compensation (FDC) | 2004 | General pension insurance scheme | Private-sector employees and self-employed | Mitigate the impact of external shocks on the revenues or expenses of the general pension insurance scheme |
| Mexico | Reserves of the IMSS | | IMSS | Private-sector workforce | Prefunding liabilities arising from pre-reform DB pensions |
| New Zealand | New Zealand Superannuation Fund | 2001 | Universal superannuation | Residents of New Zealand | Help pay for the future cost of providing universal superannuation. |
| Norway | Government Pension Fund - Norway (GPFN) | 1967 | National insurance scheme | Residents of Norway | Facilitate government savings to finance rising public pension expenditures |
| Poland | Demographic Reserve Fund | 1998 | Old-age pension scheme (PAYG NDC scheme) | Economically active people (3) | Better secure the solvency of the old-age pension benefits |
| Portugal | Social Security Financial Stabilisation Fund (FEFSS) | 1989 | Public pension scheme | Private sector workers and public-sector employees enrolled since 1 January 2016 | Secure the payment of pension benefits in the event of a financial imbalance in Social Security. |
| Spain | Social Security Reserve Fund | 2000 | Social Security system | All workers (including self-employed) | Protecting the social security system in situations of need |
| Sweden | AP1-AP4 and AP6 | 2000 | NDC system | All workers (including self-employed) | Contribute to the stability of the pension system and secure pension payments over time |
| Switzerland | AHV Central Compensation Fund | 1948 | AHV (old-age and survivors' insurance) | Residents of Switzerland | Smooth out short-term fluctuations between revenues and expenditure |
| United Kingdom | National Insurance Fund (NIF) | 1948 / 1975 (present form) | National insurance scheme / state pension | Employees and self-employed | Even out fluctuations over time in the movement of contributions and benefits and to provide a source of finance to meet exceptional demands. |
| United States | Old-Age and Survivors Insurance (OASI) Trust Fund | 1937 | Social Security | Workers covered by Social Security | The accumulated reserves provide automatic spending authority to pay benefits. |

Note: Please see the methodological notes at the end of the report.

The ultimate purpose of reserve funds varies across countries. Reserves are usually built up to provide a liquidity buffer, to provide a temporary buffer against shocks or to permanently smooth inflows and outflows.

Reserve funds that are only set up as liquidity buffers usually have a short-term smoothing mission. They intend to cushion short-term impacts on revenues and expenditure of the pension scheme (Vernière, 2001). This type of fund exists in Germany (compensation of fluctuation in revenues) and Switzerland. Reserve funds with a broader mission may also dedicate a part of their assets to support the liquidity of the plan. In France, AGIRC-ARCCO holds several types of reserves, including a liquidity reserve (*reserve de fonds de roulement*). These liquidity reserves help to manage cash flows, especially when contributions and payments are received at different moments within the month, and help the scheme to meet short-term requirements.[54]

Reserves may be built up as a temporary buffer, like in Australia and Korea, in order to address a future external shock (e.g. a demographic change). The mission of Australia's Future Fund is to make provision for liabilities that will become due at a time when an ageing population is likely to put significant pressure on public finances. Korea's National Pension Fund holds assets that are expected to be used to pay benefits when outflows from the National Pension Scheme will exceed inflows to the scheme as the number of retirees over people contributing increases. Assets in these funds are (currently) expected to be depleted after the demographic change.

The creation of a temporary buffer, which is also sometimes called prefunding pension benefits, has several upsides. It allows to respond to the fiscal pressure due to an ageing society, to smooth changes on contribution rates or benefit payments that the demographic change would entail, and to improve the debt position of the government (Yermo, 2008). It also allows some intergenerational equity by limiting that a generation of contributors pays more than another one.

Some countries have decided to prefund a part of future pension benefits permanently. These countries usually task this type of reserve fund to guarantee the financial stability of the public pension arrangement over the long-term, with no specific horizon, such as the Canada Pension Plan (CPP) Reserve Fund and the Quebec Pension Plan (QPP) Reserve Fund in Canada, Keva's pension liability fund and the State Pension Fund (VER) in Finland. Reserves are not expected to be depleted. In Finland, the State Pension Act defines VER's target funding ratio at 25% of the state's pension liabilities.[55]

The mission of some of the reserve funds has evolved over time. Canada's CPP Reserve Fund became a permanent stabiliser between inflows and outflows after a reform package in 1997, following projections in 1993 that the assets of the reserve fund would be depleted by 2015.[56] In Korea, the Government Employees Pension Fund (GEPF) was also close to depletion in 2000 and became a small contingency fund of the government employee pension scheme.[57]

Whether a temporary buffer or a permanent smoothing mechanism, reserve funds can be set up for different types of public pension plans covering different populations. In many cases, they are set up for general public pension schemes covering most of the workforce (at least private-sector workers). Some countries have reserves to support schemes for specific categories of people, such as safety nets for low

[54] It was recently decided that AGRIC-ARCCO would operate on a monthly basis (instead of on a quarterly basis) to reduce the amount of assets that was needed to cover the gap between the pension payments and the collection of contributions.

[55] VER set the objective of reaching this 25% funding ratio by end-2033: Strategy | VER

[56] https://www.canada.ca/en/employment-social-development/programs/pensions/reports/annual-2018.html

[57] Source: Government Employees Pension Service - Annual Report

income people (e.g. Pension Reserve Fund (PRF) in Chile, New Zealand Superannuation (NZS) Fund), special regimes for certain types of workers (e.g. the State Pension Fund in Finland for state employees, three reserve funds for civil servants, private school teachers and military personnel respectively in Korea, privatised funds in Italy for different types of workers).[58] In Japan, the Government Pension Investment Fund (GPIF) manages the reserves of two pension schemes: the national pension scheme (covering all working-age population) and the employees' pension schemes (covering private-sector employees only).[59] Sweden is the only OECD country where different reserve funds (AP1-AP4 and AP6) support the same scheme and population (notional DC scheme covering all workers). Sweden introduced competing reserve funds instead of a single reserve fund like in other countries in order to reduce the impact of the reserve funds on the domestic financial market, diversify management risk and enhance performance through competition (Severinson & Stewart, 2012).

Reserve funds may sometimes be considered as some other institutional investors, such as public and private pension funds, and sovereign wealth funds, in terms of operations and cash flows. For instance, the difference may appear slim between a reserve fund that intends to permanently smooth contributions and benefits and finance a certain share of benefit payments (e.g. Canada's CPP Reserve Fund), a pension fund operating partially on a pay-as-you-go and partially on a funded basis (e.g. TyEL funds in Finland) and a pension fund that is supposed to operate on a fully funded basis but has a funding deficit (e.g. some public pension funds in the United States).

However, reserve funds have distinct features that differentiate them from other types of institutional investors (Table 2.2). Reserve funds are run by a public institution, and so are public pension funds and sovereign wealth funds. This public institution may be a public-sector body, a local, state or the central government itself. By contrast, private pension funds are administered by a private-sector institution.

### Table 2.2. Differences between PPRFs and selected other types of institutions

| | Reserve funds | Public pension funds | Private pension funds | Sovereign Wealth Funds |
|---|---|---|---|---|
| Administrator | Public institution | Public institution | Private institution | Public institution |
| Ownership of assets | Administrator of the associated pension scheme or Government | Members | Members | Government |
| Liabilities | No individual commitment | Individual commitment | Individual commitment | No individual commitment |
| Purpose | Support the operation of a (public) pension scheme | Finance retirement benefits of eligible members of the scheme (partially or fully) | Finance retirement benefits of eligible members of the scheme (partially or fully) | Serve macro-economic purposes |

Note: A public institution can be a central, state, local government or a public-sector body.

Additionally, assets in reserve funds belong to the institution administering the scheme, such as social security, or the government ultimately, which is also the case of Sovereign Wealth Funds (SWFs) but not

[58] Reserve funds in Italy are private entities with legal personality having the primary task of running mandatory, first-pillar pension schemes, each for a certain category of self-employed workers. These reserve funds are included in this analysis, as except for their private status, they are similar to public pension reserve funds.

[59] See 11e.pdf (mhlw.go.jp) and annual_report_fiscal_year_2019_01.pdf (gpif.go.jp)

with pension funds. Reserve funds and SWFs do not have commitment towards specific individuals.[60] By contrast, assets of pension funds ultimately belong to members. Pension funds are expected to finance retirement benefits of their members (partially or fully) and have pension liabilities. Members of pension funds have a legal or beneficial right or some other contractual claim against the assets in pension funds (OECD, 2005), but this is not the case for reserve funds nor SWFs.

## 2.2. Main financing sources of reserve funds

Reserve funds often accumulate assets through the excess of revenues over expenditures in the scheme they support. Table 2.3 presents the different financing sources of reserve funds. Revenues usually come from contributions of employees, employers or the state to the scheme while expenses cover payments to eligible beneficiaries and administrative expenses. Reserve funds have been financed to some extent in this way in Canada, Finland, France (until 2010 for the FRR), Germany, Japan, Korea, Luxembourg, Mexico, Norway (until the late 1970s), Portugal, Spain, Sweden (excess split equally between AP1-AP4), Switzerland, the United Kingdom and the United States. In Italy, the funds under L.D 103/1996 receive the difference between the actual return on investments and a capitalisation rate of the annual variation in nominal GDP accredited onto the individual accounts.

### Table 2.3. Financing sources of selected public pension reserve funds

| Financing source | Public pension reserve Funds |
|---|---|
| Excess of contributions over benefits and other expenses paid by the associated scheme | Canada's CPPIB and QPP, Finland's Keva and VER, France's FRR (until 2010) and AGIRC-ARCCO, Germany's Sustainability Fund, Israel's NII, Italy's privatised funds, Japan's GPIF, Korea's NPF and other reserve funds, Luxembourg's FDC, Mexico's IMSS, Norway's GPFN (until the late 1970s), Portugal's FEFSS, Spain's Social Security Reserve Fund, Sweden's AP1-AP4, Switzerland's AHV's Central Compensation Fund, UK's NIF, US' OASI Trust Fund |
| Revenues from privatisation | Australia's Future Fund, France's FRR, Poland's Demographic Reserve Fund |
| Earmarked contribution / tax | France's FRR and AGIRC-ARCCO, New Zealand Superannuation Fund, Poland's Demographic Reserve Fund, Portugal's FEFSS |
| Special contribution or one-off payment | France's FRR, Korea's NPF, UK's NIF |
| Other budget, fiscal transfers or source of revenues | Australia's Future Fund, Chile's PRF, Poland's Demographic Reserve Fund, Spain's Social Security Reserve Fund, Sweden's AP6 |
| Investment income | All |

There are other ways to accumulate reserves. Reserve funds could be financed through revenues from privatisation, earmarked contribution or tax, special or one-off contribution, and any other fiscal transfer. Reserve funds in Australia, France (FRR) and Poland received proceeds from privatisation of national companies (e.g. the telecommunication company Telstra in Australia). Reserve funds get partly financed through an earmarked contribution or tax in France, New Zealand, Poland and Portugal. France's FRR receives fiscal transfers of a tax on capital income and investment products while the reserve account of AGIRC-ARCCO, which is dedicated to finance operating expenses, receives a levy on contributions.[61] In New Zealand, the government makes contributions to the reserve fund in line with the requirement coming

[60] Assets in reserve funds intend to support the operation of the public scheme, while the purpose of SWFs is to help the government to achieve macro-economic purposes.

[61] Social partners decide the percentage. It was decided during the National Interprofessional Agreement of 10 May 2019 that the levy on contributions to finance the management reserve would decline by 2% in 2019, 4% in 2020, 5% in 2021 and 6% in 2022.

from the formula in the New Zealand Superannuation and Retirement Income Act of 2001 that the Treasury applies.[62] Poland's Demographic Reserve Fund receives a part of old-age contributions. In Portugal, the FEFSS receives between 2% and 4% of employees' contributions, and since 2017, a percentage of real estate and corporate taxes (0.5% of the taxes in 2018, increasing gradually to 2% in 2021), in addition to the surplus from the public pension system.[63] A few reserve funds received special ad-hoc contributions, such as: a one-off cash payment from the National Fund of Electricity and Gas Industries (IEG) for France's FRR, earnings from commercial lease deposits in 2018 for Korea's NPF and a Treasury grant for the UK's National Insurance Fund (NIF) for the financial year 2015-2016. Reserve funds may receive other types of funding or fiscal transfers, such as Chile's PRF that received a fiscal transfer between 0.2% and 0.5% of the GDP of the previous year depending on the size of the budget surplus,[64] the Spanish reserve fund that benefitted from an extension of EUR 10.1 billion interest-free loan in 2017 to avoid depletion, and Sweden's AP6 that received a portion of the disbanded wage-earners funds (which existed in the 1980s and consisted mainly of pooled profits from Swedish corporations).

Some countries have set targets in the amount of reserves to accumulate. This target may be:

- a specific and fixed level, like in Chile (900 million UFs[65]) or in France (EUR 1 billion since 2019 for the reserves of AGIRC-ARCCO earmarked to cover administrative management expenses)
- a number of months or years of pension expenditure (e.g. 6 months for the technical reserves of France's AGIRC-ARCCO, between 0.2 and 1.5 month for Germany's reserve fund, 2 months for the UK's NIF as per the recommendation of the Government Actuary, 1 year of benefit expenses over a 100-year period for Japan's GPIF, 1.5 year for Luxembourg's FDC, 2 years for Portugal's FEFSS, 12 months for Switzerland's AHV Central Compensation Fund)
- a certain percentage of the present value of all future benefit payments (e.g. 100% of projected unfunded superannuation liabilities in Australia, 25% for Finland's VER).

Depending on the country, this target may be a floor (e.g. in the UK, Japan, Luxembourg) or a ceiling (e.g. in Australia, Chile, Portugal). For instance, in the United Kingdom, a Treasury grant is made to the reserve fund when the assets fall below the two months of estimated annual benefit expenditure. By contrast, in Australia, the target asset level is a ceiling, banning additional amounts to be credited to the Future Fund if this would lead to the balance of the fund to exceed the target asset level. Likewise in Chile, fiscal transfers are planned until the PRF reaches 900 million UFs. In Portugal, a percentage of employees' contributions is transferred to the reserve fund until assets can finance two years of pension expenditure. Germany has both a floor (0.2 month of pension expenditure) below which the contribution rate has to be raised, and a ceiling (1.5 month of pension expenditure) above which the contribution rate has to decline.

All reserve funds also benefit from returns on their investments. The possibility to harness financial markets and earn investment income is one of the reasons that can lead countries to prefund the liabilities of a public scheme, such as Luxembourg. It may also be the main source of funding of reserve funds such as for Korea's GEPF that is now a contingency fund only earning investment income.[66] In Australia,

[62] The annual contribution shall ensure that the reserve fund can meet future superannuation costs over a 40-year horizon. The government started to contribute in 2003 but suspended its annual contributions between 2009 and 2017.

[63] Contributions from employees going to the reserve fund depend on the economic situation during a given year and may be suspended temporarily, as it was the case in 2012-2013.

[64] Article 4 of the Law N° 21.225 suspended contributions to Chile's PRF in 2020 and 2021.

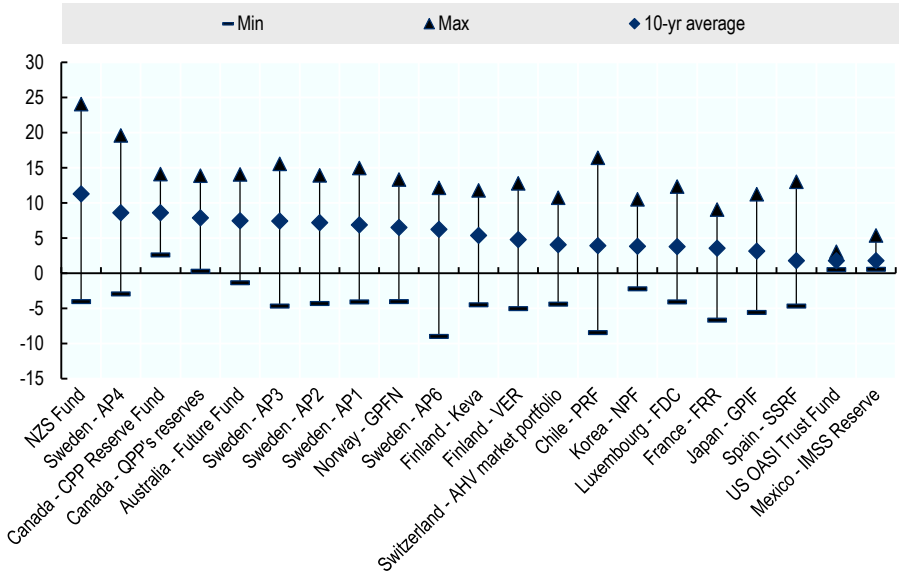
[65] UF (or Unidad de Fomento) is a unit of account in Chile. It was worth USD 38.81 at end-2020.

[66] Source: Government Employees Pension Service - Annual Report

investment income has been the only source of revenues of the Future Fund since 2008.[67] The average annual real investment rates of return varies greatly across reserve funds over the period Dec 2009-2019, ranging from 1.8% in Mexico and the United States, to over 10% in New Zealand (11.8%) (Figure 2.1).[68]

## Figure 2.1. Range of annual real investment rates of return of selected reserve funds over 10 years (between Dec 2009 and Dec 2019)

In per cent




Note: Please see the methodological notes at the end of the report.
Source: OECD Annual Survey of Public Pension Reserve Funds, Annual Reports and Financial Statements of reserve funds.

Reserve funds experienced a different variability in their annual investment performance. Reserve funds in Mexico and the United States always achieved a positive return between end-2009 and end-2019 but never exceeded 5% (except in 2019 for Mexico). By contrast, all the other reserve funds experienced a negative investment performance at least once in the period (except in Canada). The New Zealand Superannuation Fund that achieved the strongest performance over the 2010s was also the one with the largest variation in the annual investment performance (varying between -4% and 24.1%).

The differences in investment performance come from the different ways in which reserve funds invest their assets (Figure 2.2). The NZS Fund is one of the reserve funds with the largest proportion of assets in equities, exceeding 50%, together with Norway's GPFN. By contrast, reserve funds in some countries (such as Mexico, Spain, Israel, the United Kingdom, and the United States) hold no listed equity. Reserves in the United States are only invested in earmarked treasury bonds, guaranteeing a predictable and stable annual investment performance.[69] In the United Kingdom, the surplus is loaned to the government through

[67] Credits to the Future Fund from the Australian Government have not occurred since 2008: https://www.finance.gov.au/government/australian-government-investment-funds/future-fund

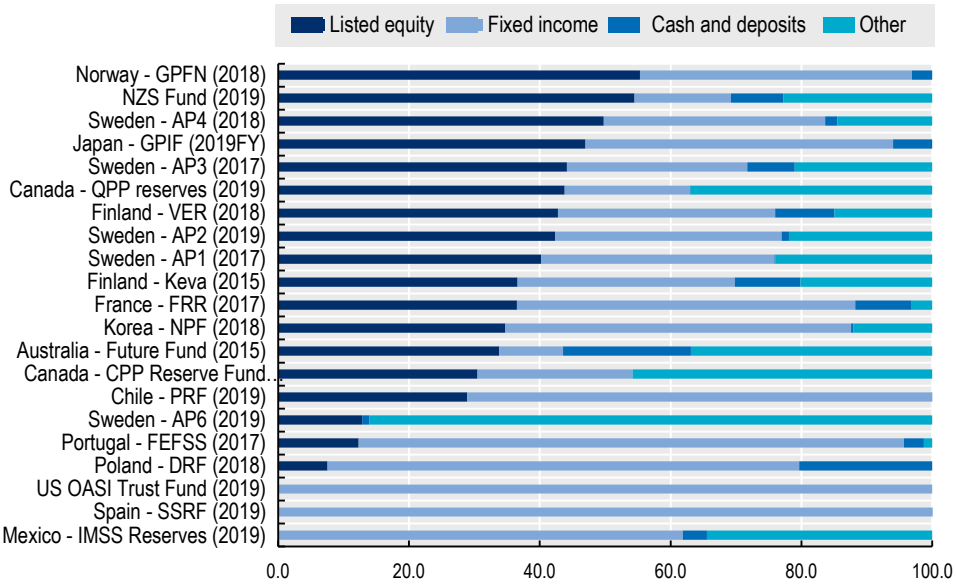
[68] In Australia, most of the current balance now comes from investment income rather than from the original credits/transfers to the fund: Future Fund | Department of Finance

[69] All the securities held by the OASI Trust Fund are special issues of the US Treasury. These securities are only available to the trust funds. The Federal government guarantees both the principal and interest of these securities.

the debt management office through call notice deposits. Reserves are invested in two types of bonds in Israel: fixed-rate bonds and variable-rate bonds.[70]

## Figure 2.2. Asset allocation of selected reserve funds, latest year available

As a percentage of total investment




Note: Please see the methodological notes at the end of the report.
Source: OECD Annual Survey of Public Pension Reserve Funds; Annual report of the Korean NPF; and official websites.

While reserve funds holding only fixed income instruments maintain their asset allocation over the last decade, some other reserve funds have changed their asset mix over the years. For example, Japan's GPIF and Korea's NPF have sought to diversify their asset allocation further, and reduced the proportion of assets invested in bonds while increasing the share of listed equities in their portfolio, reaching 47% and 35% of their portfolio at the end of the period respectively, above the average of reserve funds in this analysis (31%). This increase may enable reserve funds to achieve better-risk adjusted returns and supports their long-term goal, but may also represent a concentration risk and influence in domestic markets given the size of some reserve funds, depending on the geographical diversification of these investments. The OECD (2019) showed that a few reserve funds have also ramped up their investments in alternative instruments, such as Japan's GPIF and Canada's CPP reserve fund

The mission of the public reserve funds would be expected to influence their asset allocation. Reserve funds operating as a short-term smoothing mechanism between inflows and outflows would need to have liquid assets to fulfil their mission. Reserve funds with a longer term horizon can take more risks - especially as they do not have immediate commitments towards specific members - in order to benefit from higher investment performance and compound interests. This may be one of the reasons for the increased diversification of assets in the reserve funds of Japan and Korea. ISSA (2019) recommends a sufficient diversification of the range of instruments allowed for the investments of assets (of social security

These special issues can be redeemed at any time at face value and are therefore neither subject to suffer a loss nor to enjoy a gain if sold before maturity. See: Trust Fund Data (ssa.gov)

[70] לאומי ביטוח | אקטוארי וחשבון דין - 31.12.2016 ליום מלא אקטוארי וחשבון דין (btl.gov.il) (in Israeli, see page 19)

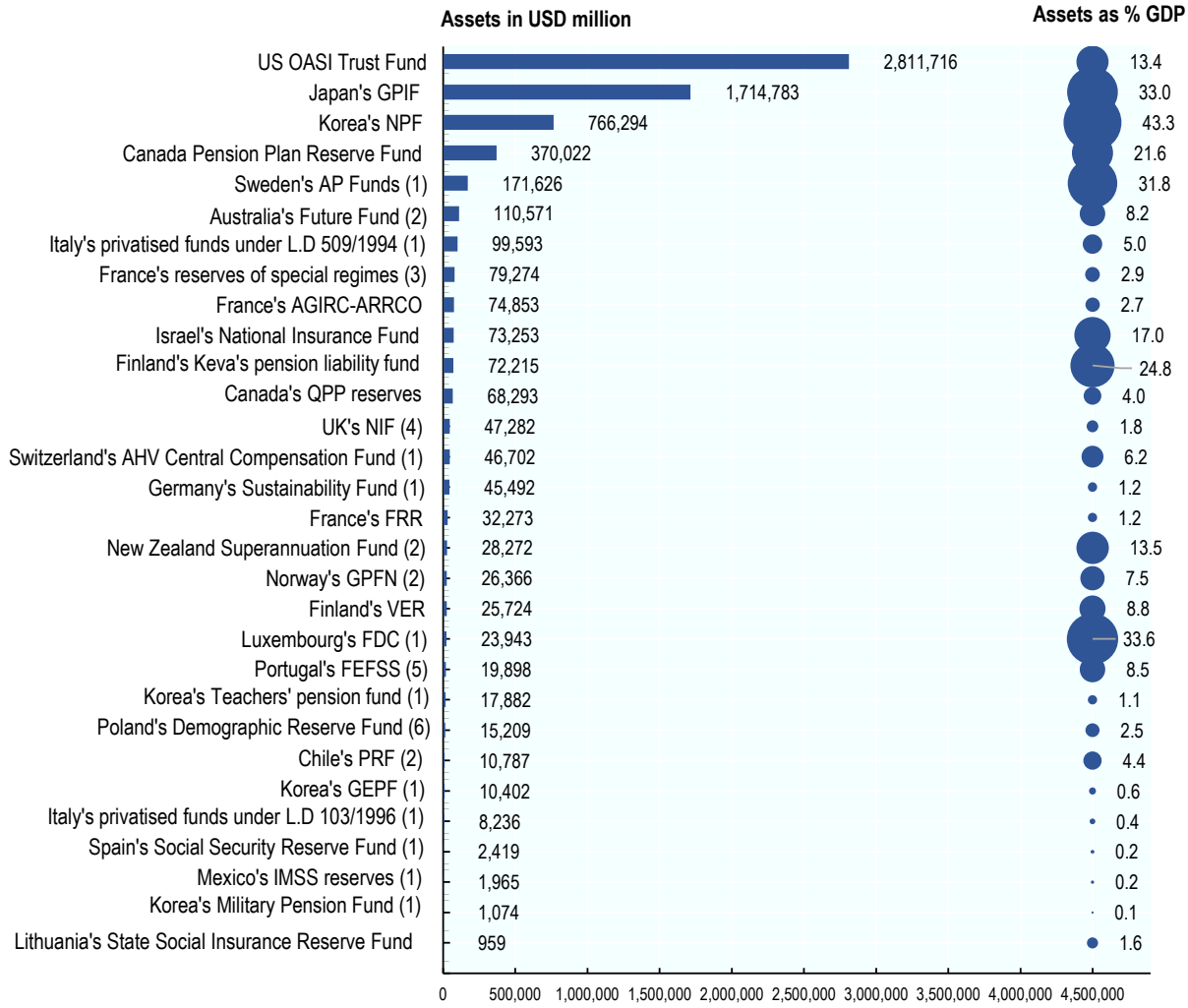
institutions), in order to maximise the long-term rate of return on reserves while mitigating investment risks and taking into account the nature of the liabilities. A stronger investment performance of reserve funds could further supplement other sources of revenues for reserve funds, and finance more payments or for longer. Reserve funds aiming to reduce future budget deficits might additionally invest less in domestic government bonds. When the objectives of the funds are broader (such as those of sovereign wealth funds) and include welfare of the broader population, these funds might consider investing more in low-return public goods (e.g. some types of infrastructure).

## 2.3. Assets have been growing and will continue in many reserve funds

The size of the reserve funds varies greatly across countries. Reserve funds in the OECD area gathered USD 6.8 trillion of assets altogether at end-2020. Figure 2.3 shows that the United States has the largest amount of reserves in the OECD in USD terms, exceeding USD 2.8 trillion at end-2020, as it has been building reserves for decades. By contrast, Lithuania has one of the lowest amount of assets set aside as it started to build up reserves only recently. When compared to the size of the domestic economy, Korea's national pension schemes has the largest amount, at 43% of GDP, much larger than the reserves of three other schemes for specific professions (between 0% and 1% of GDP). Luxembourg, Japan and Sweden also hold reserves worth more than 30% of their GDP. By contrast, reserves are relatively small in Germany (1%) and Switzerland (6%) where reserves are held for liquidity purposes and short-term smoothing only.

## Figure 2.3. Size of selected public pension reserve funds at end-2020 (or latest date available)

In USD million and as % of GDP



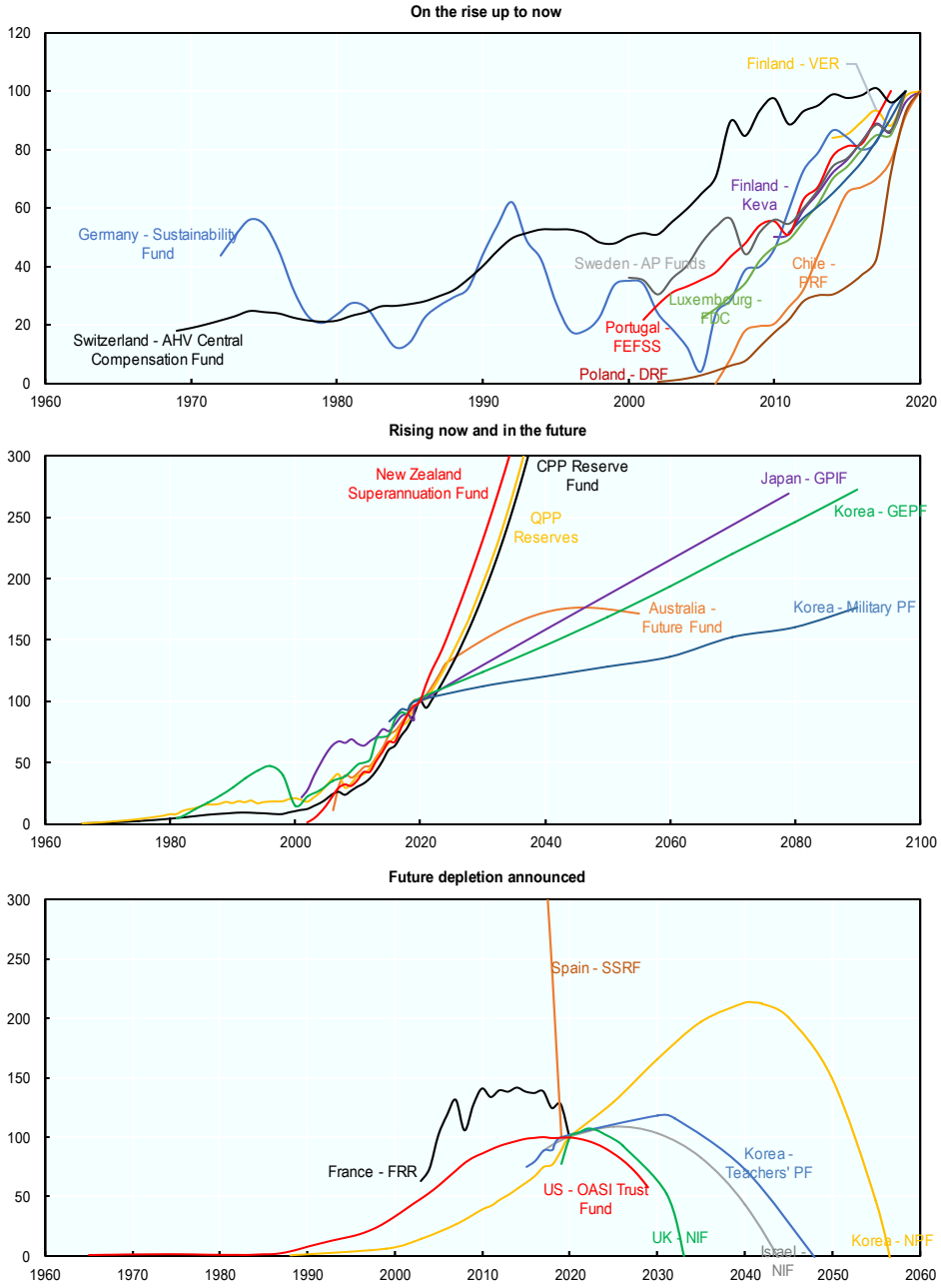

Note: Please see the methodological notes at the end of the report.
Source: Websites and annual reports of reserve funds or other national authorities.

Assets in most reserve funds have been growing until now and are even forecast to continue to grow in ten reserve funds at least, but will fall in the near future in some. Figure 2.4 shows that in some reserve funds, assets are forecast to be depleted: Israel's National Insurance Fund (by 2044), Korea's NPF (by 2058) and Teachers' pension funds (by 2048), UK's NIF (by 2033) and the US OASI Trust Fund (by 2033).[71] Assets in France's FRR and the Spanish reserve funds are already dwindling.

[71] See the 2021 Trustees Report for the United States at: https://www.ssa.gov/OACT/TR/2021/tr2021.pdf

## Figure 2.4. Evolution of assets in selected PPRFs

Base: 100 (in 2020)




Source: Annual and latest actuarial reports of reserve funds.

These projections are sensitive to the underlying assumptions. Assumptions usually relate to demographic factors (e.g. evolution of mortality, fertility and immigration), economic factors (e.g. wage growth, CPI growth) – especially when reserves are built up from the excess of contributions over benefits - and financial factors (e.g. investment returns). National authorities projecting assets in reserve funds often conduct sensitivity analyses, changing values of parameters and considering more optimistic or pessimistic scenarios. Different institutions may be producing forecasts, such as in Korea (NPRI and NABO), which could lead to different projection outcomes.

The projections that are shown in this document have usually been carried out before COVID-19 and therefore do not take into account the effects of COVID-19 and its implications on the population and the economy, nor the implications for the schemes that reserve funds support. For instance, due to COVID-19, contributions to Chile's PRF were suspended in 2020 and 2021. Funds that also receive income from the surplus of the system may have been affected by changes in inflows due to the possibility granted in some cases to defer contributions (e.g. Keva in Finland, France's AGIRC-ARCCO).

## 2.4. Outflows from the funds

Withdrawals from the reserve funds depend on certain conditions established in their mandates. Funds that build up a part of their assets from the excess of contributions over benefit payments often experience a drawdown of their assets when outflows start exceeding inflows, as reserve funds would be expected to make up the difference. In cases where reserves are mainly financed through budget transfers or intend to support non-contributory pension plans, the law usually stipulates the circumstances or dates when assets can be used. For instance, the Future Fund Act of 2006 stipulates that amounts could be withdrawn from the reserve fund in Australia from 1 July 2020 or once the balance of the fund is larger or equal to the target asset level, whichever is earlier. Likewise, the New Zealand Superannuation and Retirement Income Act of 2001 forbids withdrawals from the NZS Fund before 1 July 2020, unless the required annual capital contribution is negative.

Some of these conditions to draw down assets in reserves have changed over time. For instance, the Australian government decided in 2017 to postpone the drawdown of assets to 2026/27 at least. The Norwegian Parliament recently endorsed the proposal of the Ministry of Finance to withdraw assets from the GPFN to avoid the ownership stakes of the Fund to breach the 15% ownership stake limit.[72]

The government sometimes caps the amount of the withdrawals or sets the pace of the withdrawals. In France, under the terms of the social security financing law of 2011, the FRR is expected to pay EUR 2.1 billion to the national social debt amortisation fund (CADES) annually from 2011 to 2024 and a one-off transfer to the CNAV (relative to the CNIEG contribution) in 2020. In Spain, the Royal Legislative Decree 8/2015 sets the withdrawal of the assets at 3% of the amount of the contribution pensions and other management costs. Chile has set a cap on withdrawals from the reserve fund (since 2016) on the basis of the annual pension expenditure and the inflation-adjusted pension expenditure in 2018. In Finland, VER is expected to pay 40% of the earnings-related pension expenditure every year, which may lead to a reduction in its asset values if this payment exceeds VER's income.

Withdrawals have started in some countries. For instance, inflows that the Korea's NPF receive still exceed the outflows. Likewise, in the United States, the income that the OASI Trust Fund has received has always exceeded the costs since 1984 (except in 2018).[73] By contrast, in Sweden for instance, outgoing pension disbursements from AP1-AP4 funds were exceeding incoming pension contributions over the last years, and this is expected to continue in the years to come.

In some cases, the amount withdrawn in practice has been higher than initially planned or anticipated. The State Pension Fund in Finland made an exceptional EUR 500 million payment to the government budget in 2015 under an exceptional law.[74] As a response to COVID-19, Chile temporarily allowed withdrawals from the reserve fund to be three times larger in 2020 and 2021 than the usual cap (set as one third of the

[72] The Ministry of Finance is expected to present a withdrawal model on that matter, given the different forms the withdrawals can take (e.g. one-off withdrawal, annual withdrawals) and the implications this may have.

[73] OASI Trust Fund, a Social Security fund (ssa.gov)

[74] 2015 Annual Financial Report of the State Pension Fund | VER

difference between the annual pension expenditure and the inflation-adjusted pension expenditure in 2008). Withdrawals from Chile's PRF amounted to USD 1 576 million in 2020, compared to USD 577 million in 2019.[75] Spain has carried out several withdrawals from the reserve funds through several laws.[76]

Concerns may arise when assets set aside are used for other purposes than originally intended. Belgium used to have a reserve fund, the Zilverfonds, that was supposed to support payments of public pensions but was not receiving any other inflow than investment income since 2007 and was shut down on 1 January 2017.[77] In Ireland, the mandate of the National Pensions Reserve Fund (NPRF) that was created in 2001 to support Ireland's social welfare and public service pensions from 2025 until at least 2055 ended in 2014.[78] The NPRF became the Ireland Strategic Investment Fund, which mandate is to invest assets in a manner designed to support economic activity and employment in Ireland.[79] In Mexico some of the surplus of the IMSS may have been used to pay other benefits and activities not related to pensions (e.g. health care, hospitals, theatres, sports) before the reform of the social security system at the end of 1990s.[80] This change in mission creates the need for a strong governance of the institution that manage the assets in reserves funds.

## 2.5. Main messages

The discussion on comparing different reserve funds across OECD countries has highlighted a few important issues to look at when assessing reserve funds. The main issues are:

- Their mandate: the mission and objectives for setting up a reserve fund. A proper evaluation of how they achieve them and how successful they are would suggest to look at the governance and investment management structures of the institutions managing the reserves. The OECD Core Principles of Private Pension Regulation can guide that type of assessment.
- How the reserve funds get their financial resources. It can be through fiscal transfers, earmarked contributions, surpluses in the PAYG scheme, and returns of portfolio investment.
- How they invest, whether they diversify or invest in one asset class (e.g. government debt).
- Time since their creation and the changes that have taken place in their mandates and objectives.

[75] See Fondos Soberanos (hacienda.cl)

[76] Law 28/2003, Royal Decree-Law 28/2012, Law 36/2014, Law 3/2017 and more recently the TRLGSS (agreed by the Council of Ministers of 15/11/2019)

[77] (PDF) Belgium: the end of the public pension reserve "Silver Fund" (researchgate.net)

[78] National Pensions Reserve Fund Definition (investopedia.com) and National Pensions Reserve Fund (NPRF) | NTMA

[79] About ISIF

[80] MBR5_Hernandez.pdf (actuaries.org)

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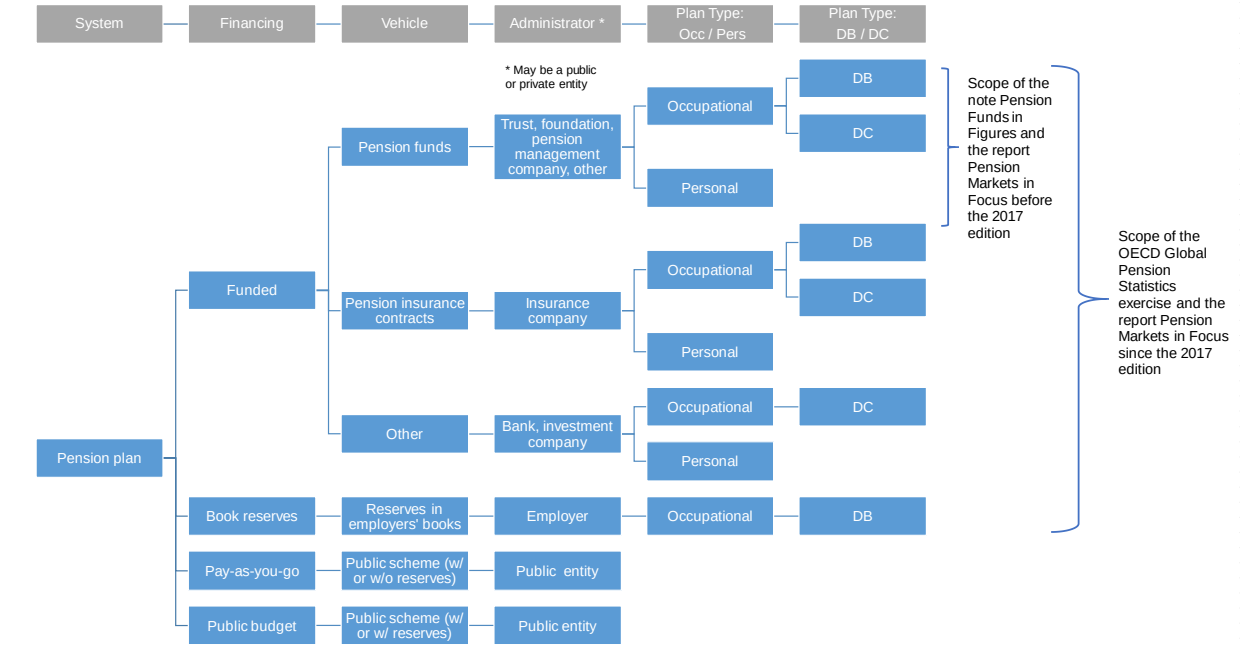
# Annex A. Features of retirement savings plans covered in Chapter 1

The pension landscape includes various types of plans around the world. These plans finance the pensions of retirees in different ways, through specific vehicles administered by different entities (Figure A A.1). The way individuals get access to these plans and the type of benefits that plans offer also vary across countries.

## Figure A A.1. Features of pension plans




Pension plans are designed to provide benefits to individuals at retirement but finance these benefits in various ways. Benefits can be financed through assets accumulated in funded plans, through provisions in employers' books, from the contributions of current employees or from the public budget.

In funded plans, members accrue rights or accumulate assets for their retirement through their contributions or the contributions of their employers during their working lives. These assets are legally separated from the sponsors of the plans. Members have a legal or beneficial right or some other contractual claim on these assets.

By contrast, provisions in employers' books are not legally separated from the employers. The accrued pension rights of employees could potentially be at risk if the employers go bankrupt. Some countries where this financing method exists have set up insolvency guarantee schemes (e.g. Germany). Other countries encourage or require employers to purchase credit insurance or arrange equivalent guarantees (e.g. Sweden) to protect the pension rights of employees in the event of employer insolvency.

In some public pension plans, contributions of current workers are used to pay benefits of current retirees (i.e. pay-as-you-go plans) while in some others, public budget may be used to finance retirement income (e.g. some social assistance programmes). These plans that are usually administered by a public institution may build up reserves to cover expenses and smooth benefit payments over time.[81]

Some plans have both a funded and pay-as-you-go component, such as the earning-related pension plans regulated by the Employees' Pension Act (TyEL) and the Seafarer's Pensions Act (MEL) in Finland. The main part of the pensions in a given year is paid by the contributions received that year. The remaining part is financed by accumulated assets.

Pension plans may be funded through the establishment of pension funds, pension insurance contracts or the purchase of other authorised retirement savings products. Pension funds represent a pool of ring-fenced assets forming an independent legal entity. When pension insurance contracts are used for retirement saving, individuals or their employers pay premiums to insurance companies. Insurance companies manage the assets coming from these premiums (or contributions) together with those coming from their other insurance activities. While the amount of premiums paid for these policies is usually known, it is more difficult to assess the size of assets that insurance companies hold as a result of their pension activities. Individuals or their employers may also open or purchase other retirement savings products offered and administered by banks or investment companies (such as individual retirement accounts (IRAs) in the United States).

Pension funds take different forms around the world (Stewart & Yermo, 2008). Pension funds may have a legal personality and capacity in some countries (e.g. Pensionskassen in Austria and Germany, contractual pension funds in Italy, pension funds in the Netherlands and Switzerland). Pension funds in these countries have their own governing board. In some other countries, pension funds are a segregated pool of assets without legal personality and capacity. In this case, pension funds are governed and administered by a separate entity. This entity may be a pension fund management company (e.g. in the Czech Republic, Chile, Mexico, the Slovak Republic), a bank or an insurance company for instance. In some other countries (e.g. Ireland, the United Kingdom), the legal form of the pension fund is a trust. The trustees legally own and administer the assets of the trust in the interest of plan members. Irrespective of the legal form of the pension funds, some of the activities, such as those related to the investment of assets or the collection of contributions, may be outsourced to third parties (e.g. asset managers).

Employers (from the public or private sector) may set up funded plans on behalf of their employees. In such cases, the plans are considered as occupational in the OECD taxonomy.[82] Access to the plans is linked to employment. When individuals choose and set up plans themselves with a dedicated provider, the plans are personal. Access to certain plans may however be limited to individuals in a professional activity but open to both public and private sector workers (e.g. Mexico). These plans are still considered as personal as individuals independently select material aspects of the plan such as the investment strategy, the fund or the administrator of the fund.

Where the employer is responsible for guaranteeing a benefit or return promise to plan members, the OECD considers such occupational plans as defined benefit (DB) plans. The benefit promise may be a pension calculated on a number of parameters (e.g. salary, length of employment) or an investment rate of return. In the first case, the plans are considered as DB traditional, while the plans are considered as DB hybrid in the second case. When another party offers a guarantee (e.g. an insurance company), the plans are considered as DC protected. Otherwise, if there is no (fixed) guarantee, the plans are DC unprotected.

[81] The second chapter of this publication looks at these reserves in more detail.

[82] The definitions of pension plans by the OECD's Working Party on Private Pensions are available in the publication *Private Pensions: OECD Classification and Glossary*, available at www.oecd.org/daf/pensions.

The Global Pension Statistics (GPS) that the OECD carries out in cooperation with the IOPS and the World Bank cover employers' book reserves (which are private pension plans) and all funded plans regardless of the financing vehicle and its administrator (public or private institution), the type of plans (occupational, personal, DB or DC) and the type of people covered (public sector workers, private sector workers). Unfunded or pay-as-you-go schemes with their reserves are out of the scope of this exercise.

The first chapter of this publication relies on all the data collected through this statistical exercise. It endeavours to show data for data for all retirement savings plans, i.e. all plans where assets are accumulated to back future benefit payments and employers' book reserves, since the 2017 edition of this annual report. Previous editions of Pension Markets in Focus before 2017 were mainly focusing on pension funds. This change may account for the potential differences between the results in this report and results in editions prior to 2017.

Data in the GPS exercise - and therefore in this first chapter of this report – may not always cover all retirement savings plans that exist in each country due to data availability issues. Data are sometimes unavailable ("missing") for a given type of plan in a country (e.g. book reserves in Austria). In other cases, data may be missing only for some plans in a given type of plan. In Ireland for example, two plans qualify as pension insurance contracts according to the OECD taxonomy: retirement annuity contracts and personal retirement savings accounts (PRSAs). Data in the GPS exercise only cover PRSAs. Table A A.1 shows the types of plans that exist in all the jurisdictions participating in the OECD, IOPS and World Bank statistical exercise. The table also specifies the coverage of the OECD data by type of plan. More information is available online on the different retirement savings plans in each jurisdiction.[83]

## Table A A.1. Existing types of retirement savings plans by country and data coverage

| | Funded | | | | | | | | Book reserves |
|---|---|---|---|---|---|---|---|---|---|
| | Pension funds | | | Pension insurance contracts | | | Other | | |
| | Occupational | | Personal | Occupational | | Personal | Occupational | Personal | |
| | DB | DC | | DB | DC | | | | |
| **OECD countries** | | | | | | | | | |
| Australia | ✓ | ✓ | ✓ | | | | | ***Some*** | |
| Austria | ***Some*** | ✓ | | ✓ | ***Some*** | Missing | | | Missing |
| Belgium | ✓ | ✓ | ***Some*** | ✓ | ✓ | ✓ | | ***Some*** | |
| Canada | ✓ | ✓ | ***Some*** | ✓ | ✓ | ✓ | | ***Some*** | ✓ |
| Chile | | ✓ | ✓ | | Missing | Missing | Missing | Missing | |
| Colombia | | | ✓ | | | | | | |
| Costa Rica | ✓ | ✓ | ✓ | | | | | | |
| Czech Republic | | | ✓ | | | | | | |
| Denmark | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| Estonia | | | ✓ | | | ✓ | | | |
| Finland | ✓ | | | ✓ | | ✓ | | | Missing |
| France | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Germany | ✓ | | | Missing | Missing | Missing | | Missing | Missing |
| Greece | | ✓ | | | | Missing | | | |
| Hungary | | Missing | ✓ | | | ✓ | | ✓ | |
| Iceland | ✓ | ✓ | ✓ | | | ✓ | | ✓ | |
| Ireland | ✓ | ✓ | | | | ***Some*** | | ✓ | |
| Israel | ✓ | | ✓ | | | Missing | | ***Some*** | |
| Italy | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| Japan | ✓ | ✓ | ✓ | | | ✓ | | | ✓ |
| Korea | | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| Latvia | | ✓ | ✓ | | | | | ✓ | |
| Lithuania | | | ✓ | | | | | | |
| Luxembourg | ✓ | ✓ | | | Missing | Missing | | Missing | Missing |
| Mexico | ✓ | ✓ | ✓ | ✓ | ✓ | Missing | ✓ | Missing | |
| Netherlands | ✓ | ✓ | | Missing | Missing | Missing | | | |
| New Zealand | ✓ | ✓ | ✓ | | | | | ✓ | |
| Norway | ✓ | | | ✓ | ✓ | ✓ | | | |
| Poland | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |

[83] See https://www.oecd.org/pensions/private-pensions/pensionmarketsinfocus.htm

| | Funded | | | | | | | | Book reserves |
|---|---|---|---|---|---|---|---|---|---|
| | Pension funds | | | Pension insurance contracts | | | Other | | |
| | Occupational | | Personal | Occupational | | Personal | Occupational | Personal | |
| | DB | DC | | DB | DC | | | | |
| Portugal | ✓ | ✓ | ✓ | Missing | Missing | ✓ | | ✓ | |
| Slovak Republic | | | ✓ | | | | | | |
| Slovenia | | ✓ | ✓ | | ✓ | ✓ | | | |
| Spain | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ |
| Sweden | ✓ | ✓ | ✓ | ✓ | ✓ | *Some* | | ✓ | *Some* |
| Switzerland | ✓ | | | | | ✓ | | ✓ | |
| Turkey | *Some* | ✓ | ✓ | | | | | | ✓ |
| United Kingdom | ✓ | ✓ | | Missing | Missing | Missing | | | |
| United States | ✓ | ✓ | | | | ✓ | | ✓ | |
| **Other jurisdictions** | | | | | | | | | |
| Albania | | ✓ | ✓ | | | | | | |
| Armenia | | | *Some* | | | | | | |
| Brazil | ✓ | ✓ | | | | ✓ | | | |
| Bulgaria | | ✓ | ✓ | | | | | | |
| Croatia | | ✓ | ✓ | | | | | | |
| Dominican Republic | ✓ | *Some* | ✓ | | | | | | |
| Egypt | | | ✓ | | | | | | |
| Georgia | | | *Some* | | | Missing | | | |
| Ghana | | ✓ | ✓ | | | | | | |
| Gibraltar | | | | ✓ | ✓ | Missing | ✓ | | |
| Guyana | ✓ | ✓ | | | | | | | |
| Hong Kong (China) | ✓ | ✓ | | ✓ | ✓ | | | | |
| India | *Some* | ✓ | ✓ | | | | | | |
| Indonesia | ✓ | ✓ | *Some* | | | | | | |
| Isle of Man | ✓ | ✓ | ✓ | | | | | | |
| Jamaica | ✓ | ✓ | ✓ | | | | | | |
| Kazakhstan | | | ✓ | | | | | | |
| Kenya | ✓ | ✓ | ✓ | | | | | | |
| Kosovo | | ✓ | | | | | | | |
| Liechtenstein | ✓ | ✓ | | | | | | | |
| Macau (China) | ✓ | ✓ | ✓ | | | | | | |
| Malawi | ✓ | ✓ | | | | | | | |
| Malaysia | Missing | | ✓ | | | ✓ | | | |
| Maldives | | | ✓ | | | | | | |
| Malta | | ✓ | ✓ | | | ✓ | | | |
| Mauritius | ✓ | ✓ | Missing | | | Missing | | | |
| Mozambique | ✓ | ✓ | | | | | | | |
| Namibia | ✓ | ✓ | ✓ | | | ✓ | | | |
| Nigeria | ✓ | | ✓ | | | | | | |
| North Macedonia | | ✓ | ✓ | | | | | | |
| Pakistan | Missing | Missing | ✓ | | | | | | |
| Peru | | | ✓ | | | | | | |
| Romania | | | ✓ | | | | | | |
| Russia | ✓ | ✓ | ✓ | | | | | | |
| Serbia | | ✓ | ✓ | | | | | | |
| South Africa | ✓ | ✓ | ✓ | | | | ✓ | ✓ | |
| Suriname | ✓ | ✓ | | | Missing | Missing | | | |
| Tanzania | *Some* | | ✓ | | | | | | |
| Thailand | | *Some* | Missing | | | | | | |
| Ukraine | | | ✓ | | | | | | |
| Uruguay | | | ✓ | | | | | | |
| Zambia | *Some* | ✓ | Missing | | | Missing | | | |

Note: "DB": defined benefit; "DC": defined contribution. This Table gives the data coverage of the first chapter of this report, based on the OECD/IOPS/World Bank Global Pension Statistics (GPS) exercise. When a cell is grey with a tick, this means that the GPS exercise covers all the plans of this type for a given country. "Some" means that the GPS exercise only covers some plans of this type. "Missing" means that this type of plan exists but the OECD data do not cover it. Data for Germany refer to Pensionskassen and Pensionsfonds only. In Hungary, there is one institution for occupational retirement provision but its market share is negligible compared to other pension providers administering personal pension plans. In Norway, since 2021, members of DC schemes can consolidate their previous DC savings and contributions from their current job into a single account (own pension account). See the metadata file available on the OECD webpage for a full and detailed description of all types of retirement savings plans in the countries participating in the OECD/IOPS/World Bank Global Pension Statistics exercise. Any deviation to this data coverage in this report is reported to the specific notes of the related Table or Figure.

# Methodological notes

The primary source material for the first chapter of this report is provided by national pension authorities as part of the framework of the OECD/IOPS/ World Bank Global Pension Statistics (GPS). Data come from official national administrative sources and are revised on an on-going basis so as to better reflect the most recent figures for every past year. Caution should be exercised when interpreting some statistics given possible divergences with national reporting standards and different methods for compiling certain data for the GPS exercise. For this reason, data providers are regularly requested to provide methodological information relevant for developing a thorough understanding of their submission under the GPS framework. The general and specific methodological notes below provide some explanations in this respect.

## General notes

- Conventional signs: "..” means not available. “**|**” means methodological break in series.
- The first chapter of this report is mainly based on the answers of national authorities to an annual data collection. Statistics for some jurisdictions come from publicly available reports, databases or websites of other national or international organisations: Japan (Bank of Japan) and Switzerland (Federal Social Insurance Office’s publication *Statistique des assurances sociales suisses* for personal plans) among OECD countries; and Bolivia (International Association of Pension Funds Supervision (AIOS)), China (People’s Republic of) (Ministry of Human Resources and Social Security (MOHRSS)), Croatia (website of the Croatian Financial Services Supervisory Agency (HANFA) before 2014), the Dominican Republic (AIOS before 2014), El Salvador (AIOS), India (annual reports of the Employees’ Provident Fund Organisation for Employees’ Provident Fund, Employees’ Pension Scheme and Employees’ Deposit Linked Insurance Scheme), Malaysia (annual reports of the Securities Commission Malaysia), Panama (AIOS), Singapore (CPF’s website) and Uruguay (AIOS before 2016) among non-OECD jurisdictions.
- The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law. Data for Israel refer to old, new and general pension funds only.
- All references to Kosovo are without prejudice to positions on status, and are in line with United Nations Security Council Resolution 1244/99 and the Advisory Opinion of the International Court of Justice on Kosovo’s declaration of independence.
- The reference period is the calendar year, except for: Australia where the reference period is the financial year ending in June; India where the reference period ends in March for Employees’ Provident Fund Organisation for Employees’ Provident Fund, Employees’ Pension Scheme and Employees’ Deposit Linked Insurance Scheme; and New Zealand (until 2014). Data for New Zealand up to 2013 are based on a 31 March balance date for most of the schemes.
- Data on pension assets in 2020 for France are preliminary estimates from the French Central Bank.

- Data on defined benefit plans in Ireland include one large scheme in which members build up rights on a defined contribution basis but which is subject to the Irish funding standard because there is an option for members to purchase an annuity from the scheme at retirement.
- Data on pension funds in Switzerland for 2020 refer to the first trend calculations and are therefore preliminary estimates.
- Estonia adopted the euro in 2011, Latvia in 2014 and Lithuania in 2015. The whole time series (in millions of national currency) are expressed in millions of euro for these countries (even before their adoption of the euro).
- This report uses five main additional reference series: exchange rates to convert values in US dollars, GDP, the variation of the consumer price index (CPI), population and average annual wages:
  - This report uses end-of-period exchange rates for all variables valued at the end of the year, and period-average rates for variables representing a flow over the year. These rates come from the IMF International Financial Statistics database.
  - GDP values for OECD countries are extracted from the OECD Annual National Accounts and Quarterly National Accounts databases. GDP values for non-OECD jurisdictions come from the IMF World Economic Outlook released in April 2021, except for Gibraltar (Abstract of Statistics 2015 of the Statistics Office of Gibraltar), Isle of Man (the National Income webpage of the Official Isle of Man Government website) and Liechtenstein (UN National Accounts Main Aggregates Database).
  - Consumer price indices are from the OECD Main Economic Indicators database for OECD countries, and from the IMF International Financial Statistics database for non-OECD jurisdictions except for Croatia in 2020 (Croatian Bureau of Statistics), Gibraltar (Abstract of Statistics 2015 of the Statistics Office of Gibraltar), Macau (China) (Statistics and Census Service), Nigeria in 2020 (National Bureau of Statistics) and Papua New Guinea (World Bank Consumer Price Index database).
  - Data on population are from the OECD Labour Force Statistics database for OECD countries and from the World Bank World Development Indicators for all the other jurisdictions.
  - Data on average annual wages come from the OECD Average Annual Wages database for OECD countries (except Costa Rica) and from an ILO online database for all the other jurisdictions.

## Specific notes

**Figure 1.1:**

The maps show the amount of assets in retirement savings plans in a selection of jurisdictions in 2020, except for: Bolivia (2010), Botswana (2019), Gibraltar (2013), Isle of Man (2018), Kenya (2019), Lesotho (2012), Liechtenstein (2019), Mauritius (2019), Mozambique (2019), Papua New Guinea (2018), South Africa (2018), Tanzania (2017), Uganda (2016) and Zambia (2019).

**Figure 1.2:**

The geographical distribution is calculated as the amount of total pension assets in a country relatively to the whole OECD area.

**Figure 1.3:**

The charts show the evolution of assets in retirement savings plans between 2010 and 2020, except for Finland (2011-2020) and Switzerland (2013-2020) among OECD countries; and Angola (2014-2020), Armenia (2014-2020), Botswana (2013-2019), Brazil (2014-2020), Dominican Republic (2014-2020),

Egypt (2013-2020), Ghana (2014-2020), Kenya (2010-2019), Kosovo (2012-2020), Liechtenstein (2010-2019), Malawi (2013-2020), Malaysia (2012-2020), Malta (2011-2020), Mauritius (2012-2019), Papua New Guinea (2013-2018), Russia (2013-2020), Singapore (2011-2020) and Zambia (2010-2019) outside the OECD area. Data refer to 2016 for Uganda, 2017 for Tanzania, 2018 for Isle of Man and 2019 for Mozambique. The totals in and outside the OECD area are calculated as the sum of all pension assets (in USD) over the sum of all GDPs (in USD) of all reporting jurisdictions. The number of reporting countries differs between the beginning and the end of the period, but this has only a marginal effect on totals.

**Figure 1.4:**

The scatter plot shows the growth rate of assets in retirement savings plans between end-2019 and end-2020 (x-axis) and the geometric average annual growth rate of assets between end-2010 and end-2020 or over the longest time period available (y-axis) among reporting jurisdictions (labelled with their ISO code). ISO codes are available on the United Nation Statistics Division internet page, 'Countries and areas, codes and abbreviations' at the following address: http://unstats.un.org/unsd/methods/m49/m49alpha.htm. Instead of being calculated between end-2010 and end-2020, the geometric average annual growth rate was calculated: between end-2011 and end-2020 for Finland, Malta and Singapore; between end-2012 and end-2020 for Kosovo and Malaysia; between end-2013 and end-2020 for Egypt, Malawi and Russia; and between end-2014 and end-2020 for Angola, Armenia, Brazil, Dominican Republic and Ghana. Growth rates for Australia have been calculated between end-June 2019 and end-June 2020, and between end-June 2010 and end-June 2020. To facilitate the reading, this chart does not show Armenia, Malaysia and Malta where assets grew by 47%, 35.7% and 8.8% (respectively) between end-2019 and end-2020, and by 76.7%, 71.2% and 80.5% per year on average (respectively) over the last decade. Data only refer to: pension funds and pension insurance contracts for Belgium; personal plans for Costa Rica; pension funds for Hungary and Switzerland; closed and open pension funds and personal retirement saving funds (established as pension funds or as collective investment schemes managed by investment companies) for Portugal.

**Figure 1.5:**

Totals in a given year are calculated on all the jurisdictions for which a value is available. The number of jurisdictions that the totals include may therefore vary over the years. Totals are expressed in current prices.

**Figure 1.6:**

Coverage rates are provided with respect to the total working-age population (i.e. individuals aged 15 to 64 years old), except for Germany (employees aged 25 to 64 subject to social insurance contributions), Iceland (Icelandic citizens and foreign workers in Iceland aged between 16 and 64) and Ireland (workers aged between 20 and 69). "CPS"= Contributory Pension Scheme. "EPF"= Employer Pension Funds. "FIPF"= Financial Institution Pension Funds. "OFE"= Open pension funds. "PFs"= Pension funds. "PPE"= Employee pension plan. "PPS"= Premium pension system. "QMO" = Quasi-mandatory. "ROP" refers to a mandatory supplementary pension scheme.

Data refer to 2020 or to the latest year available. Data refer to 2019 for Belgium, Canada, Denmark (QMO and personal plans), France, Germany, Iceland, Korea, Mexico (occupational plans), Switzerland and the United States (occupational plans) among OECD countries; and Zambia among other jurisdictions. Data refer to 2018 for Finland and the United States (IRAs). Data refer to 2017 for Portugal and Spain. Data refer to 2016 for Turkey (VASA + Oyak) among OECD countries; and Namibia among other jurisdictions. Data refer to 2015 for Sweden (private pension savings schemes). Data refer to 2010 for the Netherlands.

Data on personal plans for Austria refer to PZV contracts. Data on personal plans refer to PER individuel, PERP & Madelin schemes while data on occupational plans refer to all the other schemes for France. Data for Israel refer to new and general pension funds. For Italy, the coverage rate that is shown under voluntary occupational plans also covers individuals automatically enrolled in a plan. In Korea, the retirement benefit system is mandatory and can take two forms: a severance payment system and an occupational pension

plan. The obligation of the employer in Korea is to provide a severance payment system, but, by labour agreement, the company can set up an occupational pension plan instead. Data on occupational plans for Norway refer to private and municipal group pensions.

**Table 1.1. :**

The variation in the coverage of retirement savings plans is calculated between 2019 and 2020 and between the first year available in the 2010s and 2020 (over a period of five years at least), averaged per year. The first year available is usually 2010 except for: Albania (2011), Armenia (2014), Croatia (2014), Denmark (2013 for ATP), Guyana (2015), Indonesia (2015), Jamaica (2012), Malawi (2014), Maldives (2011), Russia (2013) and the United Kingdom (2015 for auto-enrolment plans).

**Figure 1.7:**

The category "Total" shows the cases where the contributions cannot be split precisely between employers, employees (and state). The time series of total contributions as a % of GDP is available in the annex of this report. Please refer to the notes in this annex for more country-specific notes on total contributions. (1) Data on state contributions refer to contributions to mothers.

**Figure 1.8:**

The category "Total" shows the cases where the contribution rates cannot be split precisely between employer, employee (and state). "CPS" means contributory pension scheme. "occ DC" means occupational defined contribution plans. "PPS" means premium pension system. "QMO" means quasi-mandatory occupational plans. "ROP" refers to a mandatory supplementary pension scheme. (1) Employers also contribute an additional 6% to provide severance insurance which, if used, reduces the pension at retirement. (2) Members get contribution credits that are expressed as a percentage of a so-called coordinated salary. Contribution credits vary across age groups, from 7% between 25 and 34 years old up to 18% beyond 55 years old. This chart shows an average of the age-specific rates (7% at ages 25-34, 10% at 35-44, 15% at 45-54 and 18% at 55-64). The employer must pay at least half of these credits, the employee the remainder. Contribution rates may differ from the minimum contribution credits. (3) Contribution rates are set by the collective agreement and are similar for all workers under the agreement. Contribution rates range between 10% and 18%. (4) The superannuation guarantee rate rose from 9.5% to 10% on 1 July 2021, and is scheduled to increase progressively by 0.5% until it reaches its final value of 12% in July 2025. (5) The contribution rates are shown for private-sector workers. The contribution rates are higher for public sector workers. The government supplements the total contribution with a flat-rate amount (the social quota - cuota social). Its amount depends on the salary level for private sector employees. The state contribution here includes the social quota of a private sector worker earning 2.5 times the minimum wage at end-2020. (6) The minimum contribution rate is 6% equally split between the employer and employee from 1 April 2013. Members can however select a higher personal contribution rate of 4%, 6%, 8% or 10% of salary. The government contributes 50 cents for every dollar of member contribution, up to NZD 521.43 annually. (7) Contribution rates to quasi-mandatory occupational (QMO) plans vary according to the income level: 4.5% for earnings under 7.5 income base amount (IBA) and 30% for earnings over 7.5 IBA for ITP1 and SAF-LO. Contribution rates are shown here for an average earner who has earnings below 7.5 IBA. (8) Employer contributions to the second pillar were suspended from 1 July 2020 to 31 August 2021. Upon application, members could also suspend their 2% contributions from 1 December 2020 until 31 August 2021. (9) Data refer to voluntary employment-related plans. The contribution rate was set to increase (from 4%) gradually by 0.25 pp each year from January 2017 and reach the target level at 6% in 2024. (10) Data show the minimum contribution rates to employee capital plans (PPK). The welcome contribution from the state is not included. (11) Data do not include the one-time contribution of TRY 1 000 for those who do not opt out within the first two months, nor the additional government contribution (of 5% of the assets accumulated at retirement) if the individual chooses a minimum 10-year annuity at retirement. (12) While the overall contribution rate is expected to remain the same, the share of the state contribution is expected to rise and cover half of the contributions by 2023. The contribution rate for employees was 2.5% at end-2020, and

increased to 3.5% from 1 January 2021. (13) The state contributes between 0% and 2% of the salary of individuals depending on their income bracket. (14) Workers in the construction sector are exempt from contributing to the private pension system in the period 2019-2028.

**Figure 1.9:**

The scatter plot shows the growth rate of contributions to retirement savings plans between 2019 and 2020 (x-axis) and the geometric average annual growth rate of contributions between 2010 and 2020 or over the longest time period available (y-axis) among reporting jurisdictions (labelled with their ISO code). ISO codes are available on the United Nation Statistics Division internet page, 'Countries and areas, codes and abbreviations' at the following address: http://unstats.un.org/unsd/methods/m49/m49alpha.htm. Instead of being calculated between 2010 and 2020, the geometric average annual growth rate was calculated: between 2011 and 2020 for Finland, Indonesia, Maldives, Malta and Russia; between 2012 and 2020 for Costa Rica; between 2013 and 2020 for the Czech Republic; between 2014 and 2020 for Angola, Armenia, Croatia and Malawi; and between 2015 and 2020 for Guyana. Growth rates for Australia and New Zealand have been calculated between financial years. Data only refer to: pension funds for Austria, Belgium, Canada, Chile, Hungary, Norway and Switzerland; pension funds and pension insurance contracts for Denmark; the second pension pillar for Estonia; closed and open pension funds and personal retirement saving funds (established as pension funds or as collective investment schemes managed by investment companies) for Portugal; pension funds and book reserves for Spain; and personal plans for Turkey. Data do not cover contributions to pension insurance companies in Croatia.

**Figure 1.10:**

(1) Data refer to pension funds only. (2) Data refer to mandatory plans only. (3) Data refer to KiwiSaver plans only. Members below 18 and those above 65 are excluded from the calculation. (4) Data refer to the 2nd pillar only. (5) Data refer to the ROP only. (6) Data refer to open pension funds only. (7) Data refer to occupational plans only. (8) Data refer to UPFs only.

**Figure 1.11:**

This Figure shows the total amount of benefits paid from retirement savings plans as a percentage of GDP in 2020 (or the latest year available), also available in the annex of this report (please refer to the notes of this Table for more country-specific notes). This Figure shows the breakdown of benefits paid into lump sum payments and pensions when such information is available. This Figure also shows the amount of assets that may be transferred to an insurance company or any another entity (different from the ones in charge of the accumulation phase) which will be in charge of paying benefits to retirees.

**Figure 1.12:**

Data refer to early withdrawals up to early 2021 for Peru, early January 2021 for Chile and Iceland, 20 December 2020 for Australia (as part of the Early Release Initiative only), end 2020 for Mexico (due to unemployment only), between March and December 2020 for New Zealand (for financial hardship reasons only), up to end September 2020 for Spain.

**Figure 1.13:**

This Figure is based on the annual real net investment rates of return reported in the statistical annex of this publication. Please refer to the notes of this statistical annex for more country-specific notes. The annual returns are calculated over the period Dec 2019-Dec 2020 except for Australia (June 2019-June 2020). This chart does not include the return for Japan (-0.1%), which is an average calculated for the fiscal year 2019 (ending in March 2020) over a sample of plans only.

**Figure 1.14:**

This Figure is based on the annual real net investment rates of return reported in the statistical annex of this publication. Please refer to the notes of this statistical annex for more country-specific notes. The 5,

10 and 15-year annual averages are calculated over the periods Dec 2015-Dec 2020, Dec 2010-Dec 2020 and Dec 2005-Dec 2020 respectively, except for Australia (June 2015-June 2020, June 2010-June 2020 and June 2005-June 2020).

**Figure 1.15:**

The "Other" category includes loans, land and buildings, unallocated insurance contracts, hedge funds, private equity funds, structured products, other mutual funds (i.e. not invested in equities, bills and bonds or cash and deposits) and other investments. Negative values (due to derivatives) have been excluded from the calculations of the allocation of pension assets. The GPS database gathers information on investments of pension plan assets in Collective Investment Schemes (CIS) and the look-through of these investments in equities, bills and bonds, cash and deposits and other. Data on asset allocation in this Figure include both direct investments in equities, bills and bonds, cash and deposits and indirect investments through CIS when the look-through of CIS investments is available. In such case, the Figure shows the overall exposure of pension assets in the selected asset classes. When the look-through is not available, the Figure only shows the direct investments of pension plan assets in equities, bills and bonds and cash and deposits and other assets, and investments in collective investment schemes are shown in a separate category. This Figure is based on the allocation of pension assets reported in the statistical annex of this report. Please refer to the notes of this statistical annex for more country-specific notes.

**Figure 1.16**:

This Figure is based on the allocation of pension assets reported in the statistical annex of this report. This Figure shows the variation in equity and bond investments between 2019 and 2020 (Panel A) and over the longest time period possible (at least over 5 years) (Panel B).

**Figure 1.17:**

The average allocation of pension assets has been calculated over 25 OECD countries: Canada, Chile, Colombia, Czech Republic, Denmark, Estonia, Germany, Greece, Iceland, Israel, Italy, Japan, Korea, Lithuania, Luxembourg, Mexico, the Netherlands, Norway, Poland, Slovak Republic, Slovenia, Sweden, Switzerland, Turkey and the United States. Data for Greece in 2015 are an average of the asset allocation in 2014 and 2016. Data for Greece in 2015 are an average of the asset allocation in 2014 and 2016. Data for Korea in 2019 are an average of the asset allocation in 2018 and 2020. Data for Turkey in 2011 are an average of the asset allocation in 2010 and 2012.

**Figure 1.18:**

This Figure is based on the share of pension assets invested abroad and in foreign currencies reported in the statistical annex of this report. Please refer to the notes of this statistical annex for more country-specific notes.

**Figure 1.19:**

Data in Panel A refer to 2010 for all countries except Finland (2011), Poland (2013) and Switzerland (2013) among OECD countries; and Albania (2012), Armenia (2014), Brazil (2014), Croatia (2014), Dominican Republic (2014) and Guyana (2015) among other jurisdictions. Data in Panel B refer to 2020 for all countries except Canada (2015), France (2018), Mexico (2019), Switzerland (2019) and Turkey (2016) among OECD countries; and Namibia (2016) among other jurisdictions. (1) There is one voluntary occupational DC pension fund, with a small amount of assets though. (2) Data about Collective Voluntary Pension Savings that are managed by the AFPs are classified together with personal plans, although these plans are occupational. (3) There is one institution for occupational retirement provision operating in Hungary. Its market share is negligible compared to other pension providers administering personal pension plans.

**Figure 1.20:**

The funding ratio has been calculated as the ratio of total investment and net technical provisions for occupational DB plans managed by pension funds using values reported by national authorities in the OECD questionnaire. The first year available is 2010 for all jurisdictions except Finland (2011), Indonesia (2012) and Ireland (2016). Data for Finland refer to DB plans in pension funds only. All liabilities of DB plans (instead of technical provisions only) are considered for Ireland, Mexico (occupational DB plans in pension funds only) and the United States. Data for Luxembourg refer to DB traditional plans under the supervision of the CSSF. Data for the Netherlands and Switzerland include all types of pension funds. Data for the United Kingdom come from the Purple Book 2020 published by the Pension Protection Fund and show the ratio between assets and liabilities valued on an s179 basis (instead of net technical provisions). Liabilities for Hong Kong, China refer to the amount of aggregated past service liability in DB ORSO schemes. Data for Indonesia refer to EPF DB funds and come from OJK Pension Fund Statistics reports before 2016.

**Table 1.3:**

All the fees are expressed in this Table as a percentage of total assets, even when fees are levied on salaries, contributions or investment income. These percentages are therefore not comparable with the maximum set by law when this maximum is expressed as a percentage of salaries, contributions or investment income. "x" means that the type of fee does not exist or is not allowed in the country. (1) Data refer to fees paid by members of entities with more than four members in June 2020. Source: APRA Annual Superannuation Bulletin. (2) Fees on salaries refer to the management of mandatory pension assets only. Other fees include: programmed retirement management fees, fees charged to currently unemployed affiliates to mandatory pension funds, transfer fees and fees related to voluntary contributions. (3) Data refer to the ROP only. (4) Data refer to voluntary personal pension funds only. (5) Data refer to occupational DC and IRP plans. (6) Data refer to personal plans only. (7) Data refer to open pension funds only. (8) Data refer to pension funds in charge of the accumulation phase only. (9) Data refer to mandatory plans only. (10) Data refer to both fees on assets and fees on performance for provident funds.

**Table 2.1:**

This list may not be exhaustive, especially for special regimes. (1). The CPP was introduced in 1966 and designed as a pay-as-you-go plan with a small reserve. Changes were introduced and implemented between 1997 and 1999 to raise the funding of the CPP. From that date, the CPPIB would invest flows that were not needed to pay benefits in the financial markets so as to achieve higher investment rates of return. (2) These reserve funds in Italy are private entities with legal personality having the primary task of running mandatory, first-pillar pension schemes, each for a certain category of self-employed workers. These reserve funds are included in this table and analysis, although they are not public, as they share some similarities with public pension reserve funds. (3) Individual farmers, military personnel, and police personnel are covered by special regimes.

**Figure 2.1:**

This chart shows the minimum, maximum and 10-year (geometric) annual average real investment rates of returns over the period Dec 2009-Dec 2019 for all reserve funds except Japan's GPIFs (March 2010-March 2020).

**Figure 2.2:**

The year is given in brackets. Negative values have been excluded from the calculations of the asset allocation. In the United Kingdom, the surplus is loaned to the government through the debt management office through call notice deposits. Reserves are invested in two types of bonds in Israel: fixed-interest rate bonds and variable-rate bonds.

**Figure 2.3:**

(1) Data refer to end-2019. (2) Data refer to end-June 2020. (3) Data refer to end-2017. (4) Data refer to end-March 2020. (5) Data refer to end-2018. (6) Data refer to end-September 2020.

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